The Market Model and the Growth and Decline of Academic Fields in U.S. Four-Year Colleges and Universities, 1980–2000[1]

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Conventional sociological accounts of the rise and fall of academic fields have been challenged by accounts based on the idea of market-responsive change. In this article, we focus on the period 1980–2000, the period during which, according to its proponents, the market model of change became dominant in academe. We find changes in the student market to be strongly associated with increased institutionalization of academic fields. We also find the preferences of donors to be associated with increased institutionalization of academic fields. By contrast, we find relatively little support for labor market signals or changes in federal funding priorities as important influences on the institutionalization of academic fields. We find that higher-status institutions are more market responsive than lower-status institutions.

KEY WORDS: academic fields; curricular change; education; market signals; organizational logic; social change.

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INTRODUCTION

Where do academic fields come from and why do they grow? The conventional sociological account emphasizes the crystallization and reproduction of core fields, discovery-led innovations, and credential-based occupational closure movements.

In broad outline, we can describe this account as follows. The arts and sciences disciplines grew out of research conducted in scientific societies organized by free-thinking amateurs (Ben-David, 1984:Ch. 5) and in the research topics pursued in the seminars and laboratories of the reformed nineteenth-century German universities (Clark, 2006:Ch. 5). They were institutionalized in the United States as part of the university curriculum in the period 1870–1910 (Abbott, 2001:122–131; Veysey, 1965:Ch. 3). This process was greatly encouraged by modernizing university builders, such as Daniel Coit Gilman of Johns Hopkins University and William Rainey Harper of the University of Chicago (Bledstein, 1976:Ch. 8). Discipline-based department structures were a U.S. invention and only slowly spread to Europe and Asia (Abbott, 2001:123). The basic disciplines provided a degree of autonomy from the organizing logics of the market economy and the state by emphasizing academic commitments to research, rationality, and scholarly and scientific truths (see, e.g., Parsons and Platt, 1973; Shils, 1997; Veysey, 1965). They also provided stable structures for organizing both national academic labor markets and undergraduate majors (Abbott, 2001:122–125).

Discoveries play a role in the conventional sociological account because they lead to the creation of new research topics, new subfields, and, in rare cases, entirely new disciplines. Discoveries led, for example, to the development of biomedical engineering, a field that formed from research in materials science and biomedical studies of the mechanics of body tissues (Cole, 2009:265–266). Similarly, in the development of cognitive science, discoveries rooted in computer science stimulated new research on old problems in the philosophy of mind (Gardner, 1985:Chs. 2–3). To transform intellectual fields, discoveries must mobilize scientific-intellectual movements for change and overcome the resistance of scholars invested in older paradigms (Frickel and Gross, 2005). Early breakthroughs often generate extramural funding, particularly in fields with commercial potential, funding that allows for continued advances to occur at an accelerating rate (see, e.g., Blumenthal et al., 1986; Rosenberg, 1994).

In the conventional account, academic development is driven also by credential-based occupational closure projects (Collins, 1979:Ch. 6; Larson, 1977). These projects are largely responsible for the growth of curricula and degree-granting programs in applied professional fields. In a typical pattern, elites in new occupations form professional societies and organize these societies to promote the development of training programs in colleges and universities as a way to guarantee technical competence, thereby restricting occupational entry only to those holding approved educational credentials (Friedson, 1985:Ch. 4). At a later stage, states may become involved as quality guarantors, requiring completion of educational programs and passage of licensing examinations (Wilensky, 1964). The advance of credential-based occupational closure encompasses virtually all professional fields in which a case can be made that advanced training and knowledge are required for satisfactory performance (Freidson, 1985:Ch. 4).

For more than a decade, the conventional account has been challenged by an alternative model of academic change. Following Engell and Dangerfield (1998), we will call this alternative the "market model." It emphasizes that academic decision makers monitor market signals and translate them into new curricula and programs. Proponents of the market model write of the rise of a new "organizational logic" in which "students tend to be seen as consumers rather than members of a campus community [and] the major responsibility for managers is to read the market ... and attempt to reposition accordingly" (Gumport, 2002:55). Similarly, Geiger (2004:261) observed that "coordination of behavior has migrated from within universities to the markets governing these activities." According to Kirp (2003:3), "what is new ... is the raw power that money directly exerts over so many aspects of higher education" (see also Aronowitz, 2000; Calhoun, 2006; Clark, 1998; Engell and Dangerfield, 2005; Marginson and Considine, 2000; Slaughter and Leslie, 1997; Slaughter and Rhoades, 2004; Washburn, 2005).

Clearly, U.S. higher education, as compared to higher education systems in Europe, has always been relatively market driven, with a large private not-for-profit sector, considerable choice for students among competing institutions, and significant tuition costs that are borne by individuals rather than the state (Clark, 1983). It is therefore important to emphasize what is new in recent discussions of the market model in U.S. higher education. The most important change is the expectation for market responsiveness, not just in the competition for students and faculty, but in the core of academic production, including decisions about which fields should be developed and which should be restricted or eliminated.

In contrast to the market model, the conventional sociological account highlights an array of nonmarket mechanisms as driving these decisions. The reproduction of core fields is driven by the interests of faculty and administrators in creating conditions for autonomy from determination by the market and the state. By emphasizing basic fields of knowledge, intellectual logics are given primacy over economic logics and higher education achieves greater independence than it would otherwise have. The intellectual interests of the university, rather than its service to the economy, also underlie the role played by discoveries in the reorganization of knowledge fields. Intellectual discoveries respond to the work of scientists and scholars, not to knowledge fields that are in demand in the labor market. Although credential-based closure movements do expand with the growth of occupations, this expansion cannot be accurately described as following market logic. Instead, rather than responding to economic signals in their environments, colleges and universities look to provide training for growing occupations, regardless of whether they are highly marketable. Concerns about consumer safety and professional standards figure prominently in credential-based occupational closure movements, and these concerns have to do with relationships between workers and their clients, rather than with market incentives.

This article focuses on the influence of market signals on the growth and decline of the academic fields. Proponents of the market model have presented case-study data showing the growth of marketable and donor-supported fields in biomedical sciences, computer technologies, and business specializations (see, e.g., Clark, 1998; Engell and Dangerfield, 2005; Gumport, 2002; Marginson and Considine, 2000; Powell and Owen-Smith, 2002; Slaughter and Leslie, 1997; Slaughter and Rhoades, 2004; Washburn, 2005). However, no studies have as yet pulled apart the variety of market signals subsumed under the market model or investigated the association of each of these signals with the growth and decline of a full range of academic fields. In this article, we attempt to provide such an analysis. In our discussion, we explore the implications of our study for the conventional sociological account, and we argue that both the market model and the conventional account capture aspects of development in the complex organizational system of U.S. colleges and universities.

