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Department Conditions and Practices Associated with Faculty Workload Satisfaction and Perceptions of Equity

KerryAnn O'Meara[a], Courtney Jo Lennartz[b], Alexandra Kuvaeva[a], Audrey Jaeger[c], and Joya Misra[d]

[a]Department of Counseling, Higher Education, and Special Education, University of Maryland College Park, College Park, Maryland, USA; [b]Department of Educational Leadership, Policy and Human Development, University of Maryland at College Park, Arlington, Virginia, USA; [c]North Carolina State University, Raleigh, North Carolina, USA; [d]Social and Demographic Research Institute, University of Massachusetts, Amherst, Massachusetts, USA

ABSTRACT

For decades, national surveys have shown faculty report high levels of dissatisfaction with the distribution of labor in their departments, especially women and underrepresented minority faculty. Research suggests this dissatisfaction is warranted, as these groups are often engaged in more service, mentoring, and institutional housekeeping than their peers. Despite the ample work revealing workload inequities and their consequences, few studies have examined the backdrop of conditions and practices within which workload is perceived as more or less fair, especially within departments. Drawing on survey data from 30 academic departments in Maryland, North Carolina, and Massachusetts, we empirically test three propositions about the conditions under which faculty experience their department workloads as equitable. We found departments where faculty reported equitable work conditions and practices (e.g., transparency, clarity, rotations of time-intensive roles) were significantly more likely than departments where faculty did not report these conditions and practices to report satisfaction with workload distribution, and satisfaction with teaching and service activities. Department work practices and conditions had a small or insignificant effect on faculty intent to leave. Interestingly, faculty confidence in the ability to enact these practices and conditions, which we termed *action readiness*, was not predictive of faculty satisfaction with workload distribution or teaching and service activities. We outline implications for academic leaders seeking to make academic workloads more transparent and equitable, and for future research.

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Introduction

Imagine a conference room in any university. Sitting at the table are six faculty. Above their heads in cartoon bubbles are what each of them are thinking as they move through their committee meeting. The captions above

CONTACT KerryAnn O'Meara komeara@umd.edu

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each faculty member are identical. They say, "I'm the only one who actually works in this department."

The picture is humorous, not only because of the irony it depicts, but because the experience of workload dissatisfaction is familiar to most who work in universities. Six different faculty may each assume they alone work harder than others, in part because human beings are innately poor estimators, overestimate their contributions, and underestimate others (Kahneman, 2011; Thaler, Sunstein, & Balz, 2013; Tversky & Kahneman, 1974). However, the unique structure and culture of higher education workplaces, and the ways in which faculty work is taken up, assigned, and rewarded, also contribute to workload dissatisfaction and/or unrealistic assessments of who is doing what (Misra, Lundquist, Dahlberg Holmes, & Agiomavritis, 2011; O'Meara, 2016; O'Meara, Kuvaeva, & Nyunt, 2017a; O'Meara, Kuvaeva, Nyunt, Waugaman, & Jackson, 2017b).

Like Foucault's (1991) description of the tenure system as a panopticon where a guard in the middle can see prisoners in individual cells, but all the prisoners can see is the guard (Foucault, 1991; O'Meara, 2011), faculty have incomplete, obstructed views of others' work in their departments. Take, for example, the lack of accountability built into workload systems in many departments. Although some work activities are fixed (e.g., teaching load), many more are discretionary and unregulated (Babcock, Recalde, Vesterlund, & Weingart, 2017; Misra et al., 2011; Mitchell & Hesli, 2013; O'Meara et al., 2017a; Pyke, 2011, 2015). Faculty typically choose whether or not to serve on committees, take on new students as advisees, prepare academic programs for external review, and apply for and administer grants, to name only a few work activities. While some faculty work is transparent (e.g., when a new grant is announced at the university), much more is not visible to colleagues or available for public scrutiny (e.g., number of grants, advisees, committees). Moreover, individual work activity is reviewed discreetly for promotion and tenure, contract renewal, or merit processes, not for the purpose of determining who will be asked to do what within a department. Some policies, formal or informal, actually preclude the sharing of this information. Furthermore, the organization of faculty work allows for significant ambiguity. Some work is not counted within reward systems, so there are no benchmarks for performance. For example, within any committee of six faculty members, there are likely some who work more or harder. These academic "porters," or faculty who carry more of the weight, do so with little recognition. Most review processes identify only who served on a committee, not how much individuals contributed.

