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THE CONTINGENCY MOVEMENT: A LONGITUDINAL ANALYSIS OF CHANGING EMPLOYMENT PATTERNS IN U.S. HIGHER EDUCATION*

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ABSTRACT

The faculty labor force in U.S. colleges and universities is increasingly off the tenure track and, often, working at less than full time. Aggregated data on this phenomenon mask significant differences in institutional commitments to these contingent forms of faculty employment. This report employs comprehensive institutional data for the years 1988 to 2008 to examine the roots of institutional variations in contingent employment. Multivariate longitudinal modeling results suggest that, in the context of a variety of control factors, the primary factors associated with colleges and universities employing part-time faculty have been for-profit and private control. Similar results hold for employing full-time, non-tenure-line faculty, although research institutions also have made growing commitments. Combining part-time and full-time shares into a single indicator of an institution's commitment to contingent labor, our analysis suggests that for-profit institutions have led the charge into contingent hiring from the late 1980s but in recent years private institutions have made strong and growing commitments to contingency. A number of significant time and sector interactions suggest that the incorporation of non-tenure line and part-time faculty has taken distinctive paths and moved at different speeds in diverse postsecondary sectors. The findings suggest some significant implications for shared governance and the academic labor market.

THE CONTINGENCY MOVEMENT: A LONGITUDINAL ANALYSIS OF CHANGING HIRING PATTERNS IN U.S. HIGHER EDUCATION

The composition of the American professoriate is shifting away from full-time tenured or tenure-track faculty toward new profiles that are increasingly non-tenure line and quite often part-time (Schuster and Finkelstein, 2006). Analyses of contingent faculty have focused on the rationales for the shift in hiring practices (Cross & Goldenberg, 2009; Schuster & Finkelstein, 2006), the marginal working conditions of this newly-emerging group (Eckler, et al, 2009; Schuster & Finkelstein, 2006; Baldwin & Chronister, 2001; Gappa & Leslie, 1993), and implications for student success (Benjamin, 2003; Ehrenberg & Zhang, 2005; Jacoby, 2006; Umbach, 2007).

There has been somewhat limited attention in this work, howeve r, to the various relationships between the increasingly contingent nature of faculty employment and the extreme differentiation in U.S. higher education. To what extent is contingent hiring associated with, and driven by, distinctive conditions in individual institutions and sectors? This study explores this question emerging from prior contingency research.

RELEVANT LITERATURE

Because contingent faculty hires are growing in number, earlier analysts have examined the emerging variations in faculty work roles, compensation, and working conditions as well as the implications of these developments. Notably, how is the contingency movement affecting student experiences and the ability of institutions to recruit talented new faculty? More broadly, what do the emerging changes in the faculty workforce imply for educational quality, student success, academic governance, and the faculty labor market?

As the mass of professors hired in the 1960s and 1970s nears retirement, it is becoming increasingly uncertain that a given position will be filled with another tenured or tenure-track faculty member. The use of contingent faculty – both part-time and non-tenure-line – is increasing (AAUP, n.d.). From 1970 to 2001, the number of part-time faculty increased by 376%, just over 5 times as fast as full-time faculty increases (Schuster & Finkelstein, 2006). Today, almost two-thirds of faculty members are non-tenure line (Lee, 2008; Schuster & Finkelstein, 2006).

Analysts have proposed several rationales for the proliferation of contingent faculty hires in recent years, including the large growth in student enrollments and the decline in public support of higher education. Considering these external influences, it is not surprising that institutions often hire part-time and non-tenure line faculty to increase staffing flexibility or to save money. Such practices allow institutions to respond more quickly to market demands, without making long-term tenure commitments (Cross & Goldenberg, 2009; Schuster & Finkelstein, 2006, Ehrenberg, 2006).

There is ample research evidence that faculty salaries in the U.S. vary significantly by gender and race/ethnicity and across institutions and disciplines, even after taking into account rank and seniority differences (Toutkoushian, Bellas, & Moore, 2007; Schuster & Finkelstein, 2006; Toutkoushian & Conley, 2005). Similar differences are apparent across faculty appointment types. Curtis & Jacobe (2006) found that full-time non-tenure line faculty members generally earn 26% less than their tenured counterparts. In a national, institution-level study of faculty, Hollenshead et al. (2007) found that part-time faculty members also earn substantially smaller compensation per course than full-time non-tenure-line faculty, and work by Toutkoushian & Bellas (2003) found that part-time faculty members earn approximately 60 percent less in salary than comparable full-time faculty. These differences are compounded by the fact that part-time faculty rarely are eligible for benefits or promotion (Hollenshead, et al., 2007).

Contingent faculty members often also work in more austere environments. Several studies have found that institutions exclude non-tenure line faculty from orientations and mentoring programs (Baldwin & Chronister, 2001; Gappa & Leslie, 1993). Opportunities for professional development and funding for research are also less common for contingent faculty (Hollenshead et al., 2007; Outcalt, 2002; Baldwin & Chronister, 2001; Gappa & Leslie, 1993). Often, part-time faculty are especially disadvantaged, with limited access to office space, supplies, and administrative support (Gappa & Leslie, 1993; Outcalt, 2002).

Many analysts have argued that employment inequities and marginal working conditions reduce contingent faculty members' commitment to helping students succeed (Baldwin & Chronister, 2001; Gappa & Leslie, 1993; Outcalt, 2002; Curtis & Jacobe, 2006; Hollenshead et al., 2007; Toutkoushian & Bellas, 2003; Eckler, Field & Goldstein, 2009; Benjamin, 2002 & 2003; Jacoby, 2006; Umbach, 2007; Ehrenberg & Zhang, 2005). There is evidence that part-time faculty members, in particular, are not as prepared for class, are less available for advising and out-of-class activities, and are less likely to hold office hours (Eckler, Field & Goldstein, 2009; Benjamin, 2002 & 2003; Jacoby, 2006; Umbach, 2007). If these faculty are not available to bear a substantial share of student advising, additional responsibilities can fall on other faculty. Bowen & Schuster (1986, p. 64) have observed that, "so long as the part-timers are few in number, the problem is not serious. But when part-timers become numerous...the problem approaches the intolerable."

Clearly, the potential direct influences of the contingency movement on students' academic outcomes may be notable. Years of research on college influences on students suggests that interactions between students and faculty are one of the strongest predictors of student persistence, success, and completion in college (Astin, 1993; Pascarella & Terenzini, 2005). Unsurprisingly, some studies have reported that schools with larger numbers of part-time and non-tenure line faculty having lower graduation rates (Ehrenberg & Zhang, 2005; Jacoby, 2006; Umbach, 2007).

Concerns over academic implications of the contingency movement rise when the tenuousness of contingent employment is considered. Numerous analyses have suggested that part-time and non-tenure line faculty worry about employment from year-to-year, and spend time and energy in efforts to secure future employment (Baldwin & Chronister, 2001; Gappa & Leslie, 1993). Clearly, time spent in searching for their next jobs competes with the time contingent faculty might spend facilitating the learning of their current students. And, relatedly, there is little question that job insecurity may compel some contingent faculty to demand less of students, in pursuit of favorable student evaluations that might better their chances for contract renewal (Benjamin, 2002).