We begin by unpacking the key term: "the market." This is necessary because the term has frequently been used as a condensation symbol representing a wide range of economic influences and business-like practices. In this article, we specify the meanings of "the market" by analyzing separately (1) employer demand for labor, as indicated by high median incomes and changes in median incomes in occupations closely linked to academic fields; (2) student demand for curricula, as indicated by changes in degrees awarded in academic fields; and (3) priorities of external resource providers, as indicated by changes in number of gifts and grants and changes in dollar amounts in support of academic fields. Among external resource providers we examine federal granting agencies and donors.

We focus on a recent 20-year period, 1980–2000. According to proponents of the market model, during this period colleges and universities shifted from an organizational logic based primarily on the premises of professionally dominated institutions protective of their autonomy to one based primarily on responsiveness to market forces as monitored and interpreted by university administrators.

Our evidence on the growth and decline in the institutionalization of academic fields comes from a sample of 286 U.S. four-year colleges and universities measured in three panel years: 1980–1981, 1990–1991, and 2000–2001. We compare changes in the representation of fields over the 20-year period with the distribution we would expect to find if each of several market forces shaped the disciplinary structure of academic institutions. We also compare changes over the two 10-year spans—1980–1990 and 1990–2000—contained within the period. Data on donors were available only for the second half of our study period. For philanthropic giving we therefore examine change over only the 10-year period, 1990–2000.

Although we recognize the likelihood of reciprocal influence between market signals and the growth of academic fields, for the purposes of this study we treat market signals as the independent variables in the analysis and rates of institutionalization of academic fields as the dependent variable. In the case of the student market, it is possible that institutions help create the market by offering curricula they desire to make popular, but even here it is more reasonable to assume that institutions are, for the most part, responsive to market signals, as indicated by student choices among curricula.

Our initial analyses focus on the U.S. higher education system as a whole. In these analyses we make an assumption that institutional leaders scan the national higher education environment and respond to national-level market signals, as well as to local opportunities (see Kinder and Kieweit, 1981). In addition, we examine differences in segments and strata of the system to determine whether particular sets of institutions were more responsive than others to particular types of market signals. Our hypotheses in these analyses flow from resource dependency theory (Pfeffer and Salancik, 1978). We assume that institutions that are more dependent on resources from particular sources will be more responsive to market signals emanating from these sources. Thus, for example, we would expect research universities to be more responsive than baccalaureate-granting colleges to changes in the priorities of federal granting agencies because of their dependence on federal funds to support research (Geiger and Feller, 1995), and we would expect private colleges and universities to be more dependent than public universities on changes in donor priorities, given the much larger proportion of their budgets that depend on donors (Winston, 1999).

DATA AND METHODS

No single data set allows for investigation of the market model because none include information on the full range of market signals. Our study therefore required collecting and analyzing data from a variety of sources. We employed eight data sets. The eight data sets utilize different categorizing schemes to characterize occupations and academic fields. The differences between them required us to match aggregations of CCS fields to each categorizing scheme. Our statistical analyses consequently are based on varying number of categories, and the tables we present reflect this variation. Thus, for example, only certain Census occupations are closely linked to academic fields, and we must therefore restrict the college and university sample only to those fields in which such a linkage is clear. Donor data cannot be aggregated into the same set of categories and must therefore be based on a set of classifications that can be derived from the reporting of donations. Our use of varied categorization schemes is the only approach possible given the variety of sources that must be utilized to examine the market model in a relatively comprehensive way.

We describe the data sets and categorizations used in the study below.

Data on Changes in Academic Fields

The College Catalog Study (CCS) data set is the only extant data set that charts the institutionalization of fields in each of the three main structures of academe: major units, departments, and degree-granting interdisciplinary programs. We included each of these structures in our analyses. We did so partly to account for variations in formal organization related to institutional size. Some units that appear as departments at small universities may appear as major units at larger universities. For example, a small university may not have the resources to organize a school of education, but it may want to provide instruction in education through a department of education. CCS includes coding for 286 U.S. four-year colleges and universities at five-year intervals from 1975–1976 through 2005–2006. The sample institutions are a subset of those represented in the Institutional Data Archive (IDA), a compendium of institutional data coded at five-year intervals from 1970–1971 on 385 U.S. four-year colleges and universities. IDA is a stratified random sample of all four-year colleges and universities in the United States in 2000, excluding for-profits and specialized institutions (such as seminaries, business colleges, and art institutes). CCS includes every IDA institution for which a full set of college catalogs could be obtained from CollegeSource, Inc., the primary depository and distributor of college catalogs in the United States. CCS includes a higher proportion of selective institutions, doctoral-granting institutions, master's-granting institutions, and public institutions than the population of all four-year colleges and universities in 2000, as identified by the *Higher Education Directory* (Higher Education Publications, 2000).

Although CCS data can be weighted to reflect U.S. four-year colleges and universities in 2000, it is not possible to reweight CCS data collected in 2000 to apply to different populations of four-year colleges and universities in 1980 and 1990.[6] For this reason, the study is based on nonweighted data. Our reliance on nonweighted data obviously prevents us from making inferences to the population of all four-year U.S. colleges and universities. CCS is clearly not an ideal database from which to investigate the influence of market signals on institutions, such as community colleges and for-profit colleges, which self-consciously attempt to serve employers. These institutions are not represented in CCS.

At the same time, many scholars consider market signals to influence actions throughout academe, rather than only in community colleges and for-profits (see, e.g., Aronowitz, 2000; Calhoun, 2006; Clark, 1998; Geiger, 2004; Gumport, 2002; Kirp, 2003; Marginson and Considine, 2000; Slaughter and Leslie, 1997; Slaughter and Rhoades, 2004; Washburn, 2005). Insofar as market forces are thought to have a quite general effect on U.S. higher education institutions, their effect should be as pronounced in the CCS sample as it would be for other samples of U.S. four-year colleges and universities. Moreover, using the CCS data, we can look at the influence of market forces in every major segment and stratum of U.S. four-year colleges and universities, a feature that greatly enhances the value of the data.

