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Understanding the Changing Faculty Workforce in Higher Education: A Comparison of Full-Time Non-Tenure Track and Tenure Line Experiences

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Abstract: Non-tenure track faculty are a growing majority in American higher education, but research examining their work lives is limited. Moreover, the theoretical frameworks commonly used by scholars have been critiqued for reliance on ideologically charged assumptions. Using a conceptual model developed from Hackman and Oldham's (1980) Job Characteristics Model (JCM) and prior research on faculty workplace experiences, this study considers the extent to which full-time non-tenure track and tenure line faculty share a professionalized approach to their jobs, working conditions, and how this is associated with their organizational commitment. Findings demonstrate important consistencies in full-time faculty views of their workplaces and jobs across appointment type. Satisfaction with resources, rewards, autonomy and feedback had a significant positive relationship with odds of organizational commitment for all faculty groups. Overall, the results suggest

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being removed from the tenure track is not associated with faculty viewing their jobs in a substantially different way than those in tenure line positions, which underscores the importance of conceptualizing full-time faculty work as an integrated whole. **Keywords:** non-tenure track faculty; organizational commitment; job characteristics.

Entendiendo la cambiante fuerza de trabajo en la educación superior: Una comparación de las experiencias de facultad con y sin posibilidad de permanencia Resumen: Facultad sin posibilidad de permanencia son una mayoría creciente en la educación superior en los Estados Unidos, pero la investigación de sus experiencias en el trabajo es limitada. Los marcos teóricos típicamente usados por investigadores han sido criticados por su dependencia en supuestos ideológicos. Usando un modelo conceptual creado por Hackman y Oldham (1980), y usando investigaciones previas sobre las experiencias de trabajo de facultad, este articulo considera como facultad con y sin posibilidad de permanencia comparten la manera en que ven su trabajo, las condiciones de su trabajo, y como esto es asociado a su compromiso organizacional. Nuestros resultados demuestran consistencias importantes sobre como facultad ve su trabajo y lugar de empleo, sin importar el tipo de posición que ocupan. Satisfacción con recursos, recompensas, autonomía y asesoramiento tienen una relación positiva significativa con el compromiso organizacional de cada grupo de facultad. Los resultados sugieren que no tener posibilidad de permanencia no esta asociado con la menara en cual facultad ve su trabajo diferente en comparación a aquellos que si tienen oportunidad de permanencia. Estos resultados enfatizan la importancia de conceptualizar el trabajo de facultad como unido.

Palabras-clave: facultad sin posibilidad de permanencia; compromiso organizacional; características del trabajo.

A compreensão da força de trabalho em mudança no ensino superior: Uma comparação de experiências de faculdade com e sem possibilidade de permanência Resumo: Faculdade nenhuma possibilidade de permanência são uma maioria crescente no ensino superior nos Estados Unidos, mas a pesquisa sobre suas experiências no trabalho é limitado. Os referenciais teóricos normalmente utilizados pelos pesquisadores tem sido criticado por sua dependência de pressupostos ideológicos. Usando um modelo conceitual criado por Hackman e Oldham (1980), e usando as pesquisas anteriores sobre as experiências de trabalho docente, este artigo considera o corpo docente e incapaz de permanecer partes como eles vêem o seu trabalho, suas condições de trabalho e como este está associada com comprometimento organizacional. Nossos resultados demonstram consistências significativas sobre como corpo docente vê seu trabalho e local de trabalho, independentemente do tipo de posição que ocupam. Satisfação com recursos, recompensas, autonomia e aconselhamento teve relação positiva significativa com comprometimento organizacional para um grupo de professores. Os resultados sugerem que não ter possibilidade de permanência não está associado com a faculdade que vê menara em seu trabalho diferente em comparação com aqueles que têm uma chance de ficar. Estes resultados reforçam a importância de conceituar trabalho docente como um. Palavras-chave: professores sem possibilidaded de permanência; comprometimento organizacional; características do trabalho.

Introduction¹

The faculty labor market in American higher education has been bifurcated by appointment type for quite some time (Gappa & Leslie, 1993). In 1975, 36.5% of faculty were full-time tenured, 20.3% were full-time tenure track (TT), 13% were full-time non-tenure track (NTT), and 30.2% were part-time non-tenure track (AAUP, 2006). Steadily, this split has shifted further away from tenure lines. By 2003, 24.1% of faculty were tenured and only 11% were on the tenure track. Almost half of all faculty (46.3%) were part-time NTT, and 18.7% were full-time NTT. While the proliferation of NTT appointments continues to generate controversy (e.g., Eagan & Jaeger, 2009; Jacoby, 2006), they are very likely to remain a strong presence in the academy (Gappa, Austin, & Trice, 2007).

What do these trends mean for higher education, college and university administrators (such as department chairs and deans), and for those who aspire to or are currently pursuing faculty careers (both on and off the tenure track)? Despite recent activism focused on reducing structural inequities by organizations such as the New Faculty Majority and the Coalition of Contingent Academic Labor, research focused on NTT faculty backgrounds, experiences, and behaviors is limited (Kezar & Sam, 2010). Kezar and others (e.g., Feldman & Turnley, 2004; Gappa & Leslie, 1993; Hart, 2011; Levin & Shaker, 2011; Waltman et al., 2012) have made recent empirical contributions to filling this gap, but less common are studies that directly contrast full-time NTT faculty to TT or tenured faculty (exceptions include Bland et al., 2006; Gappa, Austin & Trice, 2007; Perna, 2001; Schuster & Finkelstein, 2006). Comparisons often merely consider part-time versus full-time appointments, without disaggregating full-time faculty by those who are on and off the tenure track (e.g., Antony & Valadez, 2002; Gappa & Leslie, 1993; Leslie & Gappa, 2002; Maynard & Joseph, 2008). As a result, little is known whether the experiences of faculty with different appointment types are similar.

In this study, we focus specifically on full-time faculty at four-year colleges and universities. Full-time faculty are the foundation of an institution's academic workforce, providing stability to the instructional and intellectual core of the enterprise. The faculty position is their primary employment and, regardless of appointment type, they commonly devote upwards of 50 hours a week to teaching, research, administration, and service (Bland et al., 2006). Whether full-time faculty colleagues with different appointment types experience their jobs and workplaces in a comparable manner, however, remains an understudied question.

From a practice-based perspective, understanding similarities and differences among faculty subgroups is important for academic leaders tasked with the complexity of managing and supporting all simultaneously. Many observers of higher education contend that extensive use of full-time NTT appointments diminishes faculty morale, leads to uncommitted employees, and damages the overall campus climate (AAUP, 2014), but little systematic evidence exists to support or refute this claim. Moreover, as we discuss below, the conceptual approaches used by some researchers to study NTT faculty rely on ideologically charged, but empirically unfounded, assumptions that position their employment closer to temporary laborers rather than academic professionals (Kezar & Sam, 2010; Kezar & Sam, 2011; Levin & Shaker, 2011).