In essence, contingent faculty's employment circumstances may limit their loyalty to their employing institutions. Thus, beyond its immediate influences on student learning, the contingency movement may also have important organizational influences. Over the longer term, these influences may shape not only student outcomes but also the nature of the higher-education enterprise itself. Governance is an important case in point. Many observers of colleges and universities have argued that institutional governance is and should be a responsibility shared by faculty with administrators and board members (Weick, 1979; Williams et al., 1986; Birnbaum, 1988; Hardy, 1990; Miller, 1999, Minor, 2004; Birnbaum & Eckel, 2005). Greater levels of faculty participation in decision-making can correspond with improved satisfaction and productivity (Floyd, 1985). But work by Dimond (1991) has suggested that faculty satisfaction with their role in institutional governance is linked to knowing that their participation matters. Indeed, numerous observers (e.g., see Gerber et al., 1997) have argued that increasing meaningful faculty participation in governance can improve overall institutional effectiveness, suggesting that faculty can act as moral guides for institutions, reminding them of their mission and keeping them from responding overzealously to market demands.

Unfortunately, the increasingly contingent faculty may work against increased faculty participation in academic governance (Schuster & Miller, 1989; Carlisle & Miller, 1998; Fairweather, 1996; Finkelstein, Seal, & Schuster, 1999). Contingent faculty often are provided limited opportunities for professional development, limited inputs on departmental decisions and curriculum development, and limited chances for promotion. Part-time professors tend to have less autonomy with regard to course curricula (Gappa & Leslie, 1993) and are often excluded from departmental and other institutional committees (Hollenshead et al., 2007). Contingent faculty teach high proportions of lower-division undergraduate courses but are usually given little say in the development of those courses and, equally troubling, they are provided few vehicles to affect change when problems arise in curriculum delivery (Baldwin & Chronister, 2001; Gappa & Leslie, 1993; Kezar & Sam, 2010).

The trend toward increasingly contingent employment and increasingly marginal working conditions for large numbers of faculty would appear to have important implications for the academic labor market and future of educational quality in the United States. Some prominent observers (e.g., Bowen & Schuster, 1986) have worried that these trends could prove problematic for the recruitment and retention of quality faculty to colleges and universities. Thus far, however, what evidence is available "shows no diminution in the quality of persons being drawn to academic careers...on the whole, there is no visible decay – not to mention collapse – in the aspirations of the most academically talented when it comes to opting for an academic career" (Schuster & Finkelstein, 2006, p. 318). Indeed, many contemporary articles and essays regarding higher-education labor markets express the opposite concern: the threat of an extreme over-supply of qualified PhDs relative to available jobs in some fields, and worry over the fate of some "overproducing" academic departments and fields (Harris, 2010; Mulholland, 2010).

CONCEPTUAL FRAMEWORK

While the literature on the movement toward contingent faculty is growing, there are still gaps. Many useful descriptive analyses have drawn on institutional reports, faculty surveys, and qualitative interviewing, with inferences drawn from triangulated sources. Much of this work has been individually focused, exploring or elucidating the perceptions and opinions of individual faculty and administrators. Other valuable work, however, has modeled trends econometrically, with particular attention to forecasting shifting labor-force and financial patterns in institutions and disciplines. The present paper is in that tradition, using panel data to examine differing rates and differing roots in the movement.

We formulated a set of hypotheses regarding potential core features associated with the movement. In general, we hypothesized that, ceteris paribus, heavily institutionalized settings in strong financial condition and featuring stable student enrollments would be less likely to aggressively join the contingent movement. The analysis was guided by two focal research questions: what features and elements of the U.S. higher education system have been most closely associated with the contingency movement, and how have the roots of the movement changed over time?

RESEARCH DESIGN

The study addresses its core research questions via multi-faceted quantitative analysis of a large longitudinal panel dataset of U.S. postsecondary institutions. The data come from the Delta Cost Project [DCP]. DCP synthesizes a variety of National Center for Education Statistics' Integrated Postsecondary Data System [IPEDS] data to address institutional spending and postsecondary education outputs. The DCP database contains over 500 indicators for the years 1987-2008 for every U.S. postsecondary institution participating in federal student financial aid programs. Beyond providing a convenient, open, and user-friendly "front end" to the complex IPEDS data, DCP data provide additional thoughtfully constructed variables related to the finances and operations of postsecondary institutions.

Our study uses postsecondary institutions as its unit of analysis and focuses on three distinct dependent variables: the ratio of part-time faculty to total faculty, the ratio of full-time, non-tenure line faculty to total faculty, and the ratio of all non-tenure line faculty to total faculty.[1] Thus, we examine the two respective kinds of contingency, part-time and full-time non-tenure-line, individually, then we examine the total of the two. In each case, we study these indicators of institutions' commitment to contingency as shares of all faculty on a given campus.

1 We acknowledge that some analyses from a more traditional, labor economics perspective might employ a full-time-equivalent specification of faculty composition.

In our analyses, we include indicators for institutional control (public, private, or for-profit) and sector (following the revised, 2000 Carnegie Classification).[2] Several sectors were removed from the sample, allowing us to focus on the Doctoral/Research University-Extensive, Doctoral/Research University-Intensive, Master's Colleges and University I, Master's (Comprehensive) Colleges and University II, Baccalaureate College-Liberal Arts, Baccalaureate College-General, Baccalaureate/Associate's College, and Associate's College sectors.[3] In addition, to further reflect the propositions presented earlier, we derived indicators for the ratio of part-time students to full-time-equivalent [FTE] students, the ratio of administrators to faculty, and total revenues per FTE students.[4] Table 1 presents descriptive information for the indicators of part-time, full-time non-tenure-line, and all contingent faculty, respectively. Note that the sample sizes for the respective sub-tables reflect two decades of data from institutions in our sample, not the discrete number of institutions in the sample.

TABLE 1
MODELING CONTINGENT FACULTY: DESCRIPTIVE STATISTICS

Modeling Proportions of Part-Time Faculty (N=26,653)

VARIABLE	MEAN	STD. DEVIATION	MIN	MAX
Part-Time Faculty (Proportion)	0.411	0.261	0	1
Private Control	0.406		0	1
For-Profit	0.052		0	1
Doctoral/Research Universities - Extensive	0.061		0	1
Doctoral/Research Universities - Intensive	0.041		0	1
Masters Colleges and University I	0.195		0	1
Masters Colleges and University II	0.044		0	1
Baccalaureate Colleges - Liberal Arts	0.086		0	1
Baccalaureate Colleges - General	0.128		0	1
Baccalaureate/Associate Colleges	0.016		0	1
Associates's Colleges	0.429		0	1
Administration-to-Faculty Ratio	0.191	0.203	0	10
Part-Time Students (Proportion)	0.341	0.242	0	1
Total Revenue per FTE ($10,000)	2.034	2.622	0	127.188

2 For further information on this classification, see Carnegie (2001), available at http://classifications.carnegiefoundation.org/downloads/2000_edition_data_printable.pdf

3 We dropped institutions that were identified as "less than 2-year," as well as theological seminaries and other specialized faith-related institutions, medical schools and medical centers, other separate health profession schools, schools of engineering and technology, schools of business and management, schools of art, music, and design, schools of law, teachers colleges, other specialized institutions, tribal colleges and universities sectors, and hospitals that had an a minor nurse training program.

4 Specifically, we used the DCP variable "total revenues with auxiliary operations." The revenue variable was adjusted to 2008 dollars using the Consumer Price Index.