[6] To weight cases accurately for earlier time points in our analysis it would be necessary to reweight cases based on the fewer number of institutions that existed in earlier years of observation. IDA's reliance on the Carnegie 1994 classification scheme to identify sampling strata cannot be reconstructed for the 1980 year of observation, and therefore accurate probabilities of case selection by strata cannot be calculated for weighting purposes in 1980.

Because academic units are sometimes composed of more than one field, CCS includes codes for every field in every unit. For example, joint departments of anthropology and sociology are relatively common in U.S. four-year colleges and universities. CCS allows for the identification of all fields, including those joined together under one organizational roof, and for charting the trajectory of each field. Both anthropology and sociology would be coded as appearing in institutions that offer instruction in departments combining anthropology and sociology. CCS incorporates fields found in arts and sciences as well as in professional schools.

We engaged in a process of data reduction to create meaningful categories from the large number of named fields in CCS. For example, because of overlap in the content of cognitive science and neuroscience, we grouped the field names "cognitive science" and "neuroscience" as "cognitive and neuroscience." The final academic field classification consisted of 207 fields. Using this classification, we were able to aggregate fields to correspond to the data arrays provided by our sources on the labor market, the student market, government grants, and donor preferences.

Data on Market Signals

Labor Market Signals To examine market conditions for educated labor, we coded growth and decline in the median salaries of workers in 53 professional and managerial occupations in 2000 dollars. These included all Census Bureau Public Use Micro-Data Sample (PUMS) occupational fields that corresponded closely to CCS academic fields. We drew data on market conditions for occupations from PUMS for the 1980, 1990, and 2000 censuses. We developed a table of correspondence (or "crosswalk," to use the term employed by U.S. government statisticians) to link occupational fields to associated academic fields in the CCS data. We examined changes in two 10-year panel periods, 1980–1990 and 1990–2000, as well as over the entire 20-year period. We also examined the effects of median salaries in the first year of the panel period on the institutionalization of fields in the succeeding 10 years.

We also calculated growth in median income for those holding baccalaureate or higher-level degrees only. The assumption here is that college students orient their actions to the salary associated with achievement of the baccalaureate rather than with changes in the median income of the occupation as a whole. We calculated values by subtracting the median income for those within an occupational category holding less than a baccalaureate from the median income of those within the occupational category holding a baccalaureate or higher-level degree. This calculation was applied to each year in the panel, and growth rates in the salary premium associated with completion of the baccalaureate were calculated between time periods using a standard growth rate formula: [(college salary_{t2} − college salary_{t1})/college salary_{t1}]. We then multiplied growth rates by 100 to convert them into a percentage.

Student Market Signals To examine changes in the student market, we studied student demand for degrees over the two 10-year panels, as well as over the entire 20-year period. We drew data from the U.S. Department of Education's Integrated Postsecondary Educational Data System (IPEDS) degree files. Our data on student market signals correlate growth rates in 87 degree fields with changes in the institutionalization of academic fields corresponding to these 87 fields.

We limited our coding of IPEDS degrees to four-year comprehensive colleges and universities to parallel the CCS sample, excluding specialized and for-profit institutions. IPEDS used varying Classifications of Instructional Programs (CIP codes) during the period. Creation of a common set of categories therefore required creating crosswalks between CIP codes and then linking the composite table of correspondence to CCS academic field codes.

Federal Funding Priorities Signals The National Science Foundation is a primary provider of research funds in nonmedical scientific fields. We compared growth of NSF expenditures by field in the period 1980–2000 (in 2000 dollars) to growth rates of corresponding academic fields over the same period. Here, we restricted the CCS sample to scientific fields. The analysis correlates changes in expenditures in 20 scientific fields with changes in the institutionalization of corresponding CCS scientific fields.[7] We developed a table of correspondence to link NSF and CCS fields. The federal government also funds the humanities and the arts. The National Endowment for the Humanities and the National Endowment for the Arts do not provide disaggregated field classifications. We therefore examined levels of support for humanities and arts generally over the time period. Real expenditures declined dramatically in both areas. We compared these real declines in support with changes in the institutionalization of humanities and arts fields during the period.

[7] NSF does not publish data on expenditures in educational programs as opposed to research and development by field. Total NSF expenditures on educational programs and research and development by fields are available, however. In constant 2000 dollars, the mean proportion of NSF expenditures on research and development as compared to education is 9 to 1. It is possible that the comparatively small sums expended on educational programs affected our findings; in all likelihood these effects were marginal.

Donor Priorities Signals We examined the preferences of donors by combining data from two sources: the Foundation Center and Center for Philanthropy's "Million Dollar List."[8] The Foundation Center data set, compiled by the Foundation Center in New York, includes gifts of $100,000 and higher (in 2000 dollars) provided to U.S. four-year colleges and universities. We assumed that gifts under $100,000 would not register as strong signals in academe, where even the smallest colleges have budgets of at least $10 million. Foundation Center staff code, among other information, donors, amounts of gifts and grants, recipient institutions, and purposes of gifts and grants. They monitored gifts and grants from 32,401 foundations in 1990 and 56,582 foundations in 2000 to all types of nonprofit organizations, including, but not limited to, higher education institutions. We restricted our use of the Foundation Center files to gifts and grants awarded to individual four-year colleges and universities located in the United States. The Million Dollar List, compiled by the Center on Philanthropy in Indianapolis, includes only gifts of $1 million or more. Staff at the Center for Philanthropy code, among other information, donors, amounts of gifts, recipient institutions, and purposes of gifts. They collected information about $1 million gifts from a variety of sources, including *The Chronicle of Philanthropy* and *The Chronicle of Higher Education*, with the intention "to create an accurate picture of large gifts" (Center on Philanthropy, 2011). Again, we restricted our use of the Million Dollar List to gifts to individual four-year colleges and universities located in the United States.

We divided the donor data into two categories for donations under and over $1 million. We defined "small donations" as those between $100,000 and $1 million. We defined "large donations" as those of $1 million or more. Combining the two, we also examined associations based on changes in total donations above $100,000.