¹ The authors acknowledge that the reported results are, in whole or in part, based on analyses of Harvard University's Collaborative on Academic Careers in Higher Education (COACHE) data set. These data were collected as part of a multisite survey administration and supported by funds from participating colleges and universities. This manuscript has not been reviewed or endorsed by COACHE and does not necessarily represent the opinions of its staff or members, who are not responsible for the contents.

Using a framework developed from Hackman and Oldham's (1980) Job Characteristics Model (JCM) and prior research on faculty workplace experiences, the purpose of this study is to investigate whether differences exist in faculty perceptions of their jobs and working conditions according to appointment type (i.e., non-tenure line, probationary tenure track, and tenured). We also examine how working conditions and job characteristics are related to full-time faculty organizational commitment, and whether these relationships vary according to appointment type.

Conceptual Framework

Most research pertaining to NTT faculty in higher education draws from theoretical frameworks developed in economics or business (e.g., Charfauros & Tierney, 1999; Feldman & Turnley, 2004; Maynard & Joseph, 2008; Roemer & Schnitz, 1982; Toutkoushian & Bellas, 2003; Umbach, 2007). These conceptualizations, including underemployment theory, relative deprivation theory, and social exchange theory, treat NTT faculty as nonprofessional employees (i.e., laborers) who are less qualified than and motivated by different aspects of their work compared to those in TT positions (i.e., professionals). Kezar and Sam (2011) and Levin and Shaker (2011) critique the use of such "deficit models" and the associated research, arguing there is little empirical basis to believe that NTT faculty approach their positions with a routinized laborer mentality. They contend NTT faculty are commonly trained and socialized to their disciplines in a manner comparable to their TT counterparts, so it follows that NTT faculty would approach their jobs in a similar manner. Kezar (2013) observed full-time NTT faculty expect their workplace experiences to be analogous to those of tenure line colleagues. Subject to different employment terms than those who are TT, however, NTT faculty are "managed professionals" (Rhoades, 1998) with a professional identity that reflects the hybrid nature of their positions (Levin & Shaker, 2011).

Our study addresses the aforementioned criticisms and begins with the assumption that all full-time faculty, whether off of the tenure track, pre-tenure, or tenured, share common attributes and experiences that influence their job outcomes. We organize these influences into three conceptual blocks: personal attributes, working conditions, and job characteristics. All are explained in more detail below, but in brief, research on tenure and non-tenure line faculty underscores how socio-demographic and other personal attributes, including gender, race, discipline, age, and time spent at an institution, shape job outcomes. Similarly influential are factors in the surrounding workplace environment, at the institutional as well as department level (e.g., institution type, departmental resources, equitable climate, collegiality, mentoring support, rewards/compensation). Attending to the "deficit" critique, we draw from Hackman and Oldham's (1980) Job Characteristics Model (JCM) to hypothesize that intrinsic attributes of the faculty job itself—namely, autonomy, feedback and skill variety—are valued by all full-time faculty, regardless of appointment type. Moreover, such characteristics of professional jobs are also related to workplace outcomes. As summarized in Figure 1, our framework premises personal attributes, working conditions, and job characteristics each directly influence full-time faculty organizational commitment, an outcome that is also associated with departure intentions (Daly & Dee, 2006; Zhou & Volkwein, 2004).

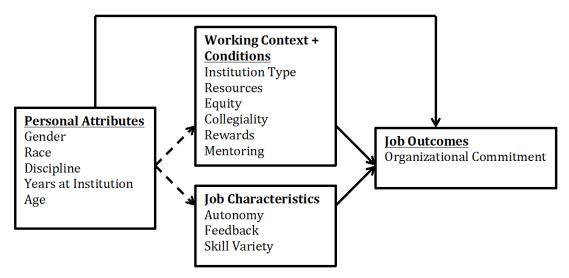


Figure 1. Conceptual Framework

Organizational Commitment

Gappa, Austin, and Trice (2007) observe that faculty are collectively an institution's most valuable—and only potentially appreciable—asset. The effective functioning of universities depends on faculty expertise and collective efforts, requiring members who are invested in their work and committed to its maintenance and enhancement. Faculty who are uncommitted to their organization are less productive in their teaching, research, and service responsibilities as well as less motivated to engage in professional growth and development (Blackburn & Lawrence, 1995; Lawrence, Ott, & Bell, 2012; Jing & Zhang, 2014), leading to departure intentions. In fact, studies of full-time faculty generally suggest that organizational commitment has a stronger relationship with turnover than job satisfaction generally, as commitment is more stable over time while satisfaction can be volatile and influenced by immediate job conditions (Daly & Dee, 2006; Zhou & Volkwein, 2004). However, few studies exist contrasting the organizational commitment of full-time NTT and tenure line faculty. An exception is Bland et al. (2006), who observed full-time NTT faculty were less committed than full-time TT, although they were unable to account for specific job or working conditions that might contribute to the variations in individuals' attachments, nor did they include tenured faculty in their analyses.

Job Characteristics

Unlike deficit-based approaches to studying employee workplace experiences, motivation, and job outcomes, Hackman and Oldham's (1980) Job Characteristics Model (JCM) does not emphasize job security, external rewards, or the lack thereof. Instead, the focus is on core perceptual attributes of jobs, including skill variety, autonomy, and feedback. These job characteristics are said to influence workplace outcomes (e.g., organizational commitment, organizational satisfaction, and turnover). The JCM has received substantial support from studies of professional employees (Rode, 2004), though this framework has not previously been used to examine full-time NTT faculty or compare them to their tenure line counterparts.

The JCM defines skill variety as the range of skills that an individual must employ, and it contributes to a professional's sense of engaging in meaningful work (Hackman & Oldham, 1980). Within the academic profession, skill variety can be conceptualized in terms of the three main activities in which faculty engage: teaching, research, and service. While the relative distribution of

these activities varies across institutions, disciplines, and appointment types, an individual faculty member's preferences matter most (Schuster & Finkelstein, 2006). In circumstances where expectations are incongruent with actual experiences, the JCM suggests a faculty member will experience disappointment and strain. However, minimal empirical consideration has been given to how full-time faculty across appointment types experience skill variety and its implications for job outcomes.

Autonomy refers to a sense of freedom and personal responsibility over one's work and has long been a core value of American academic work. A major factor in the choice to pursue an academic career is a faculty member's ability to define the content and type of research they conduct, how they teach their courses, and how they serve their institutions and professions (Gappa, Austin, & Trice, 2007). A lack of autonomy is associated with dissatisfaction and increased departure intentions for full-time tenure line as well as NTT faculty (Daly & Dee, 2006; Hart, 2011; O'Meara, 2004; Valadez & Antony, 2001; Zhou & Volkwein, 2004), although none of the prior research directly compares experiences with autonomy across appointment type.