TABLE 1 (CONTINUED)
MODELING CONTINGENT FACULTY: DESCRIPTIVE STATISTICS

Modeling Proportions of Full-Time Non-Tenure Faculty (N=23,083)

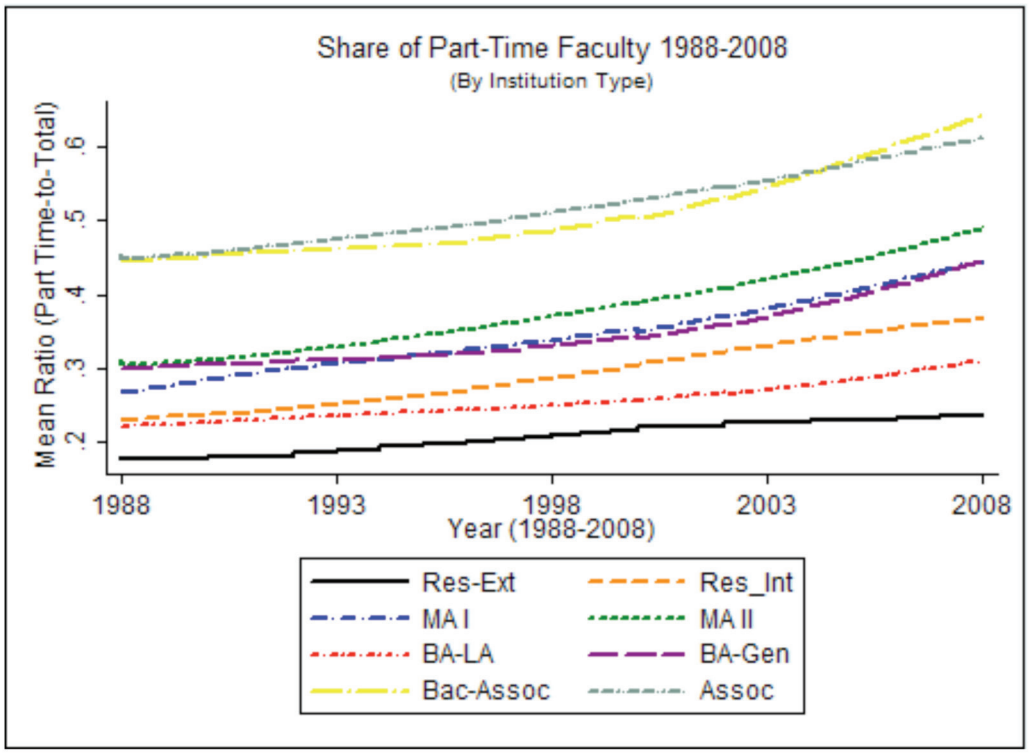
VARIABLE	MEAN	STD. DEVIATION	MIN	MAX
Full-Time Non-Tenured Faculty (Proportion)	0.224	0.249	0	1
Private Control	0.414		0	1
For-Profit	0.040		0	1
Doctoral/Research Universities - Extensive	0.063		0	1
Doctoral/Research Universities - Intensive	0.043		0	1
Masters Colleges and University I	0.205		0	1
Masters Colleges and University II	0.045		0	1
Baccalaureate Colleges - Liberal Arts	0.090		0	1
Baccalaureate Colleges - General	0.130		0	1
Baccalaureate/Associate Colleges	0.017		0	1
Associates's Colleges	0.407		0	1
Administration-to-Faculty Ratio	0.188	0.183	0	6
Part-Time Students (Proportion)	0.339	0.243	0	1
Total Revenue per FTE ($10,000)	2.046	2.440	0	126.287

Modeling Proportions of Non-Tenure Faculty (N=23,083)

VARIABLE	MEAN	STD. DEVIATION	MIN	MAX
Non-Tenured Faculty (Proportion)	0.628	0.297	0	1
Private Control	0.414		0	1
For-Profit	0.040		0	1
Doctoral/Research Universities - Extensive	0.063		0	1
Doctoral/Research Universities - Intensive	0.043		0	1
Masters Colleges and University I	0.205		0	1
Masters Colleges and University II	0.045		0	1
Baccalaureate Colleges - Liberal Arts	0.090		0	1
Baccalaureate Colleges - General	0.130		0	1
Baccalaureate/Associate Colleges	0.017		0	1
Associates's Colleges	0.407		0	1
Administration-to-Faculty Ratio	0.188	0.183	0	6
Part-Time Students (Proportion)	0.339	0.243	0	1
Total Revenue per FTE ($10,000)	2.046	2.440	0	126.287

We use Delta Cost Project data for the even-numbered years in the period 1988 to 2008. The need to use only select years was driven by our dependent variable indicators of interest, which were most consistently reported in even years. The dataset is not "balanced" in that not all institutions were represented in every year. While balanced data are typically the desired norm, we wished to account for institutions that were created and merged throughout the period of the study as we suspect that they would position their faculty composition differently from their well-established counterparts. Figures 1-3 depict the share of part-time faculty, full-time non-tenure line faculty, and all non-tenure line faculty, respectively, by institution type over the 20 years of analysis.

FIGURE 1



Examining Figures 1 and 2, it is clear that the shares of full-time non-tenure-line faculty employed by institutions from 1988 to 2008 have varied more strongly across institutional sectors than the shares of part-time enrollment. In fact, proportional growth in full-time non-tenure-line employment has leveled off or reversed in all sectors except the research-extensive institutions, where this form of employment has skyrocketed since the mid-1990s. Conversely, in baccalaureate-associates institutions, shares of this kind of employment are now lower than in 1988.

