

Academic Workforce Flexibility and Strategic Outcomes in Four-Year Colleges and Universities

James C. Hearn,
University of Georgia,
TIAA Institute Fellow

Rachel A. Burns,
University of Georgia

Karley A. Riffe,
University of Georgia

Executive summary

Since the 1950s, colleges and universities have dramatically reduced their reliance on traditional tenure-line, full-time faculty appointments. Proponents of this trend argue that predominantly tenured faculty workforces are costly and poorly adapted to changing academic markets. There are counterarguments, however. What is gained in employer flexibility and efficiency may be offset by reduced worker security, turnover challenges, and other problems. Higher education's distinctive mission, values, and governance traditions make these trade-offs all the more complex. Turning over sizable portions of academic offerings to workers with limited commitments to an institution and limited voices in educational policy decisions ultimately may harm educational quality and perhaps endanger institutions' financial and marketplace positions.

In this analysis, we investigate the organizational outcomes associated with moving toward contingency in four-year institutions. Using recent data, we explore the connections between faculty workforce composition and different aspects of institutions' strategic success. The analysis focuses on relationships between shifting levels of "contingent" faculty (i.e., nontenure-track faculty, or NTT, working part- or full-time on fixed-term contracts) and a variety of outcomes, including student applications, admission yield, freshmen enrollment, student-faculty ratios, six-year graduation rates, and net revenues.

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Although our models do not show uniformly positive institutional outcomes from NTT commitments, several of the effects found were in favorable directions for institutions. Most strikingly, increased NTT commitments were associated with lower student-faculty ratios, perhaps suggesting educational benefits for students. On the other hand, we found reason for caution regarding expectations for improved market positioning and financial health.

Ultimately, the efficiency and effectiveness of committing to NTT faculties must be assessed comprehensively and in an integrated fashion, examining the varied institutional outcomes holistically. The evidence provided here invites such further analysis.

Key findings

- This study examines the popular argument that moving away from commitments to tenure-line, full-time faculty contributes to improved market positioning, academic outcomes, and financial health in colleges and universities.
- The analysis of data for four-year institutions over a recent 12-year timespan allows in-depth examination of the effects of utilizing “contingent” faculty, i.e., nontenure-track faculty (NTT) working part- or full-time on fixed-term contracts.
- Institutions may benefit from moving to contingency in their faculty employment profiles in some ways, but overall effects on institutional outcomes are selective and mixed. Increased NTT commitments were associated with lower student-faculty ratios, perhaps suggesting educational benefits for students, but no benefits were observed on other outcomes.
- Institutions exploring heightened use of contingent faculty arrangements would do well to consider such a choice holistically and cautiously. Study results provide ample reason for caution regarding expectations that the move will pay off by improving market positioning, academic outcomes, or financial health.

Changing faculty employment in the U.S.

In recent decades, colleges and universities have dramatically reduced their reliance on full-time tenure-line faculty. Between 1979 and 2013, the number of postsecondary institutions grew 51 percent, and the number of enrolled students grew 78 percent, but the proportion of all faculty either tenured or on tenure track declined from 57 percent to 28 percent, and the proportion of faculty employed full-time declined from 70 percent to 48 percent (Finkelstein, et al. 2016). Increasingly, institutions conduct their core activities using part- or full-time workers on fixed-term contracts rather than in tenure-line positions.

Political pressures have helped spur this trend. State policymakers concerned about the productivity and teaching of predominantly-tenured public university faculties have worked to tie institutional funding more closely to perceived workforce and economic needs rather than to the liberal-arts disciplines in which tenure-line faculty traditionally predominate (Wong, 2015). Thus, policymakers have incentivized shifts toward faculty contingency.

Still, the roots of the trend to workforce contingency lie deeper than politics and spread well beyond the public institutions’ dependence on state legislators. For decades, higher-education observers and leaders have noted that the heavily tenured workforces of colleges and universities may constrain their responses to emerging market conditions. Prominently, Christensen and Eyring (2011) have extended that argument to suggest that commitments to tenure may lead to academic and financial decline, and ultimate failure in colleges and universities. In a similar vein, Brewer and Tierney (2011) suggest that schools with predominantly tenured faculty must maintain commitments to curricula poorly attuned to emerging market conditions while simultaneously being constrained by substantial senior-faculty salary commitments and burdensome shared-governance norms. More fundamentally, commitments to tenure can restrain strategic change legally in that, outside of declaring financial exigency, most institutions can

dislodge a tenured faculty member only slowly and with evidence of outright malfeasance or misfeasance (O'Meara, 2004).