According to the JCM, feedback regarding one's relative success or level of accomplishment contributes to a professional's understanding of the impact of their work (Hackman & Oldham, 1980). In academe, such feedback can come internally from student course evaluations, annual personnel evaluations, tenure reviews, post-tenure reviews, institutional or departmental awards for teaching, or internal grants. External sources also provide faculty with feedback about their accomplishments, through peer review of manuscripts and grants, national awards, or citations of prior work. When the contributions of their work are unrecognized, tenure line faculty are more likely to depart their institutions (O'Meara et al., 2014). Similarly, Waltman et al. (2012) found NTT faculty are more dissatisfied with their jobs when internal feedback and recognition is lacking. However, no studies have directly considered whether full-time faculty experiences with feedback and its affect on job outcomes are consistent across appointment type.

Working Context and Conditions

The JCM focuses on the nature of work itself, but existing scholarship on faculty also emphasizes the importance of surrounding workplace context (i.e., department, school/college, institution) on satisfaction, commitment, and turnover intentions, though Kezar and Sam's (2010) synthesis of the literature suggests working conditions are not often examined in studies of NTT faculty experiences. At the most basic level, faculty rely on instrumental resources from their campuses, including clerical support, course materials, teaching assistants, office/lab space, professional development funds, computing hardware and software, and research support such as grant writers and seed funds. Faculty are more satisfied in and committed to environments with extensive resources available (Johnsrud & Rosser, 2002; Lawrence, Celis, & Ott, 2014; Lawrence, Ott, & Bell, 2012; Rosser & Townsend, 2006), and O'Meara et al. (2014) found a lack of professional development resources as well as lab/research equipment is an important reason for TT faculty departure. Similarly, Hart's (2011) qualitative study of full-time female NTT faculty explained how a lack of resources, including research support, office space, and professional development, contributed to a sense of alienation and dissatisfaction.

An institution's reward structure, that is, salary, benefits, tenure, and opportunities for advancement, helps to recruit and retain high quality employees and also contributes to faculty morale (Schuster & Finkelstein, 2006). Research indicates that satisfaction with rewards has a direct impact on organizational commitment and intent to leave for tenured and pre-tenure faculty (Lawrence, Ott, & Bell, 2012; O'Meara, 2014; Zhou & Volkwein, 2004). Tenure line faculty commonly receive more favorable salary and contract terms than full-time NTT faculty, though their benefits are similar (Schuster & Finkelstein, 2006). Despite compensation differences, several studies

find little evidence that NTT faculty experience comparatively lower levels of satisfaction with their rewards (Antony & Valadez, 2002; Toutkoushian & Bellas, 2003).

Resources and salary speak to basic material working conditions, but social and interpersonal dynamics are also important contextual factors that shape a faculty member's experience (Schuster & Finkelstein, 2006). A collegial workplace characterized by collaborative, supportive, and constructive relationships among faculty and administrators contributes to faculty satisfaction with their jobs, regardless of appointment type (Gappa & Leslie, 1993; Harper et al., 2001; Maynard & Joseph, 2008; O'Meara, 2004; Waltman et al., 2012). Studies suggest most full-time faculty are pleased with the level of collegiality in their departments (Maynard & Joseph, 2008; Waltman et al., 2012), but among those who are generally dissatisfied with their positions, poor colleague relationships are a major contributing factor. Perceived disrespect from faculty colleagues and administrators is associated with negative job outcomes in qualitative research of tenure line faculty (O'Meara et al., 2014) as well as NTT faculty (Waltman et al., 2012).

While collegiality refers to relationships writ large, one-on-one mentoring relationships focused on career development play a separate instrumental role in the workplace experience of faculty (Sorcinelli & Yun, 2007). Mentoring support from formal and informal relationships has a well-documented relationship with pre-tenure faculty success (Lawrence et al., 2014; O'Meara et al., 2014; Peluchette & Jeanquart, 2000). Less research exists on how NTT or tenured faculty experience mentoring, although Peluchette and Jeanquart (2000) found higher levels of research productivity associated with tenured associate professors who had mentors external to their current institution. Productivity also was better for tenured full professors with mentors internal to their current institution, leading the researchers to conclude mentoring has value across career stages.

Being treated fairly in the workplace is important to all faculty (Austin, Gappa & Trice, 2007; Laurence, Ott & Bell, 2012). Although equity has improved over time for women and faculty of color (Schuster & Finkelstein, 2006), NTT faculty continue to report work environments where they feel like "second class citizens" (Baldwin & Chronister, 2001; Hart, 2011; Waltman et al., 2012). Collectively, NTT faculty are recruited, hired, and oriented haphazardly (Kezar & Sam, 2010); experience ill-defined evaluation/promotion processes (Gappa, Austin & Trice, 2007); and lack participation in governance (Gappa, Austin & Trice, 2007). NTT faculty often are assigned an accumulation of activities and tasks undesirable to TT faculty, such as teaching lower-division courses and program administration (Hollenshead et al., 2007).

Personal Attributes

The diversification of appointment types over the past several decades has been accompanied by substantial demographic shifts in faculty backgrounds, with more women and people of color joining the professoriate (Schuster & Finkelstein, 2006). Scholars have documented that regardless of appointment type, faculty workplace outcomes often differ according to sociodemographic characteristics such as age (Kezar, 2013; Shaker, 2008; Toutkoushian & Bellas, 2003), gender (Cooper & Stevens, 2002; Hart, 2011; Toutkoushian & Bellas, 2003), and race/ethnicity (Cooper & Stevens, 2002; Johnsrud & Sadao, 1998; Lawrence, Ott & Bell, 2012; Mack, 2013; Rosser, 2004). Career-related personal attributes also associated with faculty experiences include time spent at an institution (Kezar, 2013; Shaker, 2008) and academic discipline or field (Kezar, 2013; Lawrence, Ott & Bell, 2012).

Summary of Framework

Research on full-time NTT faculty perspectives of campus life suggests they are fairly satisfied, although their experience worsens when asked about specific working conditions (Kezar & Sam, 2010). How this compares to tenure line faculty is unclear. This study attends to Kezar and

Sam's (2011) critique of the NTT scholarship by considering the degree to which full-time NTT and TT faculty express shared views of their jobs and working conditions, and whether these views influence their organizational commitment in similar ways. Using the proposed framework, we address the following questions:

- 1. To what extent do full-time faculty share common views of their job and workplace characteristics, and are there differences in these beliefs according to appointment type?
- 2. How do working conditions and job characteristics influence full-time faculty organizational commitment, and are these relationships different for non-tenure track faculty compared to those in tenure lines?

Methodology

Data

Our data were drawn from a multi-institutional survey of faculty conducted annually since 2005 by the Collaborative on Academic Careers in Higher Education (COACHE) at Harvard Graduate School of Education. The survey instrument was developed by COACHE to assist institutions in assessing and improving faculty work life and experiences. Campuses voluntarily participate in the survey and represent a diverse array of four-year postsecondary institutions. The questionnaire includes multiple Likert-scaled items that ascertain respondents' perceptions of and satisfaction with their department, school, and campus environments.