FIGURE 2

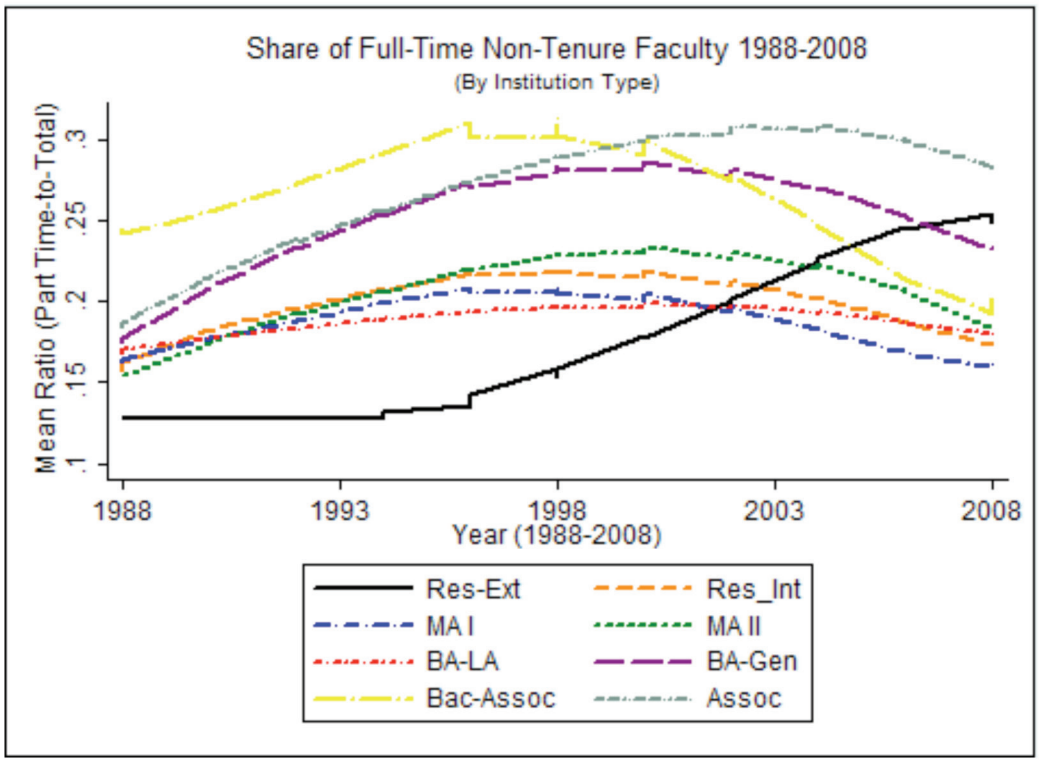
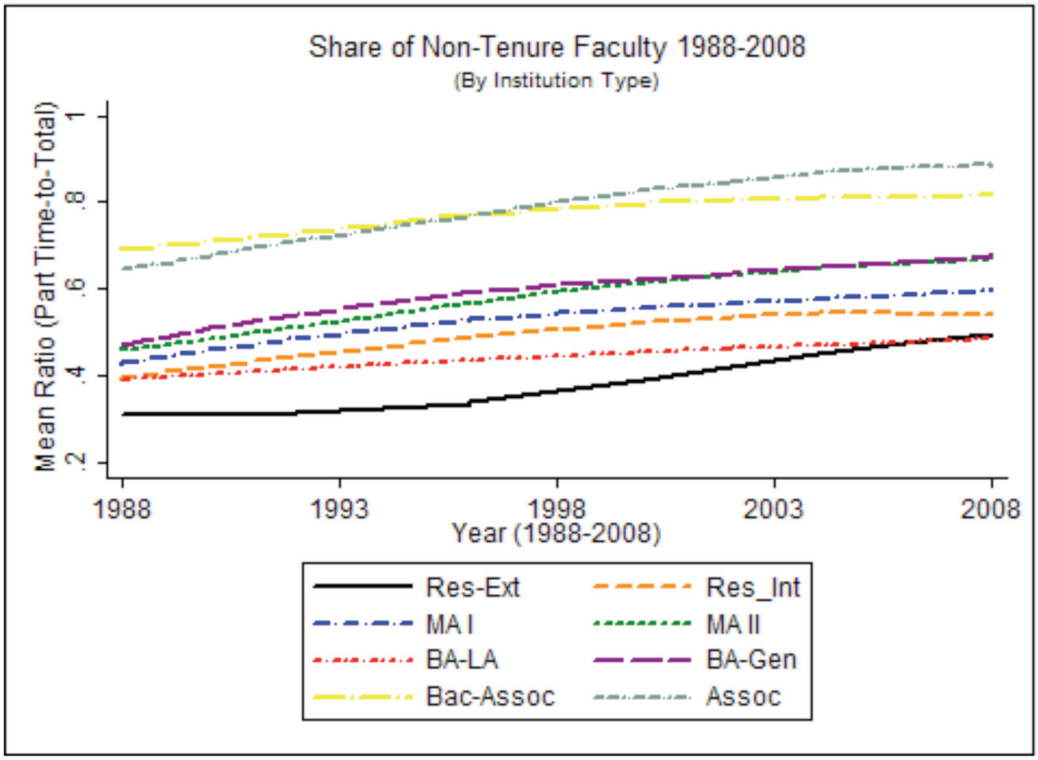


Figure 3 considers the two kinds of contingent employment together, presenting the share of all part and full-time non-tenure-line faculty employed by institutions from 1988 to 2008. The figure provides a glimpse at the rising contingent hiring over the decades. Looked at conversely, the figure highlights the declining share of employment on traditional tenure lines. Interestingly, unlike the changes in specifically part-time employment and specifically non-tenure-line full-time employment, the changes in overall contingent faculty shares are rather consistent across institutional sectors. Blending the backing away from full-time non-tenure-line hiring in all but research extensive institutions with the aggressive growth in part-time hiring in many institutions, the overall picture is one of steady erosion of tenure-line employment shares in each sector over the 20-year period. That erosion is most dramatic in the research university sector, perhaps the most visible sector in U.S. higher education: there, the trend lines point to tenure-line faculty becoming a minority of all faculty within the next decade.

FIGURE 3



While these descriptive data are intriguing, more complex modeling can help to untangle the relative influence of various institution-related factors on schools' shares of contingent faculty. For that reason, we traced institutions across time and ran a pooled linear regression, which fit our focus on sector and control, two time-invariant variables.[5]

The regression form is expressed in the following equation, taking the normal distribution:[6]

$$y_i = x_i\beta + \epsilon_i$$

where the subscript *i* indexes the units in the analysis, y is the ratio of part-time faculty to total faculty, *x* is a *n* by *k* matrix of the predictive variables, β the regression coefficients and ϵ the error term that is distributed normal with a mean of 0. Because the residuals were not independent, the error term was clustered on institution.

The models interact sector and control with the natural log of time. Because the models have multiple interactions, in post-estimation we ran the results on simulated data that allows us to plot the interactions while holding all other variables in the model at their mean – effectively generating a visual plot that one may interpret as if it were a regular regression coefficient. These simulated data contain all possible combinations of the interacted variables.[7]

The decision to include time as a single variable reflects the hypotheses presented in the previous section. That is, as the literature indicates that the trend in the use of part-time faculty has increased, necessitates a variable that captures this phenomenon. This specification departs from the more traditional approach of "time dummy variables" that is inappropriate for modeling time as a dynamic process in and of itself. Said simply, we believe that the dependent variable is, in part, a function of time and wish to explicitly account for its influence.[8] Logging time possesses two welcome

5 While some institutions did change sectors, their numbers were very small and the substantive curricular change afterwards appears very minor.

6 We acknowledge that the dependent variable is in fact distributed Beta, however, in our estimates, less than 0.05% of the observations are out of bounds. An alternative means for understanding the simulated data is that it is equivalent to , except that all interacted variables are allowed to vary across all potential combinations.

8 Our specification allows for time to have an interactive, linear influence. We acknowledge that the "true" effect of time may in fact have an even more dynamic relationship (e.g. quadratic, cubic, etc.). The current state of theory does not point to a specific, non-linear relationship, however, so any

properties. First, it minimizes the influence later years may have on potential estimates, converting this variable into a normal distribution. Second, we code time with 1988 (the first year in the analysis) as a 1, which, when logged, enables easier interpretation of the main effects (that is, the natural log of 1 is zero).[9]

RESULTS

Table 2 presents results for three pooled regression models, for part-time hiring, full-time non-tenure-line shares, and for all contingent shares (part-time and full-time combined), over the 1988-2008 period. There are two unsurprising similarities across all three sets of results. First, as suggested in earlier analyses, the contingency movement has gained momentum over time: there is a significant positive time effect on contingent-shares, and the time-based interactions with sector and control are jointly significant. Second, for-profit institutions show an enduring commitment to contingent hiring. In that sector, the commitment to a traditional, full-time tenure-line faculty workforce is far more rare.

polynomial fitting of time would be dictated by the model and thus atheoretical.