More than half the gifts reported in these sources went to support academic fields. (Other gifts supported capital campaigns, dormitory construction, scholarships, and a variety of other nonacademic purposes.) In many cases, only broad descriptions of gifts were available from our sources. For example, a gift may be listed as going to life sciences rather than to a more specific field such as biochemistry. We were limited in our efforts to disaggregate fields by these conventions. We were able to categorize donor gifts into 23 academic field codes, the most disaggregated level possible given the limitations of the data. We dropped medicine from the analysis because CCS does not code medical school fields. Our analysis correlates changes in giving to the remaining 22 fields with changes in the institutionalization of corresponding academic fields. We created a table of correspondence to link donor gift categories to CCS academic fields. We examined changes over time in both the number of gifts and the dollar amount of gifts.

[8] Individuals and families take the legal form of a foundation for purposes of philanthropy. We therefore did not divide foundation donors from individual donors.

Table I summarizes the eight data sets used in this analysis, listing the sources of the data and the number of constructed categories.

Method

Our analysis is based on national-level bivariate correlations, combined with more targeted correlations based on hypotheses related to segments and strata in the U.S. higher education system. For example, we first examined the relationship between labor market signals and changes in academic fields across all CCS institutions and then, following one of our hypotheses, examined whether these relationships were stronger in lower-status institutions. We examined other market signals in a similar manner, looking first at national-level relationships and then at segment- and stratum-specific hypotheses.

We adopted a bivariate approach rather than a multivariate approach for the following reasons. First, our major purpose is to shed light on the validity of the market model across several distinct types of market signals and across a range of fields. This purpose does not require and is not aided by the introduction of multiple control variables. Moreover, efforts to control simultaneously for many possible organizational covariates would be of dubious value given sample sizes. Second, the literature provides only a limited number of hypotheses about differences by segment and stratum in the effects of market signals, and these hypotheses can be investigated appropriately through targeted correlations relevant to these hypotheses. Third, our categorization schemes vary in number and content, and any efforts to compare regression coefficients across these schemes would be misleading.

Table I. Summary of Data Sources

Market Signal[a]	Data Source	Variables	Number of Corresponding Fields
Labor market	Integrated Public Use Microdata Series (IPUMS)	Occupational fields/incomes	53
Student market	Integrated Postsecondary Education Data System (IPEDS)	Degrees fields	87
Federal funding priorities	National Science Foundation (NSF)	Federal grant amounts by research field	20 (NSF only)
	National Endowment for the Humanities (NEH)[b] National Endowment for the Arts (NEA)[b]	Federal support for the humanities and arts	
Donor priorities	Foundation Center/Center for Philanthropy	Donation fields for mone-tary donations of greater than $100k	22
Other Sources	Institutional Data Archive (IDA)	Variables for identifying segments and strata (e.g., public/private, selective schools)	NA
	College Catalog Study (CCS)	Academic fields	NA

[a]Tables of correspondence between CCS and market signal fields can be found in Supplementary Tables I–IV.
[b]NEH and NEA data sources do not allow for analyses with disaggregated fields.

We employed ordinal-level measurement. Issues concerning measurement level were particularly pertinent in relation to three of the data sets: CCS, the Foundation Center, and the Million Dollar List. Although the institutions in CCS represent every major sector of U.S. four-year colleges and universities, they do not represent a random sample of four-year colleges and universities. It is likely that a random sample would generate somewhat different interval-level growth rates. The Foundation Center and the Center on Philanthropy provide the most widely used databases on philanthropic giving, but the two organizations use different data-collection strategies, and we cannot be certain that all sizable gifts to higher education institutions are captured by them. The data from these three sources likely satisfy ordinal-level requirements, but they likely do not satisfy interval-level requirements.

Hypotheses

Following the premises of the market model, we would expect faster expansion of academic fields closely associated with each one of the market signals under consideration. We examined rank-order correlations (as measured by Spearman's *Rho*) between the several types of market signals and the growth rates of academic fields. Correlation data obviously do not allow for tests of causality, but they do allow for judgments about the plausibility of causal relationships. When rank-order correlations are high and significant, we can take this as at least provisional supporting evidence for the influence of specific types of market signals.

The literature on the market model also suggests a limited range of segment and stratum influences that could lead to suppression of zero-order relationships. We therefore examined segments and strata of the system where we expected stronger relationships between market signals and field expansion.

(1) We expected stronger relationships between labor market signals and the expansion of fields in lower-status institutions because higher-status institutions are more insulated from the labor market (Brint et al., 2005; Kraatz and Zajac, 1996). We used three measures of status: (a) Barron's selectivity index, separating the more competitive Levels 1 through 3 from the less competitive Levels 4 through 6; (b) highest degree awarded, separating doctoral-granting, masters'-granting, and baccalaureate-granting institutions; and (c) a combined organizational status measure, separating liberal arts colleges and research universities in the two most competitive Barron's categories from baccalaureate-granting colleges and masters'-granting universities in the two least competitive Barron's categories. These

categorizations represent the extremes of the status hierarchy in U.S. four-year colleges and universities (Clark, 1987).

(2) We expected stronger relationships between student market signals and the expansion of fields in lower-status institutions because lower-status institutions are in a weaker position to impose curricular preferences on students (Brint et al., 2005; Kraatz and Zajac, 1996). We used the same three measures of status to investigate this hypothesis.

(3) We expected stronger relationships between changes in federal funding priorities and field change in research universities because research universities are the only institutions that are strongly dependent on federal grants and contracts (Geiger and Feller, 1995; National Science Board, 2010:Ch. 4). We defined research universities using the Carnegie 1994 Classification of Research Universities I and II.

(4) We expected stronger relationships between changes in donor priorities and field change in private colleges and universities because private colleges and universities are more dependent on donors for support of operating budgets (Winston, 1999).

(5) Similarly, we expected stronger relationships between changes in donor priorities and field changes in more selective colleges and universities because selective institutions have historically been more dependent on donors to support the expensive, high-quality programs expected by their students (Clotfelter, 1996; Frank and Cook, 1995:Ch. 8). Again, we defined selective institutions using the top three Barron's categories.

RESULTS

The results of our analysis are summarized in Table II. Table II reports Spearman's *Rho* for each of the market signals under consideration, as well as for the sector-specific hypotheses. Table II also reports Spearman's *Rho* for segments and strata relevant to our hypotheses about segment and strata differences.