The data collection was cross-sectional, and for this analysis, we use respondents from the 2011-12 administration. The survey was sent electronically to all full-time NTT, pre-tenure, and tenured faculty who had worked at least six months at their institutions (N=28,968), and the response rate was 49% (n=14,323). For this analysis, we further limited our sample by removing faculty whose primary appointments were in medical schools, since appointment types, personnel policies, and tenure can be considerably different for clinical MD faculty compared to their colleagues in other disciplines (Jones & Gold, 2001).

Prior to beginning our analyses, we checked the data for missing cases. On average, the 26 independent variables we planned to use were missing approximately 12% of their cases.² We followed the recommendation of Rubin (1987, 1996) and used multiple imputation in SPSS v. 22 to account for the missing cases.³ Our final working sample was 14,708 faculty from various disciplines who were employed by 51 four-year college and university campuses. Twelve percent held full-time non-tenure track appointments (n=1,790), 21% were pretenure tenure-track (n=3,042), and the remaining 67% were tenured (n=9,876). The majority of the sample was White (82%) and male (60%), and 61% primarily taught in "hard science" disciplines (i.e., Engineering, Computer Science, Mathematics, Physical Sciences, Biological Sciences, Agriculture; Biglan, 1973; see Table 1 for full descriptive statistics).

² We completed logistic regressions with 1 assigned to missing values and found no consistent pattern of association between the missing values and the personal attribute, working context, job characteristic, or commitment variables.

³ This method relies on fully conditional specification, and we used the pooled results after five iterations of imputation.

Table 1 Descriptive statistics (n=14,708)

		Min	Max	Mean	SD
Non-tenur	re track appointment	0	1	0.12	0.33
	e track appointment	0	1	0.21	0.42
Tenured a	ppointment	0	1	0.67	0.28
Personal A	ttributes				
	Years at institution	0	59.00	13.25	10.62
	Gender (female)	0	1	0.40	0.49
	Age	21	87	49.85	11.00
	Race (White)	0	1	0.82	0.38
	Discipline (soft)	0	1	0.39	0.49
Working C	ontext and Conditions				
	Carnegie type (RUVH)	0	1	0.53	0.50
	Equity	-2.90	3.17	0	1
	Mentoring	-3.90	3.58	0	1
	Resources	-3.27	3.03	0	1
	Collegial	-3.32	2.99	0	1
	Rewards	-3.43	3.76	0	1
Job Characi	teristics				
	Autonomy	-5.17	2.46	0	1
	Feedback	-2.84	2.58	0	1
	Skill variety	-3.44	2.56	0	1
Job Outcom	•				
,	Organizational commitment	0	1	0.80	0.40

Measures

All faculty participants were given a set of core items to ascertain their perceptions of and satisfaction with department, school, and campus practices, policies, and climate. Additionally, a set of supplemental items about the standards, processes, and criteria around the reward structure was tailored to appointment type. Non-tenure track faculty were asked about their perceptions of reappointment and contract renewal, while tenure line faculty were asked about their views of the tenure process. Given our focus on directly comparing full-time faculty experiences according to appointment type, our analyses draw only from the core items administered to all respondents.

Our measures align with our conceptual framework and are described briefly here as well as summarized in more detail in Table 2. Our independent variables are grouped into three blocks; the first two were identified from reviews of the NTT and TT literature and the final is developed from the JCM.

Our first block consists of personal attributes including measures for race, gender, discipline, age, and years employed at current institution. Additionally, for NTT faculty, we control for contract type. To measure working context and conditions, we subjected five sets of items representing key features of the workplace identified in our literature review to principal axis factor analyses with varimax rotation. The resulting five scales aligned with rewards, resources, mentoring, collegiality, and equity (see Appendix A). For each, we averaged the means of the individual items, and then standardized the composite result. In addition to these factor-derived measures of working

Table 2

Age

Variable definitions

Personal Attributes

Female Scale: 0=Male, 1=Female
White Scale: 0=non-White, 1=White
Discipline Primary area of teaching

Scale: 0= Hard (Engineering, Computer Science, Mathematics, Physical Sciences, Biological Sciences, Agriculture); 1= Soft (Arts & Humanities, Social Sciences, Health &

Human Ecology, Business, Education)

Years at Institution
Number of years spent working at current institution

Scale: Years Scale: Years

Contract Type For non-tenure track faculty, the type of contract under which they are employed at their

current institution

Scale: 0= Fixed term renewable or non-renewable, 1=Rolling

(Included in the non-tenure track model only)

Working Context and Conditions

Equity Satisfaction with equitable distribution of teaching and service workloads

Scale: 2-item factor, standardized

Collegiality Satisfaction with personal and professional interactions among colleagues in department.

Scale: 2-item factor, standardized

Resources Satisfaction with institutional resources provided to support teaching and scholarship

Scale: 2-item factor, standardized

Rewards Satisfaction with compensation (i.e., salary, retirement, own health benefits, family health

benefits)

Scale: 4-item factor, standardized

Mentoring Perceived effectiveness of mentoring from department colleagues, other faculty at

institution, and mentors external to institution

Scale: 3-item factor, standardized

Job Characteristics

Feedback Satisfaction with recognition received for job performance in teaching, advising,

scholarship, service, administration, and community outreach.

Scale: 5-item factor, standardized

Autonomy Satisfaction with own influence over direction of scholarship, courses taught, and

committee service obligations. Scale: 3-item factor, standardized

Skill Variety Satisfaction with distribution of effort given to teaching, research, service, administration,

and community outreach.

Scale: 4-item factor, standardized

Commitment If I could do it over, I would again choose to work at this institution

Scale: 0 = Strongly disagree, Somewhat disagree, Neither agree nor disagree

1 = Somewhat agree, Strongly agree

conditions, we controlled for institution type using the Carnegie Classification. The final block of independent variables represents three job characteristics drawn from the JCM: autonomy, feedback, and skill variety (see Appendix A). For each, we subjected individual items to principal axis factor analyses with varimax rotation and developed composite standardized scales.

Our job outcome dependent variable is organizational commitment, operationalized as the response to an item asking whether "if I had it to do all over, I would again choose to work at this institution" and similar to the commitment measure used in past studies of faculty (e.g., Antony & Valdez, 2002; Lawrence, Ott, & Bell, 2012).

Analytic Strategy

We first used bivariate analyses (chi squares and t-tests) to determine the significant differences between NTT and pre-tenure, tenure line faculty as well as between NTT and tenured faculty on all measures described above (Research Question 1). Given the increased likelihood of Type I error with multiple t-tests, we report statistically significant results only for those that exceed p<0.001 (Siegel, 1990). We then used three sets of logistic regressions to model the relationships among variables illustrated in Figure 1: one for the NTT faculty, one for pre-tenure tenure track faculty, and one for tenured faculty (Research Question 2). Separately testing the three samples allowed us to evaluate our conceptual starting point for this study: that these relationships are the same across appointment type. For each logistic regression, multicollinearity tests of Variance Inflation Factors among the predictor variables were within acceptable levels (see Appendix B for correlation matrix).