9 Other estimators, notably survival models, contain assumptions frequently necessitating researchers to interact a covariate with some measure of time. For an example of this see Box-Steffensmeier and Zorn (2001).

TABLE 2:
THREE MODELS OF CONTINGENT FACULTY PROPORTIONS (POOLED OLS WITH CLUSTER ROBUST STD. ERRORS)

VARIABLE	COEFFICIENT	(STD. ERR.)
Ln(time)	0.042***	(0.006)
Private	0.141***	(0.011)
Private X ln(time)	-0.001	(0.006)
For-Profit	0.244***	(0.025)
For-Profit X ln(time)	-0.028*	(0.011)
Doc/RU Intensive	-0.023	(0.019)
Doc/RU Intensive X In(time)	0.031**	(0.009)
MA-I	-0.018	(0.015)
MA-I X In(time)	0.037***	(0.007)
MA-II	-0.027	(0.024)
MA-II X In(time)	0.047***	(0.013)
BA-LA	-0.015	(0.017)
BA-LA X In(time)	0.014	(0.008)
BA-Gen	-0.017	(0.017)
BA-Gen x In(time)	0.027**	(0.009)
BA/Assoc	0.111**	(0.037)
BA/Assoc X In(time)	0.034*	(0.016)
Assoc	0.082***	(0.016)
Assoc X In(time)	0.034***	(0.007)
Admin.-to-Faculty (Ratio)	-0.375***	(0.052)
Part-Time Students (Proportion)	0.401***	(0.018)
Revenue Per FTE	-0.006***	(0.001)
Intercept	0.192***	(0.012)
N	25653	
R^2	0.376	
$F_{(22,2670)}$	211.063	

Significance levels: * : .05 ** : .01 *** : .001

(a) Modeling Proportions of Part-Time Faculty

VARIABLE	COEFFICIENT	(STD. ERR.)
Ln(time)	0.051***	(0.007)
Private	-0.003	(0.013)
Private X In(time)	0.017***	(0.006)
For-Profit	0.111*	(0.050)
For-Profit X In(time)	-0.002	(0.023)
Doc/RU Intensive	0.107***	(0.011)
Doc/RU Intensive X In(time)	-0.047**	(0.011)
MA-I	0.119***	(0.015)
MA-I X In(time)	-0.056***	(0.008)
MA-II	0.086**	(0.027)
MA-II X In(time)	-0.040**	(0.013)
BA-LA	0.074***	(0.021)
BA-LA X In(time)	-0.066***	(0.010)
BA-Gen	0.122***	(0.021)
BA-Gen x In(time)	-0.036***	(0.010)
BA/Assoc	0.191***	(0.040)
BA/Assoc X In(time)	-0.070*	(0.017)
Assoc	0.191***	(0.019)
Assoc X In(time)	-0.029***	(0.008)
Admin.-to-Faculty (Ratio)	0.278***	(0.025)
Part-Time Students (Proportion)	-0.126***	(0.025)
Revenue Per FTE	-0.000	(0.002)
Intercept	0.061***	(0.013)
N	23083	
R^2	0.098	
$F_{(22,2509)}$	35.60	

Significance levels: * : .05 ** : .01 *** : .001

(b) Modeling Proportions of Full-Time Non-Tenure Faculty

TABLE 2: (CONTINUED)
THREE MODELS OF CONTINGENT FACULTY PROPORTIONS (POOLED OLS WITH CLUSTER ROBUST STD. ERRORS)

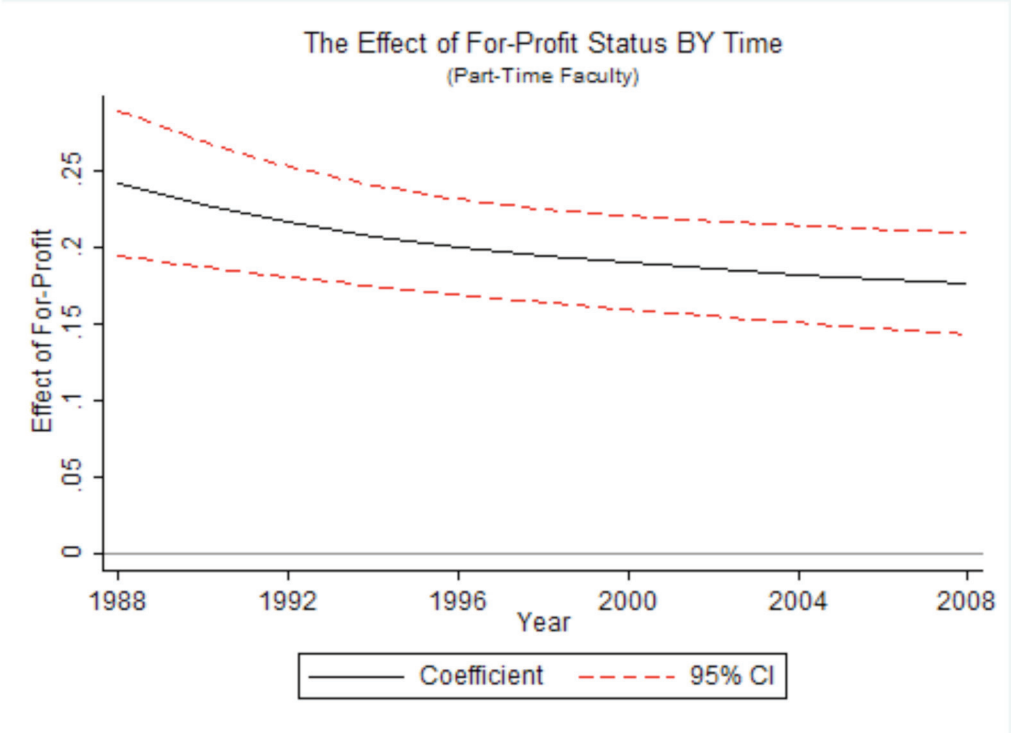
VARIABLE	COEFFICIENT	(STD. ERR.)
Ln(time)	0.089***	(0.009)
Private	0.144***	(0.015)
Private X In(time)	0.017**	(0.007)
For-Profit	0.392***	(0.051)
For-Profit X In(time)	-0.039	(0.023)
Doc/RU Intensive	0.083**	(0.026)
Doc/RU Intensive X In(time)	-0.016	(0.013)
MA-I	0.094***	(0.020)
MA-I X In(time)	-0.016	(0.010)
MA-II	0.059	(0.033)
MA-II X In(time)	0.002	(0.015)
BA-LA	0.053*	(0.025)
BA-LA X In(time)	-0.047***	(0.012)
BA-Gen	0.099***	(0.025)
BA-Gen x In(time)	-0.006	(0.012)
BA/Assoc	0.299***	(0.048)
BA/Assoc X In(time)	-0.036	(0.020)
Assoc	0.273***	(0.022)
Assoc X In(time)	0.002	(0.009)
Admin.-to-Faculty (Ratio)	-0.189***	(0.023)
Part-Time Students (Proportion)	0.265***	(0.025)
Revenue Per FTE	-0.007***	(0.001)
Intercept	0.252***	(0.017)
N		23083
R^2		0.349
$F_{(22,2509)}$		331.18