Labor Market Signals and Academic Growth Fields

Changes in the median income of occupations between 1980 and 2000 failed to account for increases in the institutionalization of academic fields during the period; over the entire period, the rank-order correlation between growth in salaries and growth in the institutionalization of fields was .10 and statistically insignificant (see Table II). Data not reported in Table II show that results were similar when we looked at 10-year timespans separately, and were negative when we examined the first 10-year period. Lower-status institutions showed no greater propensity to respond to labor market signals as measured by changes in the median salaries of baccalaureate degree holders

Table II. Spearman's Rho for Market Model Influences

Market Variable	Control: All Schools (*N* = 286)	Control: Private Schools (*N* = 156)	Control: Public Schools (*N* = 130)	Highest Degree: Ph.D. (*N* = 87)	Highest Degree: MA/MS (*N* = 87)	Highest Degree: BA/BS (*N* = 112)
Labor Market Variables						
Absolute median income, 1980–2000	.006	−.193	.196	.089	−.017	−.196
Median income growth (in %), 1980–2000	.104	.119	.068	.118	.118	−.025
Median income growth (in %), lagged[a]	.171	.228	.056	.207	.214	.098
Absolute college salary, 1980–2000	−.326*	−.432**	−.185	−.244+	−.287*	−.219
College salary growth (in %), 1980–2000	.203	.114	.186	.101	.318*	.107
College salary growth (in %), lagged[a]	.396**	.244+	.305*	.127	.376**	.307*
Student Market Variables						
Degree growth (in %), 1980–2000	.621***	.631***	.547***	.639***	.503***	.390***
Degree growth (in %), lagged[a]	.486***	.297**	.475***	.532***	.320**	.303**
Federal Priorities Variables						
NSF total dollars, 1980–2000	.212	.123	.191	.165	.123	.363
NSF total dollars, lagged[a]	.400+	.327	.397+	.346	.427+	.093
Donor Priorities Variables						
Donations ($100–$999k) dollars, 1990–2000	.573**	.490*	.531*	.542**	.177	.426*
Donations ($100–$999k) counts, 1990–2000	.550**	.570**	.504*	.552**	.132	.429*
Donations ($1m plus) dollars, 1990–2000	.298	.097	.366+	.241	.133	.018
Donations ($1m plus) counts, 1990–2000	−.072	−.143	.073	−.046	−.101	−.242

Market Variable	Research Universities (*N* = 61)	Organizational Status: High Status (*N* = 52)	Organizational Status: Middle Status (*N* = 157)	Organizational Status: Low Status (*N* = 62)	Selectivity: Barron's Competitive (*N* = 110)	Selectivity: Barron's Less Competitive (*N* = 161)
Labor Market Variables						
Absolute median income, 1980–2000	.085	−.043	.076	.007	−.026	.060
Median income growth (in %), 1980–2000	.098	.003	.052	.002	.039	.142
Median income growth (in %), lagged[a]	.232+	.058	.195	.064	.084	.213
Absolute college salary, 1980–2000	−.244+	−.290*	−.243+	−.240+	−.317*	−.215
College salary growth (in %), 1980–2000	.137	−.032	.166	.242+	.115	.220

Table II. (Continued)

Market Variable	Organizational Status: Research Universities (N = 61)	Organizational Status: High Status (N = 52)	Organizational Status: Middle Status (N = 157)	Organizational Status: Low Status (N = 62)	Selectivity: Barron's Competitive (N = 110)	Selectivity: Barron's Less Competitive (N = 161)
College salary growth (in %), lagged[a]	.202	.152	.187	.293*	.147	.419**
Student Market Variables						
Degree growth (in %), 1980–2000	.570***	.565***	.585***	.405***	.681***	.552***
Degree growth (in %), lagged[a]	.473***	.347*	.413***	.293**	.439***	.392***
Federal Priorities Variables						
NSF total dollars, 1980–2000	.066	.047	.281	−.108	.141	.170
NSF total dollars, lagged[a]	.275	.212	.385+	.193	.261	.444+
Donor Priorities Variables						
Donations ($100–$999k) dollars, 1990–2000	.511*	.520*	.488*	.242	.642**	.495*
Donations ($100–$999k) counts, 1990–2000	.544**	.569**	.482*	.215	.623**	.486*
Donations ($1m plus) dollars, 1990–2000	.203	.310*	.227	−.016	.322	.242
Donations ($1m plus) counts, 1990–2000	−.060	−.044**	−.132	−.098	.005	−.155

+ = $p < .10$; * = $p < .05$; ** = $p < .01$; *** = $p < .001$
[a]Lagged relationships reflect 1980–1990 market force changes being correlated with 1990–2000 field changes.

in professional and managerial occupations. None of the three measures of status yielded high zero-order correlations or statistically significant results.

We also examined the effects of absolute median incomes in the first year of each panel to academic field growth. Rank-order correlations for each 10-year panel, as well as for the 20-year period, were low and insignificant. Again, none of the three measures of status yielded high correlations or statistically significant results. When we examined absolute median salaries for college graduates only, we found negative rank-order correlations with academic field growth, indicating, perhaps, that the market for high-income fields in 1980 may have been saturated during earlier years in the period.

Results were also insignificant when we subtracted expected earnings for noncollege graduates from those for college graduates and examined changes in college salaries only over the 20-year period. We found similarly low correlations and insignificant results over both 10-year periods. However, we found a positive and statistically significant correlation when we lagged field growth, comparing changes in median incomes 1980–1990 and field growth 1990–2000. Here, we found lagged effects for all institutions (Rho = .40, $p < .01$), as well as for lower-status institutions (Rho = .29, $p < .05$), less selective institutions,

as measured by Barron's (Rho = .42, $p < .01$), and public institutions (Rho = .31, $p < .05$). The reasons for the lag time between changes in labor market signals and academic responses are not immediately clear, given the ongoing adjustment throughout the 20-year period we found to changes in student market signals and the faster adjustment we found to changes in donor priorities (see Table II).