Limitations

Colleges and universities voluntarily participate in COACHE, paying COACHE researchers to administer the survey and analyze the results. Institutional motivations for participating likely vary; some may be reacting to anecdotal concerns about their faculty, while others may be seeking empirical support for what they already believe to be a positive campus environment. Individual motivations for participating also likely vary; the survey is confidential and administered by a third party, but TT and NTT faculty do not have the protections of tenure and may be disinclined to be critical about conditions of their employment. The distribution of full-time NTT, TT, and tenured faculty members in our data does not reflect the distribution according to appointment type nationally; tenure line faculty are overrepresented and NTT faculty are underrepresented here. Our data were de-identified, however, so we were unable to assess whether selection bias attributable to institutional or individual participation according to appointment type might be present.

The COACHE project is transitioning to a longitudinal design, but the data used here were cross-sectional. We controlled for years spent at the faculty member's current institution, but we were unable to examine individual changes in perceptions of jobs and workplace experiences over time, nor actual behaviors (e.g., turnover). The COACHE instrument is designed to inform administrative decision-making rather than test theoretical propositions such as those discussed here. While there were some items we hoped to examine as part of this analysis—for example, job-related task identity/significance, which is often an attribute of skill variety within the JCM framework—no equivalent measure existed in the COACHE instrument.

Our study population of interest is delimited strictly to full-time faculty employed at four-year colleges and universities in non-medical fields. The findings should not be generalized to represent full-time faculty at community colleges or other non-four-year institutions. Similarly, full-time faculty at four-year institutions whose primary appointments are in medical schools are not included in the sample, and the findings here may not reflect their experiences. A final important delimitation is that the non-tenure track faculty in this study are employed full-time at their

institutions. Prior research suggests the experiences of full-time faculty differ from part-timers (Antony & Valadez, 2002; Leslie & Gappa, 2002; Toutkoushian & Bellas, 2003). Within the latter group, experiences may further vary according to whether the faculty member is voluntarily part-time (Maynard & Joseph, 2008). Our results pertaining to NTT faculty do not extend to those who are employed part-time.

Results

We begin by comparing faculty perceptions of their jobs and working conditions according to appointment type. We then examine how these characteristics are related to faculty organizational commitment, and whether these relationships are mediated according to appointment type.

Differences in Job and Workplace Characteristics According to Appointment Type

In terms of the first research question, we observed differences in faculty views of their job characteristics according to appointment type (see Table 3). On average, NTT faculty were less satisfied with the autonomy they have over their work than their pre-tenure or tenured colleagues. However, NTT faculty were comparatively more satisfied with skill variety; in other words, the distribution of effort given to teaching, research, service, administration, and community outreach associated with their work. We did not observe any significant descriptive differences according to appointment type for the third JCM construct, satisfaction with feedback.

Where working conditions are concerned, NTT faculty were significantly less satisfied with the sense of collegiality in their departments. Also, NTT faculty were less satisfied with the equity of departmental workload distribution compared to pre-tenure faculty, though they shared similar levels of satisfaction with those who were tenured. On average, however, there were no statistically significant differences according to appointment type in perceived effectiveness of mentoring support. Nor did we find any differences in satisfaction with institutional resources provided to support teaching or scholarly work. Non-tenure track and pre-tenure faculty had similar views of the extrinsic rewards associated with their jobs, but tenured faculty were less satisfied with salary, benefits, and other rewards than their NTT colleagues.

Our study findings suggest that all faculty across appointment types felt a sense of attachment to their campuses. The majority (80%) said that if they had to do it all over again, they would still accept a position at their current institution. NTT faculty had even higher levels of commitment, an average of 86%, compared to their tenure line colleagues. Commitment levels for pre-tenure probationary faculty was slightly lower (83%), though not a statistically significant difference. However, 78% of tenured faculty responded they were committed to their institution, a significant difference from—and relatively lower level than—those off the tenure track.

Table 3
Mean comparisons of Non-Tenure Track faculty to Pre-Tenure and Tenured faculty

		Non-Tenure	Tenure				
	Full Sample	Track	Track		Tenured		
	(n=14,708) $(n=1,790)$		(n=3,042)		(n=9,876)		
Personal Attributes			· ·		·		
Years at institution ^a	13.25	9.21	3.32	***	16.79	***	
Gender (female) b	0.40	0.51	0.47		0.36	***	
Age ^a	49.85	47.55	38.59	***	53.70	***	
Race (White) b	0.82	0.85	0.75	***	0.84		
Discipline (soft b)	0.39	0.46	0.32	***	0.39	***	
Working Context and Conditions							
Carnegie type (RUVH) b	0.53	0.65	0.44	***	0.53	***	
Equity ^a	0	-0.02	0.16	***	-0.05		
Mentoring ^a	0	0.06	0.03		-0.02		
Resources a	0	0.05	0.16		-0.06		
Collegiality ^a	0	-0.17	0.07	***	0.01	***	
Rewards ^a	0	0.09	0.08		-0.04	***	
Job Characteristics:							
Autonomy ^a	0	-0.20	-0.04	***	0.05	***	
Feedback ^a	0	0.01	0.11		-0.03		
Skill variety ^a	0	0.32	-0.05	***	-0.04	***	
Job Outcomes							
Organizational commitment b	0.80	0.86	0.83		0.78	***	

^{***} p<.001

^a Continuous variable differences between NTT /T and NTT/TT tested with t-tests.

^bCategorical variable differences between NTT /T and NTT/TT tested with crosstabulations and chi-square.

Influences on Organizational Commitment

We next examined possible influences on organizational commitment across the three appointment types (see Table 4). According to several measures of omnibus fit, our model explains the organizational commitment of tenured (χ^2 =2757.45; df= 14; Nagelkerke Pseudo-R²=0.46; Cox & Snell Pseudo-R²=0.30) and pre-tenure professors (χ^2 =807.53; df= 14; Nagelkerke Pseudo-R²= 0.48; Cox & Snell Pseudo-R²=0.29) slightly more efficiently than that of non-tenure track faculty (χ^2 =375.10; df= 15; Nagelkerke Pseudo-R²= 0.42; Cox & Snell Pseudo-R²=0.23).

Among the socio-demographic variables included in the analyses, we did not observe any differences in commitment according to gender. Nor were any of the remaining variables included in the personal attributes block statistically significant predictors of pre-tenure faculty commitment. While race was not associated with the commitment of NTT or probationary faculty, among tenured faculty, those who identified as White had 24% higher chances of commitment. Also for tenured faculty, each year older in age was associated with one percent lower odds of commitment, although the opposite relationship held for time spent at current institution. For every year longer, tenured faculty had two percent higher odds of commitment. Non-tenure track and tenured faculty who taught in soft disciplines had lower chances of organizational commitment than those in the hard disciplines (i.e., 40% for NTT and 17% for T).