It is thus easy to see why decision makers have become increasingly willing to abandon longstanding faculty employment approaches. Constrained employment choices can frustrate campus leaders with ambitions of initiating significant strategic change.

The contingency literature

The higher-education literature presents two strikingly different perspectives on the employment of contingent faculty: current trends away from tenure-line commitments are effective, or the movement is endangering not only traditions and organizational vitality, but also students' academic outcomes.

Contingent workforce as strategic necessity.

The classic strategic-management literature of business and other arenas sees contingent hiring as increasing leadership control, institutional adaptability, and operational efficiency. From that perspective, organizations identifying their core values and goals, assessing external threats and opportunities, and examining internal strengths and weaknesses will survive and prosper (Dyson, 2004). Moves toward contingency are viewed as strategic choices rather than merely reactive responses to political and financial pressures. In higher education, pursuing alternative labor-force arrangements may allow college leaders to effectively and efficiently adapt programming in the face of changing student markets and political demands (Carey, 2015). Thus, the argument goes, nontraditional staffing is essential to higher education's existential need for large-scale "disruption" (Christensen and Eyring, 2011). Simply put, these critics see schools with a predominantly-tenured faculty workforce as 1) forced to maintain outdated curricula poorly attuned to emerging market conditions; 2) slowed by shared-governance norms associated with tenure systems; and 3) tied down by sizable salary and benefit commitments to entrenched senior faculty.

These arguments reflect analyses of contingent employment in other industries (e.g., see Houseman, 2001; Smith, 1997; Osterman, 1987; Nayar, et al., 2001; Fisher and Connelly, 2017). Some of those analyses (e.g., Cardon, 2004) suggest indirectly that, in higher education, the use of contingent faculty may be most useful in institutions and fields connected to business, industry and engineering, where contingent faculty can play a key role in attaching curricula and research to developments outside of higher education. Faculty in other fields may potentially benefit as well, to the extent that nontraditional staffing could facilitate gains in institutional diversity and other goals (O'Meara, 2015).

Contingent workforce as ineffective reform

While moving to contingency may indeed contribute to heightened strategic flexibility, there are counterarguments. Research in a variety of non-educational settings suggests that those gains may be offset by higher training and turnover costs, less productive working conditions, and reduced worker security (Kalleberg, 2000; Fisher and Connelly, 2017; U.S. Department of Labor, 2017). Higher education's distinctive mission, values, and governance traditions make these trade-offs all the more complex. Entrusting sizable portions of academic work to faculty with limited institutional commitments and limited governance roles may ultimately lessen educational quality and institutional vitality (see Toutkoushian and Bellas, 2003; Ehrenberg and Zhang, 2005; Ehrenberg, 2006; Umbach, 2007; Bowen and Tobin, 2015). For example, students' contact with established senior faculty might decline, along with their persistence and graduation rates.

These contrasting arguments have not been systematically examined in higher education. *Does increasing the proportion of faculty on nontenure contracts indeed lead to improvements in operational aspects of institutional performance over time?* That is, is it warranted to expect improvements from such a move in outcomes such as student applications, yield, freshmen enrollment, student-faculty ratios, graduation rates, and financial health?

The analysis

In this analysis, we investigate possible outcomes of contingency using a broad organizational perspective. The existing higher-education evidence focuses mainly on contingency's implications for proximal outcomes such as faculty satisfaction, gender equity in the academic workforce, and student learning. These proximal outcomes are certainly critical, but so too are the broader implications of the contingency movement for institutional survival and health. In that domain, unfortunately, the literature too often relies on anecdotes and data-free speculation. There is a need for further empirical work along the lines chosen here.

To explore the connections between faculty workforce composition and institutions' health, our analysis used institutional data to examine relationships over time between shifting contingent levels and varied operational outcomes, employing controls for institutional size, finances, and other characteristics. Because differences in institutional missions may lead to differences in the implications of contingent labor forces, we break out our quantitative analyses by institutional sector. Higher proportions of contingent faculty will likely have differing influences within different institutional types. For example, one might expect that raising contingent commitments might have especially positive influences on academic and financial outcomes in institutions with the widest array of organizational goals (such as research universities), in that a more flexible academic workforce could free resources for the pursuit of nonteaching goals such as research and service (although Zhang and Ehrenberg, 2010, present equivocal evidence on that proposition).