Table III illustrates the relationship between changes in median incomes of occupations during the period 1980–2000 (in 2000 dollars) and growth rates of corresponding academic fields. Table III reports relationships only for the top-20 occupations ranked by changes in median income. This table, as well as the data for all 53 occupations, illustrates a lack of correspondence between college salary growth and academic growth in some fields. Several technology- and business-related fields were fast growing in academe during the period, but much less fast growing in median incomes for college graduates. These

Table III. Change in Median Salaries and Growth Fields, 1980–2000 (Top-20 Salary Growth Fields)[a]

Field[b]	% Change Med. Inc., 1980–2000	Med. Inc. BA.+ 1980	Med. Inc. BA.+ 2000	% Field Change, 1980–2000	N of Fields, 1980	N of Fields, 2000
Dancers	102.1	9,895	20,000	78.8	33	59
Lawyers & judges	93.3	26,906	52,000	56.7	60	94
Musician or composer	75.9	7,220	12,700	5.1	253	266
Pharmacists	57.0	40,124	63,000	−23.1	52	40
Clergy & religious workers	53.7	17,565	27,000	13.2	189	214
Occupational therapists	49.3	26,457	39,500	45.5	11	16
Registered nurses	47.2	27,178	40,000	29	107	138
Art/entertainment performers & related	46.8	21,117	31,000	22.1	149	182
Speech therapists	42.7	24,670	35,200	28.6	42	54
Managers & public administrators	39.4	49,487	69,000	0.5	209	210
Physical therapists	38.7	28,829	40,000	72.7	11	19
Management analysts	36.9	35,130	48,100	162.5	8	21
Urban & regional planners	29.3	38,672	50,000	−2.3	88	86
Librarians	25.5	27,878	35,000	−63.2	38	14
Architects	23.8	35,537	44,000	18.1	72	85
Art makers	23.3	7,785	9,600	2.4	333	341
Mathematical sciences	23.0	43,896	54,000	1.4	367	372
Petroleum/mining/ geological engineers	22.6	61,158	75,000	−23.8	21	16
Electrical engineer	22.5	52,256	64,000	22.4	67	82
Managers of properties & real estate	21.2	31,358	38,000	22.2	9	11

[a]Occupational data are limited to individuals with a bachelor's or higher degree employed in Census professional occupations at the time of the Census.
[b]A table of correspondence between U.S. Census Bureau occupational categories and CCS academic fields can be found in Supplemental Table I.
Sources: The College Catalog Study Database; Ruggles et al. (2008).

fields included computer scientists, marketing specialists, operations researchers, and educational managers. By contrast, colleges and universities showed very limited or no growth in some fields that showed solid gains in median incomes for college graduates. These included fields connected to leisure and spiritual activities (recreation and leisure workers, clergy and religious workers, musicians), as well as fields connected to declining sectors of the economy (agricultural scientists, industrial engineers). These data indicate that academe tends to be oriented to higher-status occupations and growing sectors of the economy.

Student Market Signals and Academic Growth Fields

The market model finds stronger and more direct support in data correlating student market signals with the growth of academic fields. As Table II shows, the rank-order correlation of student major growth and academic field growth over the 20-year period was .62 and significant at $p < .001$. Data not reported in Table II show that rank-order correlations were particularly strong during the first 10-year period.

We hypothesized that lower-status institutions would show greater responsiveness to student market signals because of their lesser capacity to maintain curricula to achieve the goals of a liberal arts education. We found no support for this hypothesis. Our most robust findings were for the 20-year period. Looking at this period, all institutions showed at least moderately strong correlations between student market signals and academic field growth. Lower-status institutions were, however, less rather than more responsive to student market signals. This was true whether we measured status by our composite measure, by private or public control, or by Barron's selectivity index. One reason for the responsiveness of higher-status institutions may be that these institutions have more flexibility to reposition because of their financial resources. They may also feel a stronger competitive incentive to respond to changes in student interests.

Table IV illustrates the relationship between growth in degree fields and growth of institutionalized academic fields during the period. In Table IV, we report only the top-20 fields in terms of growth of degrees awarded. This table, as well as data for all 87 degree fields, indicates a lack of correspondence between growth of degrees and academic growth in some fields. Several fields grew significantly faster in degrees awarded than in institutional representation. These fields included visual arts, communications, recreation and leisure studies, psychology, anthropology, sociology, and foreign languages. Conversely, a few fields grew significantly faster in institutional representation than in degrees awarded. These included environmental engineering, marketing, and accounting. These data suggest that students were more interested than institutions in self-expression, identity, social relations, and the natural environment. They suggest that institutions were more interested than students

Table IV. Change in Baccalaureate Degrees Awarded and Field Growth, 1980–2000 (Top-20 Degree Growth Fields)

Field[a]	% Change in Degrees, 1980–2000	Degrees, 1980	Degrees, 2000	% Field Change, 1980–2000	*N* of Fields, 1980	*N* of Fields, 2000
Computer engineering	485,300	0	4,853	411	9	46
Women's/gender studies	76,300	0	763	262	47	170
Cognitive sciences	1,247	64	862	917	6	61
International business	720	475	3,897	320	5	21
Public health	316	573	2,386	33	18	24
Arts, creative arts	294	5,962	23,517	9	361	392
Law/legal studies	272	483	1,798	59	69	110
Computer science, information science	258	9,965	35,713	101	136	274
Ethnic studies	255	984	3,495	87	265	496
International relations	253	1,548	5,459	123	64	143
Hotel, restaurant, hospitality management	214	1,636	5,144	56	9	14
Recreation, leisure studies	213	5,603	17,514	−13	75	65
General studies	210	18,854	58,472	24	121	150
Human resources & personnel	174	2,090	5,733	13	16	18
Communications	153	18,344	46,467	11	210	234
Environmental engineering	132	257	596	174	19	52
Finance	123	10,734	23,920	93	41	79
Micro & cell biology	112	4,503	9,530	25	121	151
Industrial engineering	104	2,975	6,056	−22	77	60
Health administration/policy	97	1,628	3,205	93	15	29

[a]A table of correspondence between IPEDS degree fields and CCS academic fields can be found in Supplemental Table II.
Sources: The College Catalog Study Database; U.S. Department of Education (2009).

in programs for up-and-coming technology and bread-and-butter business fields.

Donor Priorities and Academic Growth Fields

National Science Foundation Change in NSF support and field growth showed a weak positive association over the 20-year period and was not statistically significant. Results for both 10-year periods were also weakly positive and statistically insignificant.

Surprisingly, research universities were not more likely than institutions in other Carnegie classes to be responsive to changing NSF priorities. When we lagged academic field growth 10 years behind changes in NSF priorities, we found a positive correlation for all institutions (*Rho* = .40, $p < .10$), but again no significant differences for research universities (see Table II). To the extent that we found greater responsiveness to changes in federal priorities, this responsiveness tended to be found in the middle and lower regions of the academic hierarchy rather than at the top, and only in the lagged data.

Looking more closely, we see a close correspondence between changes in NSF support and field growth in some instances, but no correspondence in others. Computer science was the fastest growing category in both NSF expenditures and CCS, while agricultural biology was at the bottom of both data arrays. However, metallurgy and materials engineering showed the second fastest growth among NSF fields, but the growth rates of these fields fell near the bottom of the CCS data. Moreover, some fields that suffered constant dollar losses in NSF funding—such as political science, mechanical engineering, and psychology—showed strong growth in the CCS data.