For all three groups of faculty, satisfaction with resources was associated with higher chances of commitment—each standard deviation increase was associated with 121% for NTT faculty, 39% for tenure track, and 56% for tenured. Similarly, satisfaction with rewards substantially increased the commitment odds of all three groups of faculty (NTT: OR=2.21; TT: OR=1.39; T: OR=1.56; p<0.001 for all). For both pre-tenure and tenured faculty, satisfaction with mentoring opportunities was associated with increases in chances of organizational commitment (TT: OR=1.40, p<0.01; T: OR=1.18; p<0.001). Satisfaction with equity was significant for tenure track faculty only, and every SD increase was associated with 29% higher odds of commitment. While experiences with personal and professional interactions among departmental colleagues was not associated with pre-tenure faculty commitment, a one SD increase in satisfaction with collegiality was associated with a 23% decrease in non-tenure track faculty commitment chances and with a 32% increase in tenured faculty commitment chances.

Two of the three job characteristics from the JCM, autonomy and feedback, had a significant positive relationship with odds of organizational commitment for all faculty groups. A one SD increase in satisfaction with autonomy over one's job responsibilities was associated with a 66% increase in commitment chances for pre-tenure faculty, 43% increase in commitment chances for non-tenure line faculty, and a 34% increase for tenured faculty. Satisfaction with recognition and feedback for job accomplishments was associated with a 71% increase in NTT commitment odds, 106% increase in TT commitment odds, and 84% increase in commitment odds for tenured faculty. Although skill variety was not significantly associated with NTT commitment, for pre-tenure faculty, every SD increase in satisfaction with time spent on skill-based categories of the faculty job (i.e., teaching, research, service, outreach, and administration) was associated with 43% higher odds of commitment. The same magnitude of change in satisfaction with skill variety was also associated with a 36% increase in tenured faculty odds of commitment.

Table 4
Logistic regression results for Non-Tenure Track, Pre-Tenure, and Tenured faculty

20000 100,00000 1000000 100 1100 11000 11	Non-Tenure Trak						Tenured			
	(n=1,418)			(n=2,356)			(n=7,708)			
	Parameter Estimate	Odds Ratio		Parameter Estimate	Odds Ratio		Parameter Estimate	Odds Ratio		
Constant	2.32	10.17	***	1.49	4.43	**	2.27	9.66	***	
Personal Attributes										
Years at institution	0.01	1.01		0.01	1.01		0.02	1.02	**	
Gender (female)	0.20	1.22		-0.04	0.96		-0.01	0.99		
Age	-0.01	0.99		0.02	1.02		-0.02	0.99	*	
Race (White)	0.32	1.38		-0.05	0.95		0.21	1.24	*	
Discipline (soft)	-0.51	0.60	*	0.24	1.27		-0.18	0.83	*	
Working Context & Conditions										
Carnegie type (RUVH)	-0.17	0.84		-0.37	0.69	*	-0.14	0.87		
Equity	0.20	1.22		0.26	1.29	**	0.04	1.04		
Mentoring	0.17	1.19		0.33	1.40	**	0.16	1.18	***	
Resources	0.79	2.21	***	0.33	1.39	***	0.44	1.56	***	
Collegiality	-0.26	0.77	**	0.14	1.15		0.28	1.32	***	
Rewards	0.40	1.50	**	0.35	1.15	***	0.50	1.65	***	
Job Characteristics										
Autonomy	0.36	1.43	**	0.51	1.66	***	0.29	1.34	***	
Feedback	0.54	1.71	**	0.72	2.06	***	0.61	1.84	***	
Skill variety	0.21	1.23		0.36	1.43	***	0.31	1.36	***	
Contract type (rolling) ^a	0.05	1.05								
Omnibus Chi-Square	375.10***			807.53 ***			2757.45 ***			
-2 Log likelihood (intercept only)	1161.04			2152.83			8138.58			
-2 Log likelihood (full model)	785.93			1345.29			5381.13			
Cox & Snell R ²	0.23			0.29			0.30			
Nagelkerke R ²	0.42			0.48			0.46			

p<.05; ** p<.01; *** p<.001

^a Contract type (fixed term vs. rolling) was included in the model for non-tenure track only

Discussion

Our review of the literature came to a similar conclusion as suggested by Kezar and Sam (2010): (1) there is a lack of consensus as to how NTT faculty experiences and outcomes should be studied; (2) whether the conceptual approaches used to study tenure line faculty are equally applicable to full-time NTT faculty; and, (3) very few quantitative comparisons of faculty workplace experiences according to appointment type exist. With this study, therefore, we sought to investigate whether a framework developed a priori from Hackman and Oldham's (1980) JCM equally explained the experiences of tenure and non-tenure line faculty. Given the growing reliance of U.S. colleges and universities on faculty appointed without the protections of tenure, understanding who they are, how they approach their jobs, and what affects their workplace outcomes is an important issue. However, NTT faculty are an overlooked population both as individuals on campus and collectively in the scholarship. In addition to evaluating the value of our conceptual framework, another goal of this study was to add to the limited research on NTT faculty, using a multi-institutional quantitative dataset to analyze whether full-time non-tenure track, pre-tenure, and tenured faculty hold a similar understanding of their working conditions and jobs, as well as how these views are associated with their organizational commitment.

Generally, we found full-time NTT faculty share common views of their jobs and working conditions with tenure line faculty (see Table 3). We observed similar levels of satisfaction with mentoring and resources across appointment type, and full-time NTT faculty had relatively positive views of their compensation and benefits (rewards). However, these faculty members were significantly less satisfied with their personal and professional interactions with department colleagues, substantiating Waltman et al.'s (2012) qualitative findings that a common source of dissatisfaction among NTT faculty is a lack of collegiality. In terms of job characteristics, the faculty in our study held similar views on feedback received for their work. We also found NTT faculty were more satisfied than those in tenure line positions with their distribution of effort across various work activities (skill variety), but they were less pleased with their autonomy over the content and focus of their scholarship, teaching, and service. The NTT faculty in our study reported organizational commitment at levels equal to pre-tenure faculty and higher than tenured faculty, contrary to Bland et al.'s (2006) conclusions that full-time NTT faculty were generally less committed than those in tenure line positions. Our results are, however, in line with those of Umbach (2007), who found full-time NTT faculty are more committed to their teaching compared to those in tenure line positions. Across appointment type, satisfaction with resources and rewards were associated with higher levels of commitment, consistent with previous research on full-time NTT (Toutkoushian & Bellas, 2003) and tenure line faculty (Zhou & Volkwein, 2004). Among the job characteristics included in our model, both autonomy and feedback also positively predicted commitment for all faculty.