We limit the analysis to nonprofit four-year institutions in the United States because of data issues for the public two-year college sector; the very small size of the private two-year college sector; and the absence of reliable information on the for-profit sector. We included six institutional sectors in our analysis: independent baccalaureate colleges; public baccalaureate colleges; comprehensive (master's-level) private institutions;

comprehensive (master's-level) public institutions; independent research universities; and public research universities.

This work poses formidable design challenges because of substantial barriers to causal inference. We chose a conservative approach, dropping missing and questionable values, incorporating statistical and analytic-sampling controls, instituting validity checks, and remaining cautious in venturing conclusions.

Data for the study came from the Integrated Postsecondary Education Data System (IPEDS) and the affiliated Delta Cost Project. Observations are restricted to the years 2002 through 2013. The final sample includes approximately 1,200 four-year accredited institutions observed over 12 years of data collection, resulting in roughly 14,000 clean observations. Additional variables in the models control for factors that could influence the outcomes of interest, including federal contracts and grants, state contracts and grants, FTE count, time, proportion of part-time students, percentage of African-American and Hispanic students, and the percentage of students receiving Pell Grants. In public institutions, we also controlled for institutions' state appropriations. This study utilized a fixed effects (FE) model to control for time-invariant differences among institutions.

Findings

Descriptive analyses of our data suggested several major themes. First, individual institutions' business models, scale, and scope differ substantially across U.S. higher education. To generalize about "American higher education" is usually misguided. Second, the number of applications students submitted rose dramatically over the study period, especially in the public and private doctoral sectors. Not surprisingly, therefore, the rise in applications was accompanied by declines in most sectors' institutional yields (i.e., the proportions of admitted students who actually enrolled). Third, student-faculty ratios and six-year graduation rates changed little over the period, and freshmen enrollment changes

were not dramatic. Finally, net revenues (revenues minus expenses) remained relatively stable around zero across all sectors except the private doctoral institutions, which experienced dramatic fluctuations, probably owing to endowment volatility during the Great Recession.

Table 1 summarizes our statistical analysis of effects of faculty's contingent composition, lagged one year, on six modeled dependent variables, in the context of control factors. The results are broken out by institutional sector. We present here only the direction and strength of significant effects, with the number of signs (e.g., + or -) corresponding to the statistical strength of the observed regression effect. For those interested, the full results underlying the table are presented in our parallel *Research Dialogue* report for the TIAA Institute.

Increasing proportions of NTT were unconnected to the freshmen enrollment outcome and were either unconnected or associated with unfavorable outcomes in other models. Notably, higher levels of NTT commitments were associated with lower applications volumes in private baccalaureate and master's-level institutions, lower yields in private doctoral institutions, lower graduation rates in private doctoral institutions, and lower net revenues in public baccalaureate institutions. How NTT commitments may lower applications and yields in private institutions is unclear, but this is not an unprecedented finding (Ehrenberg & Zhang, 2005).

The connection between contingency and lowered net revenues in public baccalaureate institutions demands further analysis. For now, the results for net revenues raise a cautionary flag for proponents arguing that NTT growth can aid institutions' bottom lines. In the context of controls, the move seems to work against the financial health of public baccalaureate institutions and seems to provide no financial benefits to other four-year institutions.

The most consistent finding was an association of higher NTT commitments with lower student-faculty ratios. Although this might seem at first simply artifactual (as more NTT faculty are added, total faculty ranks may

grow, reducing the student-faculty ratio), NTT faculty may be replacing rather than supplementing tenure-track faculty in teaching and research. Certainly, NTT hiring may benefit students by lowering class sizes, increasing faculty-student interaction, and expanding course availabilities; but, if institutions are hiring NTT part-time faculty to free tenure-track faculty from teaching, that could improve the institution's overall student-faculty ratio without improving the quality of students' education.

Implications

Our statistical results paint a decidedly mixed perspective regarding contingency's effects. We identify several major themes in those results. First, NTT commitments were unrelated to institutional outcomes in the great majority of our modeling. It is clear that contingent approaches are only one factor, and certainly not a determinative factor, in shaping institutional outcomes.

Second, our analyses' consistent finding of negative NTT effects on student-faculty ratios seems promising on the surface. Lower student-faculty ratios have long been theorized and found to be associated with more favorable educational outcomes. Also, student-faculty ratios are a significant factor in prominent ranking systems, including that of *U.S. News & World Report*, so this apparent effect of NTT commitments may be especially welcomed by institutions in highly competitive markets. Our modeling findings can only hint at causation, of course, but these results are intriguing and merit further analytic attention.