Relatedly, preferred roles and things no one wants to do exist in departments because such work is not rewarded. Kanter's (1977) observation that some work activities within organizations are considered skilled and other activities unskilled is quite relevant in faculty work. Most academics believe

that having a journal article accepted shows skill and thus, that activity is counted within the reward system. But there is little guidance on how to judge one's performance in leading a department's internal program review. The inability to evaluate, or lack of attention to assessing, performance causes many service tasks to be considered necessary, but less skilled than the work of writing an article.

Last, but not least, most academic departments operate without an explicit collective commitment to equity. That is, the department operates without practices, consensus, or accountability that collective work be taken up, assigned, and rewarded fairly. Much literature establishes the tendency for faculty to act as independent entrepreneurs, with significant autonomy and rewards for individual rather than collective behavior (Birnbaum & Edelson, 1989; Blackburn & Lawrence, 1995; Tierney & Bensimon, 1996). Although some departments work to create mutual expectations for teaching and service, a tendency toward individualism appears to be the stronger operating force (O'Meara, 2016).

Taken together, lack of accountability and transparency, ambiguity built into the system, a continuum of preferred roles, and lack of department consensus on equity help explain why so many national faculty surveys report high levels of workload dissatisfaction and have for 20 years or more (COACHE, 2008; Hurtado, Eagan, Pryor, Whang, & Tran, 2012). These challenges may explain why recent studies have revealed significant differences by gender and race in actual faculty workload (Guarino & Borden, 2017; Link, Swan, & Bozeman, 2008; Misra et al., 2011; O'Meara et al., 2017b). There is a cost to such inequity, as perceptions of unfair workload have been linked to lower overall job satisfaction, reduced productivity and morale, higher intent to leave, and increased faculty turnover (Bozeman & Gaughan, 2011; Daly & Dee, 2006). Actual differences in time spent on teaching and service have consequences for research productivity and advancement (Creamer, 1998; Misra et al., 2011).

We might ask, must it be this way? Returning to the picture of six faculty at a committee meeting, what routine work practices and conditions would make it more likely that faculty share an accurate and satisfied perception of their workload vis-à-vis others in the department? If most faculty within a department are committed to making sure everyone is doing their fair share of less preferred roles, and feel comfortable intervening to shape fair workloads, are faculty more likely to have positive perceptions of workload equity?

We use our synthesis of research on organizational practices and conditions likely to shape perception of fair workload to test three propositions with data from 30 academic departments. We make unique and important contributions in several ways. First, while much work has been done to document differences in faculty workload by gender, race, career stage, discipline and institutional type, little work has examined the backdrop by which workload inequity, and

perceptions of inequity, occurs. Specifically, few studies have revealed the department work conditions and routine practices associated with perceived equity in department workload. We examine the relationship between department work practices and conditions, and faculty readiness to intervene to ensure workload equity, and faculty workload satisfaction. Second, our study uses theory from social psychology and organizational behavior to explain how work practices and conditions affect faculty perceptions and experiences of workload equity. Third, our approach has significant implications for academic leaders. We focus on workload inequity within departments because of the critical role departments play in faculty retention, satisfaction, recognition, and professional growth (Bensimon, Ward, & Sanders, 2000; Callister, 2006; Latimer, Jackson, Dilks, Nolan, & Tower, 2014). Although implicit bias in how work is assigned, taken up, and rewarded occurs within and outside of departments, senior faculty and department chairs can reduce workload inequity with routine practices and conditions that can shape a more positive work allocation experience.