Our results suggest being removed from the tenure track is not associated with faculty viewing their jobs in a substantially different (or inferior) way than those in tenure line positions, which underscores the importance of conceptualizing full-time faculty work as an integrated whole. After discussing several implications for institutional policies and practices, we conclude with directions for further research.

Implications for policy and practice

For individual faculty to commit to their institutions, colleges and universities must demonstrate reciprocal commitment by constructing supportive working conditions and policies that are consistently applied across departments (Kezar & Sam, 2010). Tenure line faculty are

considered to be professionals by their institutions, exemplified by formal policies and practices that guide hiring procedures, orientation, pay and benefits, promotion and evaluation, academic freedom, and professional development. Full-time NTT faculty positions are often treated as contingent labor rather than professionals, but our study offers evidence that designing policies and practices to more systematically professionalize the NTT faculty role is also warranted.

Many departments provide fewer resources to part-time or full-time NTT faculty compared to their tenure line counterparts (O'Meara et al., 2014; Shaker, 2008), and yet, we found all professors shared similar levels of satisfaction with institutional support provided for teaching and scholarship. Zhou and Volkwein's (2004) research indicated NTT faculty place a lower priority on adequate resources than tenured faculty, but in fact, we found this was an especially important factor in full-time tenure ineligible faculty commitment. To prevent full-time NTT turnover, our results underscore that department chairs and deans should work with these faculty members to ensure adequate scholarship and teaching resources are provided, such as dedicated office space, access to computers, training on classroom technology, conference travel support, eligibility for internal grant and award programs, and paid career development leave akin to sabbaticals for long-serving NTT faculty (Baldwin & Chronister, 2001; Bergom & Waltman, 2009).

Colleges and universities pay full-time NTT faculty an average of 25% lower per hour than those on the tenure track (Monk, 2007). We lacked information on the actual salaries of our sample, but consistent with prior research, we observed minimal descriptive differences in how satisfied faculty were with compensation according to appointment type (Antony & Valadez, 2002; Toutkoushian & Bellas, 2003). We did find satisfaction with external rewards (i.e., salary, health benefits, and retirement benefits) to be an important contextual factor associated with all faculty members' commitment. Although some scholars have argued faculty are not highly motivated by material gain, this offers additional evidence to support the important role compensation plays in building a committed, stable academic workforce (Schuster & Finkelstein, 2006). Institutions should design policies to ensure equitable compensation and raise schedules, so faculty performing comparable full-time work are paid equivalently regardless of appointment type. Benefit packages offered to full-time NTT faculty, including life insurance, health insurance, retirement plans, sick leaves, childbearing leave, employment assistance, dependent care, and vacation time, should also correspond to those available to tenure line faculty (Hollenshead et al., 2007).

Critics often highlight the existence of problematic campus climates, treatment, and equity issues, where NTT faculty feel like "second-class citizens" (Gappa, Austin & Trice, 2007; Kezar, 2012). Our study quantitatively substantiates these claims. Non-tenure track faculty had significantly lower levels of satisfaction with the collegiality of their workplaces (i.e., professional and personal interactions with colleagues) compared to both probationary and tenured faculty, and also lower levels of satisfaction with equity compared to pre-tenure faculty. Encouraging and rewarding NTT participation in departmental, college, and university committees and governance bodies can facilitate the types of personal interactions that contribute to a collegial climate, as well as ensure academic decisions are informed by the experiences of faculty across appointment types. In addition to these types of formal activities, NTT faculty should be invited to participate in more casual events such as socials, faculty retreats, or campus networking opportunities (Bergom & Waltman, 2009).

The proliferation of non-tenure track appointments is partially attributed to public divestment in higher education (AAUP, 2014). As states have cut funding, in addition to raising tuition and implementing various cost-cutting measures, colleges and universities have replaced tenure lines with cheaper NTT positions. Policymakers are likely unaware of the larger ramifications of funding cuts, but faculty working conditions are student learning conditions (Umbach, 2007). NTT faculty are not necessarily lower quality instructors or uncommitted to their work, but they are provided less professional support and fewer resources for teaching. Lawmakers—and the public—

should be made more aware of the unintended consequences of divesting in higher education, especially what an under-supported faculty workforce means for student outcomes.

Implications for further research

Whether full-time NTT and TT faculty view their jobs and work comparably, and whether their beliefs similarly affect their workplace outcomes, is an understudied question. The results here indicate our conceptual framework, anchored by Hackman and Oldham's (1980) Job Characteristics Model (JCM), helps to make sense of faculty organizational commitment across appointment type. Two of our three JCM measures were significantly associated with NTT commitment, and all three consistently predicted tenured and TT commitment. Our findings suggest the JCM shows promise for studying faculty job experiences and outcomes across full-time appointment types. However, due to a lack of appropriate measures in our dataset, we were unable to account for two additional job characteristics that combine with skill variety to contribute to a professional's sense of engaging in meaningful work. Task identity is a sense of clarity regarding transformation effected by the individual worker as well as the opportunity to use personally valued skills and abilities, and task significance is the perceived impact of one's work on others. Further research is needed to evaluate the extent to which task identity and significance contribute to faculty views of their jobs.

In theory and in practice, appointment type results in status differentials within the academy. Faculty off of the tenure track are often treated as inferior to those with tenure line appointments (Kezar, 2012). Moreover, other structural characteristics such as institution type, discipline, race, and gender separately contribute to further faculty stratification. The typical NTT faculty in our study was White, female and employed at research universities in soft disciplines, but we used these measures primarily as control variables. Additional research is necessary to unpack how appointment type intersects with other structural characteristics, and whether cumulative status differences translate to variations and inequities in faculty experiences.

Our analysis did not include part-time appointments, and whether our framework also applies to part-time faculty views of job and workplace characteristics is an open question. Though both groups lack the protections of tenure, and scholars often conflate and combine the two, the employment distinction between part and full-time NTT appointments is critical (Hollenshead et al., 2007; Kezar & Sam, 2010), especially for part-time faculty who prefer a full-time position (Maynard & Joseph, 2008). Our literature review uncovered few quantitative studies of part-time faculty and no direct comparisons to the workplace experiences of tenure line faculty. Part-time faculty comprise the majority of non-tenure line teaching positions in postsecondary education (AAUP, 2006), so further understanding of how their positions compare to their full-time colleagues continues to be particularly important.

While additional research into faculty appointments is important, the present study provides evidence towards disabusing stereotypes that full-time NTT faculty are "of lower quality, lack commitment, move around from institution to institution, exhibit poor morale, and have other issues that are not supported by the research" (Kezar & Sam, 2010, p. 64). Our descriptive results suggest these faculty are just as committed to their campuses as those in tenure line positions. Moreover, on average, they spent just over nine years at their institutions, compared to a mean of almost seventeen for tenured and three for pre-tenure. Despite lacking the protections of tenure, our findings indicate the typical full-time NTT faculty member values her job and workplace, both psychologically and behaviorally.