Third, the findings for the study's sole indicator of ultimate educational outcomes tell a less positive story: Graduation rates appeared unaffected by the move to contingent hiring in five sectors, and fell in private doctoral universities. More fine-grained analysis of the academic implications of NTT hiring is warranted. For now, the case for contingent hiring as a path to improved educational outcomes remains unproven.

Also sobering was our fourth theme: We found no evidence that increasing NTT commitments benefitted institutions' "bottom lines." Indeed, in public

baccalaureate institutions, the opposite may be true. Earlier work by Zhang and Liu (2010) and Rosinger, et al., (2016) presages this finding, and these issues are productively examined in more detail by Hurlburt and McGarrah (2017).

In sum, the study findings here provide little support for blanket condemnation or commitment to the contingent approach for its effects on market positioning, academic quality, or financial health. Given the strategic arguments for contingency, it is especially noteworthy that the financial health of colleges and universities does not appear strongly influenced either way by NTT commitments.

These findings do not close the case, of course. Importantly, a great variety of appointment types fall within our definition of NTT category and each type may carry with it different implications for institutional outcomes. More comprehensive analyses of institutions' marketplace success, financial operations, and academic outcomes are needed.

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Table 1. Effects of increasing proportions of nontenure-track faculty on selected institutional outcomes

Institutional Sector	Dependent Variables					
	Freshmen Enrollment	Applications	Yield	Student-Faculty Ratio	Graduation Rate	Net Revenue
Baccalaureate						
Public	No Effect	No Effect	No Effect	- - -	No Effect	-
Private	No Effect	-	No Effect	- - -	No Effect	No Effect
Master's						
Public	No Effect	No Effect	No Effect	- - -	No Effect	No Effect
Private	No Effect	-	No Effect	- - -	No Effect	No Effect
Doctoral						
Public	No Effect	No Effect	No Effect	- - -	No Effect	No Effect
Private	No Effect	No Effect	-	- - -	-	No Effect

Note: The positive and negative signs represent the significance tests of coefficients, where one mark (i.e., + or -) = $p \leq .001$, two marks (i.e., ++ or --) = $p \leq .01$, and three marks (i.e., +++ or ---) = $p \leq .05$.

About the authors

James C. Hearn is Professor and Associate Director in the Institute of Higher Education at the University of Georgia. He holds a Ph.D. in sociology of education and an M.A. in sociology from Stanford University, and earned earlier degrees from Duke University and the University of Pennsylvania. His research and teaching focus on postsecondary education organization, finance, and policy. His work on faculty workforce issues in colleges and universities, reported here, is part of his broader research emphasis on colleges' and universities' adaptations to shifting economic, demographic, and political conditions. Under that emphasis, he has recently studied innovations in institutional financial operations and governance; trends toward marketization and performance accountability in postsecondary institutions and systems; colleges' use of intercollegiate athletics as an enrollment-management tool; test-optional and no-loan policies on campuses; and the shifting ecology of state higher-education policymaking. Hearn's research has been published in sociology, economics, and education journals as well as in several books. He currently serves as a member of the editorial board for the *Journal of Higher Education*, a consulting editor for *Research in Higher Education*, and a TIAA Institute Fellow.

Rachel A. Burns is a doctoral candidate in the Institute of Higher Education at the University of Georgia. She holds an MPA from the University of Georgia in Public Policy and Management and a BA from the University of Virginia. Her research focuses on state policies related to postsecondary access, affordability, and attainment for underrepresented students. She has worked on a diverse range of issues including the changing composition of the faculty workforce, graduate student debt loads, student outcomes at minority-serving institutions, accumulation of excess credits, and university technology transfer. Her dissertation analyzes the emergence of in-state residency tuition policies for undocumented students between 2000 and 2016, with a particular focus on the economic, political, and educational characteristics that influence the policymaking environment. She has presented this work, along with work on other collaborative projects, at conferences such as AERA, ASHE, AEPF, and AIR. She plans to defend her thesis in May 2018.

Karley A. Riffe is a doctoral candidate and research assistant within the University of Georgia's Institute of Higher Education. Her research explores the interrelationships between higher education institutions, those who work within them, and the external environment as they affect institutional mission fulfillment. Specifically, her work examines the nature of faculty work and the changing academic profession within diverse institutional contexts. Riffe has presented her research at the annual meetings of both the Association for the Study of Higher Education and the American Educational Research Association. She currently serves as the Senior Graduate Student Representative for AERA Division J – Postsecondary Education and as a graduate assistant for the UGA Center for Teaching and Learning.