Significance levels: * : .05 ** : .01 *** : .001

(c) Modeling Proportions of Non-Tenure Faculty (Total)

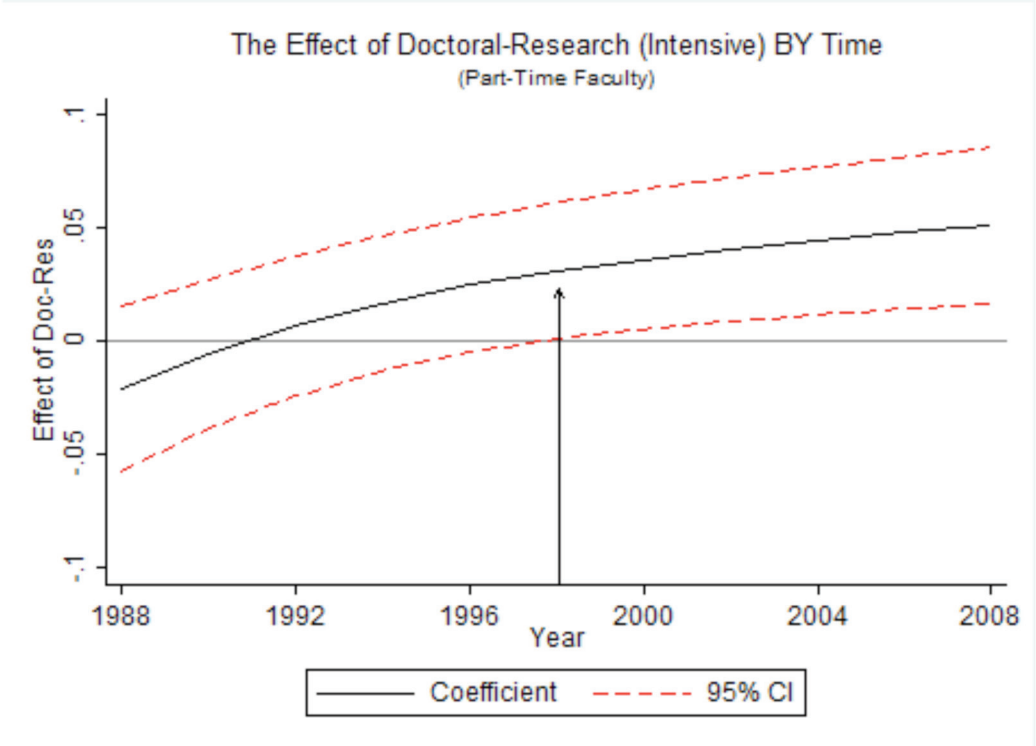
Part a of the table presents results for part-time faculty shares in the institutional sample. The results suggest that, while for-profit institutions have been especially committed to contingent hiring, their distinctively high commitments have become less distinctive over time, relative to other sectors (see Figure 4). Notably, in all other sectors except bachelors and liberal arts-degree granting institutions, there is indication of increasing commitments to part-time employment over the twenty-year period. For example, Figure 5 shows that the effect of doctoral-research intensive institutions became significantly positive in 1998, but the effect was borderline negative back in 1988 at the start of our data. In addition, the results suggest that private institutions, institutions with high levels of part-time student enrollment, institutions with lower administrator/faculty ratios,[10] and institutions with lower levels of per-student revenues have also been especially committed to part-time faculty hiring over the period.

FIGURE 4



10 Arguably, this finding may be artifactual of schools needing several part-time faculty to deliver the same amount of coursework as one full-time faculty member. In keeping with that interpretation, the finding does not persist for full-time faculty (see part b of the table).

FIGURE 5



Part b of Table 2 presents results for full-time non-tenure-line faculty. Here, although private institutions over the entire time period show no net greater tendency toward full-time contingent faculty, relative to public and for-profit institutions, those institutions do evince growing commitment to contingent faculty over time (See Figure 6). Interestingly, relative to the comprehensive universities that comprise the comparison group for the regressions, all other degree-level sectors exhibited a strong but decreasingly significant edge in their commitments to full-time contingent shares over time (See Figures 7 and 8). The effect of doctoral-research intensive institutions lost its positive significance in 1996; if trends continue, the effect may even become negative. Additionally, in direct contrast to the results for part-time faculty shares, the administrator/faculty ratio was a positive factor in full-time, non-tenure-line faculty shares while the percentage of part-time students was a negative factor.