National Endowments for the Humanities and the Arts Signals of federal priorities in the humanities and the arts showed no discernible relation to the institutionalization of humanities and arts fields. Data on NEH and NEA expenditures by field are not available, but we can gain a perspective on the influence of external support on the humanities and arts by comparing overall levels of funding to overall levels of growth in humanities and arts fields. In constant dollars, funding for both agencies declined dramatically during the period, from highs of well over $300 million in 1980 to just over $100 million in 2000, a 72% decline (National Endowment for the Arts, 2009; National Humanities Alliance, 2009). Yet the number of arts fields in CCS grew by 14% during the period 1980–2000, and the number of humanities fields also grew, albeit more slowly, by 4%. In the CCS data, we found no segments and strata in which humanities or arts declined.

Small Donors Data on small donors (under $1 million) showed a moderately strong and statistically significant relationship between changes in donor priorities and academic field growth during the period. The relationship was nearly the same whether we look at the number of gifts or the dollar volume of gifts (see Table II).

We found little support for our hypothesis that private colleges and universities would be more responsive than public universities to changes in donor priorities. On the dollar volume measure of giving to fields, we found positive and statistically significant relationships for both sectors. We found a similar pattern for counts of gifts and grants going to fields, with a slightly stronger relationship in the private sector. However, higher-status institutions, as measured by our composite index, and more selective institutions, as measured by Barron's, were somewhat more responsive than lower-status and less competitive institutions to changes in small donor priorities.

Table V. Change in $100,000–$999,999 Donations and Field Growth, 1980–2000 (Top-20 Donation Growth Fields)

Field[a]	% Change in Total Dollars, 1990–2000	Total Dollars (1,000's), 1990	Total Dollars (1,000's), 2000	% Field Change, 1990–2000	*N* of Fields, 1990	*N* of Fields, 2000
Computer science	2,824	546	15,952	33.7	205	274
Cognitive science	1,591	601	10,171	205	20	61
Bioengineering/ biotechnology	565	680	4,525	88	25	47
Environmental science	546	3,280	21,183	62.1	198	321
Business	508	2,873	17,479	9.1	661	721
Education	408	12,058	61,272	−1	620	614
Public health/health administration	368	9,149	42,810	9.1	22	24
Social welfare	332	8,133	35,173	14	121	138
International relations/ national security	312	8,604	35,416	38.8	103	143
Communications	278	2,840	10,742	15.2	289	333
Public policy	268	3,742	13,778	41.5	53	75
Social sciences	263	11,925	43,335	1.9	678	691
New culture/identity	259	3,062	10,998	36.3	628	856
Medicine	250	25,529	89,314	*NA*	*NA*	*NA*
Arts	249	5,843	20,403	12.1	916	1,027
Religion	238	4,167	14,093	8.6	197	214
Humanities	197	5,861	17,417	3.1	1,690	1,743
Physical science	192	9,783	28,543	1.1	1,135	1,147
Life sciences	172	8,887	24,145	11.2	401	446
Law	159	3,798	9,829	22.1	77	94
Nursing	106	2,432	5,003	7	129	138
Agriculture	72	2,330	4,004	−11.4	280	248
Engineering	44	8,068	11,632	2.1	674	688

[a]A table of correspondence between Foundation Center grant fields and CCS growth fields is available in Supplemental Table IV.

Sources: The College Catalog Database; Foundation Center (2008, 2010).

Table V provides more detailed data on the relationship between academic field growth and changes in the priorities of small donors. The fastest growing fields in number and size of donations, cognitive and neuroscience and environmental science, were also among the fastest growing in academe. At the same time, the data show a lack of correspondence between donor priorities and academic growth in some fields. Education, for example, was the recipient of many more grant dollars in 2000 than a decade before, but growth in education departments was flat. Similarly, social science received large increases in both the number and size of gifts and grants, but social science fields grew only very slowly during the period. Business fields, too, grew faster in gifts and grants than in their representation in academe.

Large Donors We also examined the relationship between changes in the priorities of large donors ($1 million or more) and academic field growth. This relationship, while positive for total dollars, was not statistically significant. The relationship for the count data was slightly negative. Nor did we find support for our hypotheses that private and more selective institutions, as measured by Barron's, would be more responsive than public and less selective institutions to the changing priorities of large donors. One might assume that large donations would represent a stronger market signal than small donations because of their visibility. However, according to these data, small donations were the stronger signal.

Some reasons for these findings are clear from closer inspection of the data. Many of the faster growing CCS fields, such as cognitive and neuroscience, environmental science, and culture and identity fields, were not among those showing the largest growth in million dollar gifts. By contrast, some fields that received a much higher proportion and dollar volume of million dollar gifts, notably education and religion, were not fast growing in the CCS data.

DISCUSSION

This article makes four contributions to the study of organizational change in U.S. four-year colleges and universities. First, the article raises questions about the way market imagery has been used to describe shifts in the organizational logic of U.S. higher education institutions. Many observers have used the term "the market" as a condensation symbol rather than as an empirically specifiable set of distinct market signals. Only by unpacking this term and identifying its separable meanings can we begin to assess its value as the foundation of an analytical framework.

Second, the study shows the relative importance of particular market signals during the period 1980–2000. We found changes in the preferences of student consumers to be relatively strongly associated with the increased institutionalization of academic fields, both for the aggregate of CCS institutions and in every sector we examined. We also found the preferences of small donors (gifts and grants between $100,000 and $1 million) to be associated with the increased institutionalization of academic fields. The data suggest that the density of giving to fields is more important as a signal of support than the number or size of large gifts, perhaps because the latter go to a relatively few wealthy institutions. Insofar as market signals have influence *across* academe, we conclude that colleges and universities position themselves according to what student consumers want and according to higher densities in the number and dollar volume of gifts and grants going to fields.

Third, the study shows variation among segments and strata in responsiveness to specific market signals. Lower-status institutions were, as hypothesized, more responsive to labor market signals, although a long lag existed between changes in labor market signals and academic response. Higher-status and more selective institutions were, as hypothesized, more responsive to signals of donor priorities than lower-status and less selective institutions. Surprisingly, higher-status and more selective institutions were also more responsive to changing student degree preferences.