Guiding literature

We drew heavily on theory in social psychology and organizational management. This work suggests key conditions and work practices shape how organizational members experience divisions of labor. We outline these conditions and work practices as well as the importance of action readiness, or department member's confidence in their ability to shape equity in their department. We end the section with review of research showing inequitable workloads for women and URM groups, and three propositions we test in this study.

Conditions and practices that shape workload equity

Transparency increases sense of accountability and trust between members and leaders, facilitates perceptions of procedural and distributive justice, and leads to greater organizational commitment (Bilimoria, Joy, & Liang, 2008; Daly & Dee, 2006; Neyland, 2007; Norman, Avolio, & Luthans, 2010). Providing organizational members with information (such as data about work activities) enhances their agency and social capital within the organization (Kanter, 1977). Alternatively, a lack of transparency invites suspicions of favoritism and perceptions of inequity. As such, departments that make data visible (e.g., number of advisees, committees, class sizes) and replace informal processes with readily available systematized policies are likely to have more satisfied faculty. For example, UK STEMM departments where faculty work activity data were disseminated to all staff were viewed as "significantly and substantially fairer than those systems in which only individual data or no data was distributed" (Athena Forum, 2018, p. 1). Departments that routinely

make faculty work activity data accessible are likely to promote perceptions that workloads are transparent and fair.

Second, research in social psychology shows that inequity and biases operate more in environments with ambiguous evaluation criteria (Dovidio, 2001; Fox, Colatrella, McDowell, & Realff, 2007; Heilman, 2001). In higher education, women and underrepresented minority (URM) groups are more likely to be disadvantaged when standards for faculty evaluation are "foggy" (Beddoes, Schimpf, & Pawley, 2014) as opposed to clear. Work allocation systems with concrete, objective criteria "mitigate the operation of prejudices" and inequity (Beddoes et al., 2014, p. 5). As such, leaders trying to reduce bias in hiring practices and evaluation often encourage the use of decision-tools and rubrics (Babcock & Laschever, 2003; Fox et al., 2007; Moss-Racusin et al., 2014). As an added benefit, clear criteria, uniformly applied, enhance confidence in procedural and distributive justice (Daly & Dee, 2006). Thus, faculty in departments with clear workload policies that establish minimum benchmarks for performance, differentiate performance (e.g., excellent versus mediocre; chairing vs. serving on a committee), and clarify which roles are compensated, are more likely to report equitable distribution of labor.

Third, research suggests that fair distributions of work within organizations are buoyed and orchestrated through a "choice environment" (Kahneman, 2011) where the default position is shared rotation of time-intensive, less promotable, but necessary work, and of more preferred roles. For example, planned rotations send the message that everyone has to chip in and help avoid "free-riding," wherein some group members fail to do their fair share of the work and others overcompensate (Curcio & Lynch, 2017; Maiden & Perry, 2011; Zaccaro, 1984). Faculty must opt out, which is more difficult to do than volunteering. Such practices can change the conversation from, "Why would I agree to do that?" to "Why should I alone not have to do this?" Everyone doing their fair share of a group's collective work facilitates equity norms, social responsibility norms, and norms of reciprocity (Erez, Lepine, & Elms, 2002). Such routine practices reduce the likelihood of the same people being asked repeatedly to do the same tasks while others are never asked (Mitchell & Hesli, 2013; O'Meara et al., 2017b).