FIGURE 6

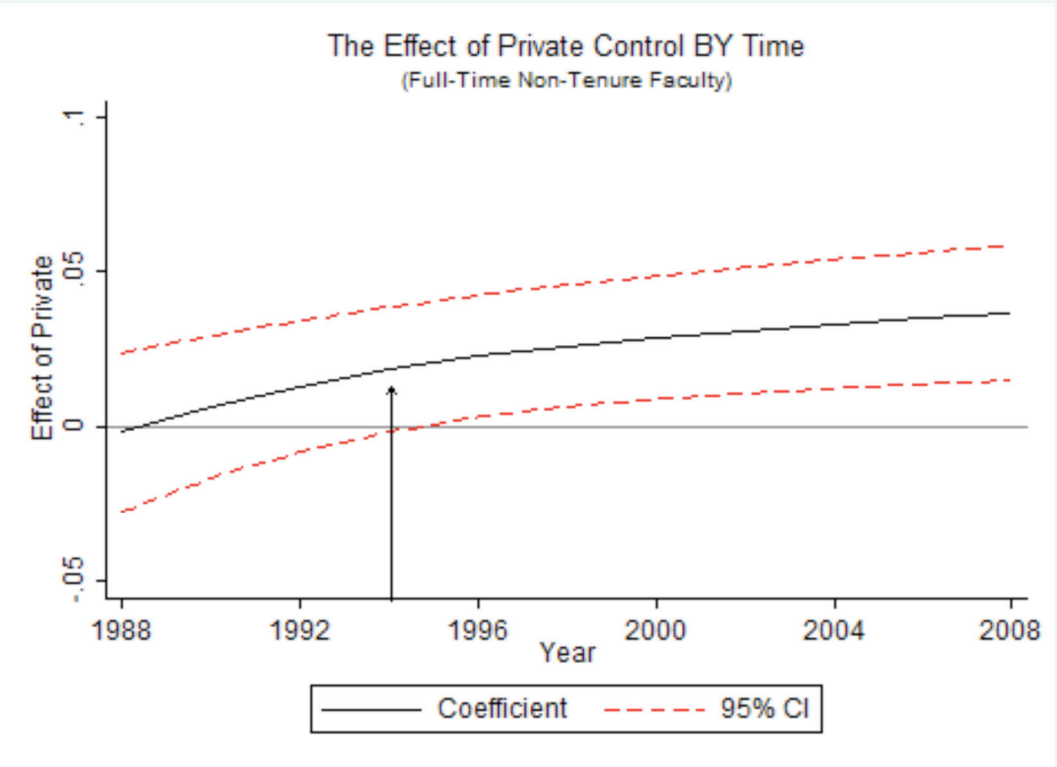


FIGURE 7

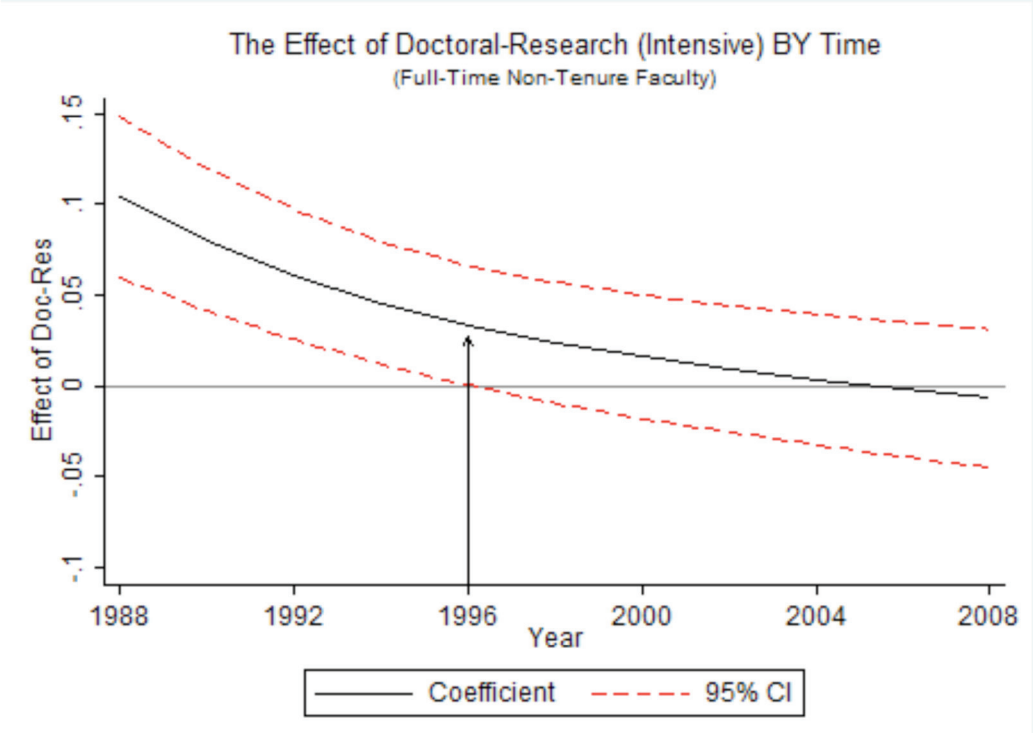
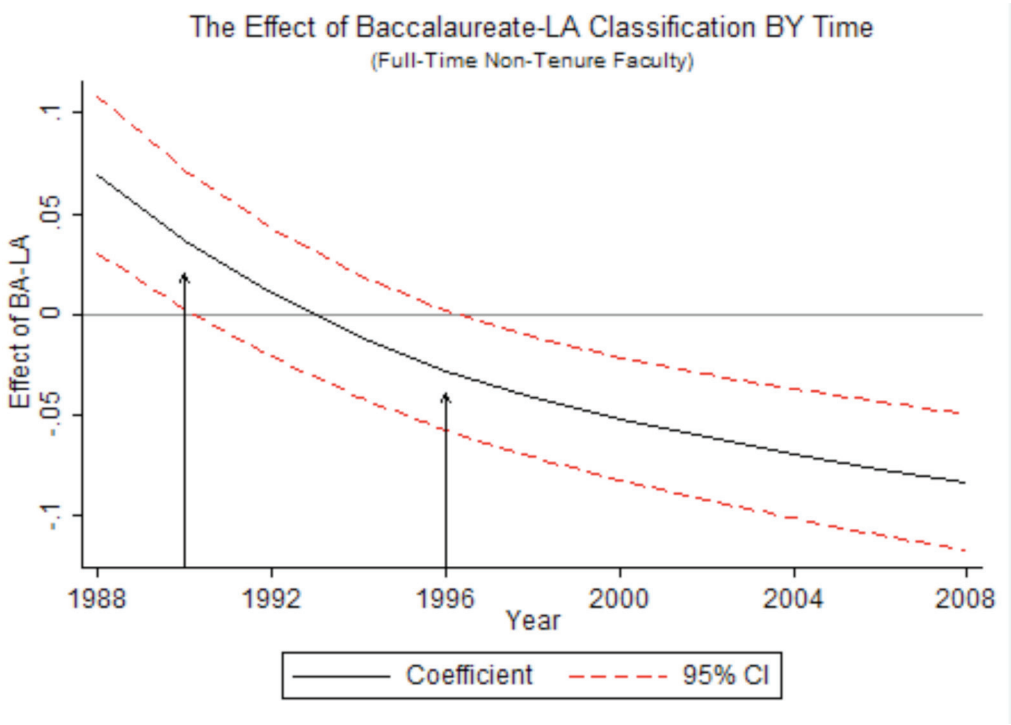


FIGURE 8



Part c of Table 2 presents results for part-time and full-time non-tenure-line faculty. In effect, this combines part-time and full-time contingent shares into a single indicator of institutions deviating from traditional faculty employment patterns. Once again, we see a strong and growing commitment to contingency among private institutions (Figure 9), and continuing commitment among for-profit institutions. In addition, several institutional sectors show high commitments to contingent employment, relative to the comparison group of comprehensive institutions. Similar to the findings for full-time, non-tenure-line faculty compositions, Figure 10 illustrates a reversal in effect for liberal arts institutions, which had a significant positive effect until 1989, but time has taken away the power of this indicator's positive effect and since 2000 this classification has had a significant negative effect on contingent faculty shares. Overall, institutions' revenues per FTE student and administrator/faculty ratio were a negative factor in contingent shares, while the percentage of part-time students was a positive factor.