Fourth, the study shows specific areas of noncorrespondence between market signals and academic field growth. These included students' greater interest, as compared to CCS institutions, in self-expression, identity, social relations, and the environment; and donors' greater interest, as compared to CCS institutions, in education, religion, and social science.

Implications for the Conventional Sociological Account

We began this article by contrasting the conventional sociological account with the market model of academic change. Our findings do not necessarily lead to a rejection of the conventional sociological account. Indeed, in separate analyses we found varying degrees of support for each element of the conventional sociological account.

If we define core fields as those represented at 50% or more of all four-year colleges in both 1980 and 2000, we found considerable reproduction of core fields in the CCS data. Eighteen core fields persisted during the period with only relatively minor gains and losses in representation. These fields included fields in natural sciences (biology, chemistry, mathematics, and physics), social sciences (anthropology, economics, political science, psychology, and sociology), humanities (English, foreign languages and literatures, history, and philosophy), and arts (studio art and music). They also included education, physical education, and religion. None grew by more than 8%. Except for physical education (which nearly dropped out of the core), none declined by more than 8%.

We also found evidence in the CCS data that efforts to position institutions to improve opportunities for discovery remain an important source of academic change. Although discoveries are much more likely to create new research areas and subfields than entirely new fields (Abbott, 2001; Frickel and Gross, 2005; Gibbons et al., 1994), in rare cases, whole disciplines may be reconstituted along substantively different lines in order better to accord with opportunities for discovery. Such reorganization occurred in the life sciences in the 1980s, as phyla-based forms of classifying knowledge gave way to reorganization based on strategic sites for understanding processes of organic development and evolution—as well as to the application of engineering technology to these biological processes (Abir-Am, 2002; Jong, 2008; Judson, 1979).[9] CCS data showed declines in the functional and phyla-based fields of

[9] Intellectual revolutions are rarely, if ever, driven solely by the logic of the internal development of scientific understanding. In the case of the biological sciences, the Rockefeller Foundation played an important role in the institutionalization of molecular biology, in part due to its long-term strategic planning with scientists (Abir-Amin, 2002). New forms of organization were also well supported by businesses, such as biotechnology and bioengineering firms, which expected to profit from new breakthroughs (see, e.g., Kay, 1993; Powell et al., 2005).

entomology (−17%; 24 to 20 departmental fields); animal science (−17%; 29 to 24 departmental fields); anatomy (−27%; 88 to 64 departmental fields), botany (−52%; 27 to 13 departmental fields), and zoology (−63%; 24 to 9 departmental fields), together with growth in the life process fields of genetics (20%; 5 to 6 departmental fields), biochemistry (40%; 40 to 56 departmental fields), environmental science and ecology (119%; 27 to 59 departmental fields), and molecular and cell biology (175%; 8 to 22 departmental fields).

Other fields moved to align their self-representations more closely with the methods and ethos of science by adopting the terms "research" and "science" in their department and program names. In education, the "pedagogical science" field of curriculum and instruction grew by 58% (24 to 38 departmental fields), and educational measurement and research grew by 157% (7 to 18 departmental fields) (see also Lagemann, 2002). Similarly, in business, decision science and strategy grew by 167% (6 to 16 departmental fields), and management science by 56% (97 to 151 departmental fields) (see also Fourcade and Khurana, 2008).

Credential-based closure movements are the final element of the conventional sociological account. One way to examine the influence of credential-based occupational closure is by correlating the growth of academic fields with the expansion of occupations in which access is limited to holders of academic credentials. Our analysis showed moderate but statistically significant correlations between growth in CCS academic fields and rates of expansion of PUMS professional and managerial occupations during the period ($Rho = .35$, $p < .05$). We found stronger results when we lagged the data ($Rho = .40$, $p < .01$), and particularly when we restricted the analysis to private four-year colleges and universities ($Rho = .47$, $p < .001$).

Relationships were stronger when we isolated "partially enclosed" occupations. We define "partially enclosed" occupations as those in which 50–80% of occupants held baccalaureate or higher-level degrees in the first year of our study period, 1980.[10] For these "partially enclosed" occupations, associations between academic field growth and occupational expansions were stronger both over the period as a whole ($Rho = .57$, $p < .01$) and for the lagged data ($Rho = .59$, $p < .01$). In the lagged data, relationships were strongest for public institutions ($Rho = .64$, $p < .001$), less selective institutions ($Rho = .60$, $p < .01$), and institutions offering more than 50% of degrees in occupational-professional programs at the beginning of the period ($Rho = .57$, $p < .01$). These findings suggest that colleges and universities are particularly interested in adding curricula for occupations in which the baccalaureate qualification is relatively widespread, but has not yet achieved unqualified predominance as an entry-level qualification.

[10] In the PUMS data, these "partially enclosed" occupations included many in scientific and technical fields (atmospheric and space scientists, mathematicians, agricultural and food scientists, electrical engineers, mechanical engineers, civil engineers, materials engineers, computer scientists, and foresters and conservation scientists) as well as many in health (health administrators, occupational therapists, dieticians, and nutritionists), and business (accountants and auditors, management analysts, and operations and systems researchers) occupations. They also included some occupations in communications fields (reporters and editors, archivists, and librarians) and in social-science-related fields (social workers, economists and market researchers, sociologists, and social scientists).

CONCLUSION

Colleges and universities are complex institutions pursuing many purposes and supported by many constituencies. To consider administrators as engaged simply in repositioning their institutions in response to market signals would be to miss the realms of culture they preserve. It would also be to miss the realms of culture they reorganize and expand for purposes of scientific and scholarly advancement, as well as their efforts, working in association with occupational elites and state regulators, to improve the standing of occupations and to protect consumers by limiting access to holders of higher education credentials.

At the same time, the results of this study provide targeted support for proponents of the market model. In particular, shifts in the preferences of student consumers and in the priorities of donors deserve continued attention from scholars interested in the changing structure of institutionalized knowledge in U.S. academe. In the CCS data, changes in both student and donor preferences showed relatively strong system-wide associations with rates of institutionalization of academic fields—and, in both cases, these associations were also stronger over the 20-year period in the dominant segments and strata of the system.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article.

Table SI Census 1990 Occupational and CCS Field Categories Cross-walk.
Table SII IPEDS and CCS Field Categories Cross-walk.
Table SIII NSF and CCS Fields Categories Cross-walk.
Table SIV Donation and CCS Field Categories Cross-Walk.

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