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Appendix A Factor-Derived Variables, Items and Reliabilities

Factor	Item	Factor
Name		Score
Equity $(\alpha = .653)$	Please rate your level of satisfaction or dissatisfaction with the following: how equitably the teaching workload is distributed across faculty in your department. ^a	0.580
	Please rate your level of satisfaction or dissatisfaction with the following: how equitably committee assignments are distributed across faculty in your department. ^a	0.580
Mentoring $(\alpha = .607)$	Please rate the effectiveness or ineffectiveness of the following for you: mentoring from someone in your department. ^b	0.403
,	Please rate the effectiveness or ineffectiveness of the following for you: Mentoring from someone outside your department at your institution. ^b	0.492
	Please rate the effectiveness or ineffectiveness of the following for you: mentoring from someone outside your institution. ^b	0.415
Resources $(\alpha = .693)$	Please rate your level of satisfaction or dissatisfaction with the following: the support your institution has offered you for improving your teaching. ^a	0.591
	Please rate your level of satisfaction or dissatisfaction with the following: institutional support (e.g., internal grants/seed money) for your research/scholarly/creative work. ^a	0.591
Collegiality $(\alpha = .875)$	Please rate your level of satisfaction or dissatisfaction with the following: the amount of professional interaction you have with faculty in your department. ^a	0.530
	Please rate your level of satisfaction or dissatisfaction with the following: the amount of personal interaction you have with faculty in your department. ^a	0.530
Autonomy $(\alpha = .624)$	Please rate your level of satisfaction or dissatisfaction with the following: the influence you have over the focus of your research/scholarly/creative work. ^a	0.488
	Please rate your level of satisfaction or dissatisfaction with the following: the discretion you have over the content of the courses you teach. ^a	0.484
	Please rate your level of satisfaction or dissatisfaction with the following: the discretion you have to choose the committees on which you serve. ^a	0.409

²Scale: 1 = very dissatisfied, 2 = dissatisfied, 3 = neither satisfied nor dissatisfied, 4 = satisfied, 5 = very satisfied (responses of "Not Applicable/ I don't know" and "Decline to Answer" were removed from the analyses)

Appendix A con't Factor-Derived Variables, Items and Reliabilities

Factor Name	Item	Factor Score					
Feedback (α = .898)	How satisfied are you with the recognition you receive for your: teaching efforts. ^a	0.233					
,	How satisfied are you with the recognition you receive for your: student advising. ^a	0.239					
	How satisfied are you with the recognition you receive for your: scholarly/creative work. ^a	0.227					
	How satisfied are you with the recognition you receive for your: service contributions (e.g., department/program administration, faculty governance, committee work, advising/mentoring students, speaking to alumni or prospective students/parents). ^a	0.246					
	How satisfied are you with the recognition you receive for your: outreach (e.g., extension, community engagement, technology transfer, economic development, K-12 education). ^a	0.240					
Skill Variety $(\alpha = .734)$	Please rate your level of satisfaction or dissatisfaction with the portion of your time spent on the following: teaching. ^a	0.261					
	Please rate your level of satisfaction or dissatisfaction with the portion of your time spent on the following: research. ^a	0.283					
	Please rate your level of satisfaction or dissatisfaction with the portion of your time spent on the following: Service (e.g., department/ program administration, faculty governance, committee work, advising/ mentoring students, speaking to alumni or prospective students/parents). ^a	0.325					
	Please rate your level of satisfaction or dissatisfaction with the portion of your time spent on the following: Outreach (e.g., extension, community engagement, technology transfer, economic development, K-12 education). ^a	0.267					
	Please rate your level of satisfaction or dissatisfaction with the portion of your time spent on the following: administrative tasks (e.g., creating and submitting reports, paperwork). ^a	0.290					
Rewards $(\alpha = .761)$	Please rate your level of satisfaction or dissatisfaction with the following aspects of your employment: salary. ^a	0.237					
`	Please rate your level of satisfaction or dissatisfaction with the following aspects of your employment: health benefits for	0.362					
	yourself. ^a Please rate your level of satisfaction or dissatisfaction with the following aspects of your employment: Health benefits for your family (i.e. spouse, partner, and dependents). ^a	0.357					
	Please rate your level of satisfaction or dissatisfaction with the following aspects of your employment: retirement benefits. ^a						

^aScale: 1 = very dissatisfied, 2 = dissatisfied, 3 = neither satisfied nor dissatisfied, 4 = satisfied, 5 = very satisfied (responses of "Not Applicable/ I don't know" and "Decline to Answer" were removed from the analyses)

Appendix B

Correlation Matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	NTT	1	.055**	120**	.085**	079**	.027*	.056**	.091**	008	.021	.019	058**	074**	.005	.119**	.035**
2	OC	.055**	1	.002	017	022	.043**	016	019	.343**	.240**	.417**	.275**	.393**	.460**	.359**	.378**
3	Yrs. Institution	120**	.002	1	139**	.752**	.122**	.051**	.031*	.017	059**	025*	031**	.060**	004	.099**	.000
4	Gender	.085**	017	139**	1	131**	025*	182**	069**	126**	.089**	015	014	071**	064**	136**	025*
5	Age	079**	022	.752**	131**	1	.125**	014	.051**	.022	082**	043**	053**	.045**	010	.107**	024
6	White	.027*	.043**	.122**	025*	.125**	1	024*	.004	.017	009	.020	.062**	.091**	.025*	.004	.060**
7	Discipline	.056**	016	.051**	182**	014	024*	1	.117**	.006	038**	082**	020	041**	.023	.053**	.069**
8	RUVH	.091**	019	.031*	069**	.051**	.004	.117**	1	020	.004	062**	022	.018	.009	.110**	023*
9	Equity	008	.343**	.017	126**	.022	.017	.006	020	1	.204**	.455**	.299**	.478**	.512**	.437**	.343**
10	Mentoring	.021	.240**	059**	.089**	082**	009	038**	.004	.204**	1	.267**	.252**	.253**	.307**	.200**	.189**
11	Resources	.019	.417**	025*	015	043**	.020	082**	062**	.455**	.267**	1	.311**	.440**	.518**	.420**	.436**
12	Collegial	058**	.275**	031**	014	053**	.062**	020	022	.299**	.252**	.311**	1	.326**	.391**	.231**	.210**
13	Autonomy	074**	.393**	.060**	071**	.045**	.091**	041**	.018	.478**	.253**	.440**	.326**	1	.467**	.434**	.367**
14	Feedback	.005	.460**	004	064**	010	.025*	.023	.009	.512**	.307**	.518**	.391**	.467**	1	.477**	.441**
15	Skill Variety	.119**	.359**	.099**	136**	.107**	.004	.053**	.110**	.437**	.200**	.420**	.231**	.434**	.477**	1	.359**
16	Rewards	.035**	.378**	.000	025*	024	.060**	.069**	023*	.343**	.189**	.436**	.210**	.367**	.441**	.359**	1

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