FIGURE 9

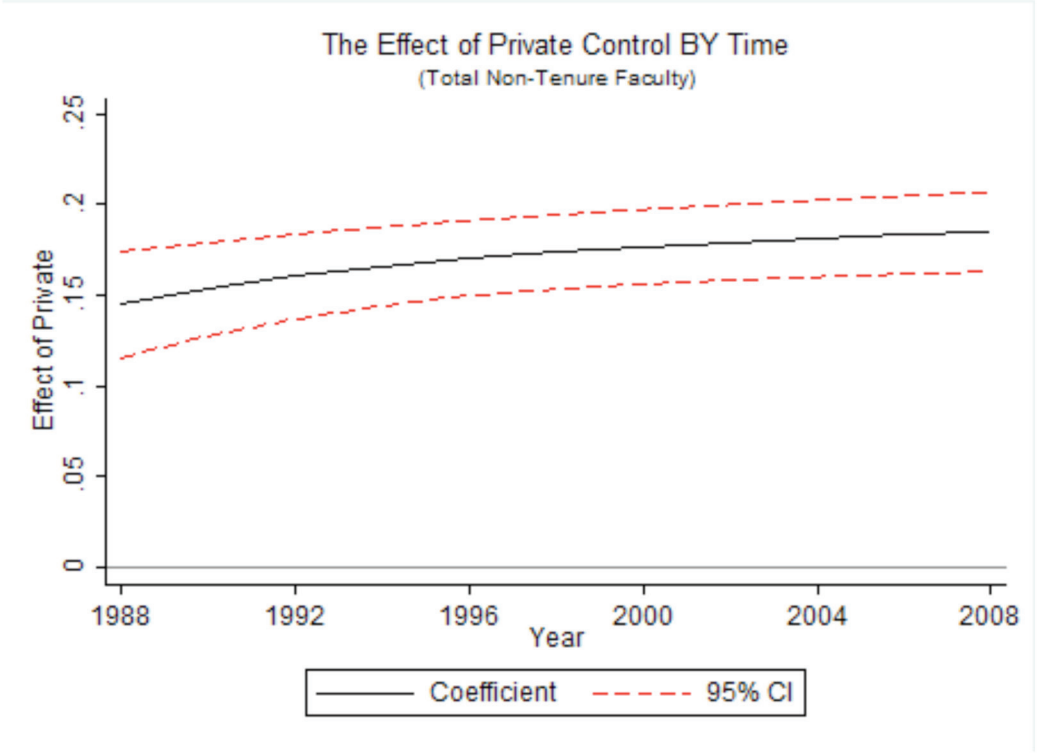
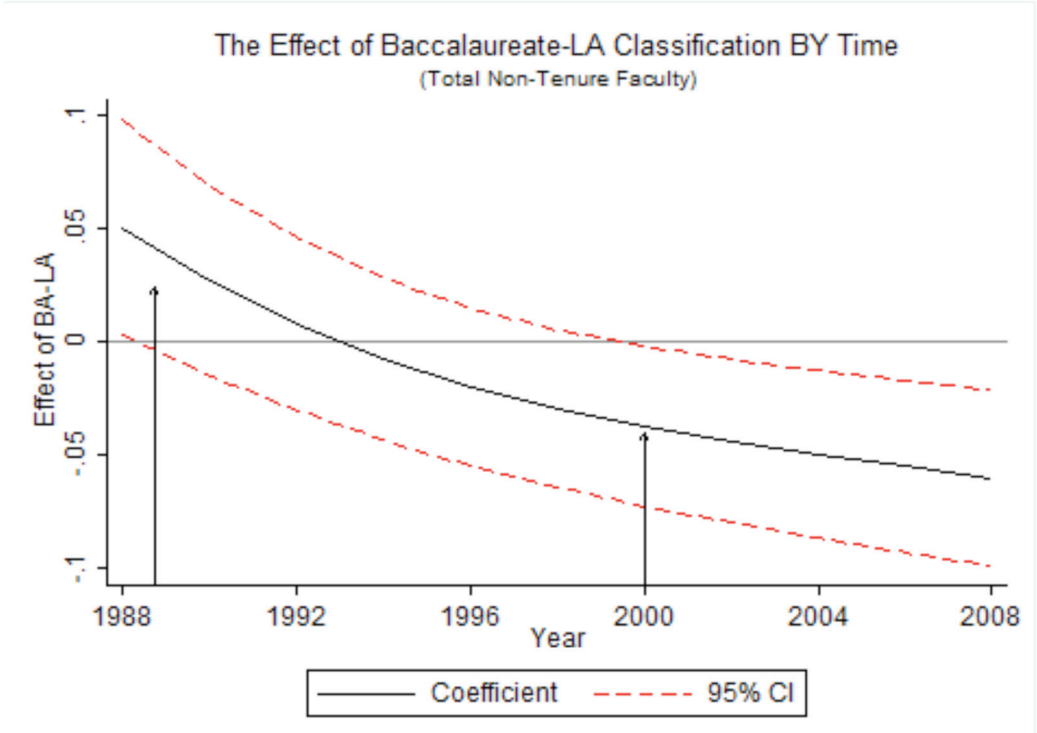


FIGURE 10



IMPLICATIONS AND SIGNIFICANCE

Beyond providing unsurprising confirmation of the growth of contingent employment over the past two decades and the prominence of this employment form in the for-profit sector, the analyses suggested several striking findings. First, we had originally hypothesized that less historically institutionalized postsecondary sectors (e.g., for-profit colleges, institutions with large proportions of part-time students, community and technical colleges) were the most likely to adopt contingent employment, and that hypothesis generally held. Table 1c suggests that contingent employment of any kind was consistently associated with large part-time enrollment shares, with for-profit status, and with an institutional focus on associate-degree offerings.

Second, however, the roots of contingent commitments appear different for different forms of contingent hiring. Part-time faculty shares were associated with low ratios of administrators to faculty, while full-time non-tenure-line faculty shares were associated with higher administrator/faculty ratios. Part-time faculty shares were associated with large proportions of part-time students, while full-time non-tenure-line shares were associated with smaller such proportions. Institutions with lower revenues per student were especially likely to employ part-time faculty, but showed no special tendency to employ full-time non-tenure-line faculty. And, intriguingly, from the late 1980s, private institutions showed a stronger commitment to employing part-time faculty than their public counterparts, but only in recent years did they begin to show a stronger commitment to employing full-time non-tenure-line faculty as well. When institutions' commitments to contingent hiring are not differentiated between the distinctive kinds of contingent employment, these differences are submerged.

Third, and relatedly, it is clear that, compared to public institutions, private colleges and universities are moving more speedily along the path to resembling for-profit institutions in their employment profiles. To the extent that the private institutions are more thoroughly privatized, and more sensitive to the marketplace demands for rapid adaptation and improved educational efficiency (e.g., see Morphew and Eckel, 2009), this may not be surprising. At the same time, in classic organizational-theory terms, some private institutions in the U.S. are among the most highly institutionalized, with roots dating to the colonial era and storied histories (Clark, 2009). Most private institutions are less established, though: Williams and Swarthmore are not the norms, and in the more marginalized, non-elite sectors of private higher education, employment reform is increasingly being pursued.

Ideally, this research can contribute to understanding the contingency movement in the various elements of higher education and the implications of the phenomenon for institutional functioning and faculty careers. As a first step, it is important to note and incorporate in future research the realization that variations in commitments to contingency are not simply at the institutional level: disciplines, too, vary in the degree to which they are moving away from traditional hiring arrangements, and in the degree to which familiar employment patterns are disrupted (Hearn and Gorbunov, 2005). Departments vary in their pay arrangements, and in their entrepreneurialism and flexibility (Hearn, 1999 and 2008). Indeed, in some units, contingent faculty earn as much in base salary as other faculty, albeit with different responsibilities and different levels of security. Exploring the factors behind these variations at the unit level, and their implications for institutional adaptation, poses a useful future analytic avenue.

Additional research might profitably be directed toward investigating the factors propelling certain sectors to move most quickly and dramatically towards contingency, as well as toward the factors that appear to make other sectors more resistant and perhaps ultimately infertile soil for the movement. Is the movement inexorable and universal, or are there certain barriers unlikely to be crossed?

Theoretically, it is intriguing that contingent faculty hiring has "outlaw" origins: it emerged outside the traditional, highly institutionalized core of U.S. higher education. Notably, the for-profit sector was and still is the most committed to this approach to labor arrangements. But evidence presented here shows the extent of the phenomenon's movement into other sectors, calling into question established notions of university management, academic governance, and conventional faculty careers. The modeling results here suggest, at least tentatively, that the greatest inroads of the contingency

movement into highly institutionalized sectors have come at the schools most on the edge financially and academically. Institutional stress may beget greater willingness to part from academic traditions. In these evolving contexts, the traditional hegemony of tenured faculty may currently be in place, but its hold is weakening, and the future seems uncertain. With no evidence that any part of U.S. higher education is entirely immune to the contingent movement, faculty and leaders in all settings are confronting the strong possibility that new forms of governance and organization may become increasingly imperative.

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