Fourth, equitable divisions of labor acknowledge differences in contexts (Bensimon, Dowd, & Witham, 2016). While uniformity adds to perceptions of procedural justice, faculty work under structural, social, and cultural contexts that make experiences and workloads distinctly different. For example, teaching the department's only service-learning course and supervising 200 students in community placements may be more time intensive than teaching a lecture with two teaching assistants grading papers. Reward systems can either recognize such differences by using modified workload plans, or can make them invisible by not including work that does not fit

neatly within the existing reward system (Clegg & Esping, 2005; O'Meara, 2015). Lai, Rousseau, and Chang (2009) found that employees are more willing to accept modified work plans if they believe they could obtain the same arrangement in the future, if needed. As such, it is important to create transparent procedures for the development of individualized work plans (Colquitt & Greenberg, 2003). When faculty feel their work is recognized and differences in their contexts are acknowledged, they are more likely to be retained, productive, and satisfied (Bozeman & Gaughan, 2011; Gappa, Austin, & Trice, 2007).

Fifth, leaders signaling to employees or colleagues that something is important can be persuasive in shifting others' perceptions. Rudman and Phelan (2008) found that leaders' support for equity-related hiring practices reduced backlash and fostered implementation. When leaders clearly communicate their disapproval for what they are trying to avoid, such as harm to some faculty careers from doing the lion's share of administrative work, and their approval of what they want to happen, such as equitable distribution of work, members are more likely to accept practices and policies to accomplish the equity-minded goals (Harrison, Kravitz, Mayer, Leslie, & Lev-Arey, 2006; Rudman & Phelan, 2008; Steele, Steyer, & Nowalk, 2001). Thus, department leaders and members communicating a commitment to fair workloads and equity is likely to create a necessary condition generative for perceived and real equity.

Action readiness and workload equity

The department practices and conditions mentioned above cannot be enacted by one person by fiat, but rather have to be implemented by multiple members of a department to promote workload equity. Research on diversity-related interventions (including those in faculty settings such as inclusive hiring initiatives and climate) finds that action readiness is strongly linked to behavior (Rudman, Moss-Racusin, Phelan, & Nauts, 2012). By *action readiness*, we refer to faculty feeling equipped to take specific actions linked to workload equity. For example, a department where there is high action readiness would be one where faculty feel comfortable using data to diagnose teaching and service inequities and where they feel confident talking to their colleagues about workload expectations in teaching and service.

Research on diversity-related interventions in higher education suggests that having many members of a department engaged, rather than only a leader, makes a difference to outcomes (Bilimoria et al., 2008; Fine et al., 2014; Latimer et al., 2014). In addition, having organizational members confident in their ability to shape equity outcomes is part of a "promotion" rather than a "prevention" focus. That is, when more people feel confident they can act proactively to shape equity, there are likely to be more desirable outcomes (Moss-Racusin et al., 2014, 2016; Rudman et al., 2012), such as

perception of fair workload, satisfaction with workload, and reduced intent to leave.

Understood in partnership with department conditions and practices, we theorized action readiness as the confidence faculty members felt that they could enact tasks associated with department workload. We chose four such practices and asked faculty if they felt confident they could work with colleagues to enact them in their departments. As such, we hypothesized departments with the most workload equity are ones wherein there are department conditions and practices that shape equity, *and* department members are confident they can enact those practices with colleagues.

Workload equity for women and URM faculty

The extant research on faculty careers suggests that the conditions, practices, and action readiness that we have discussed are not prevalent, and their absence shapes differential work experiences. Faculty workload is shaped by institutional type, discipline, and career stage (Blackburn & Lawrence, 1995; Clark, 1987; Tierney & Bensimon, 1996). None of these factors in and of themselves present an equity issue. A tenure track faculty member in a baccalaureate college may be engaged in more teaching than a tenure track faculty member in a research university (Blackburn & Lawrence, 1995; Fairweather, 1993; Singell & Lillydahl, 1996). Similarly, many institutions protect assistant professors from too much service before their tenure (Gappa et al., 2007; Trower, 2012).

However, research also shows individual factors of gender and race predict faculty workload and satisfaction with workload equity. Women typically spend more time than men on teaching and service activities and less time on research (Bozeman & Gaughan, 2011; Carrigan, Quinn, & Riskin, 2011; Guarino & Borden, 2017; Hurtado et al., 2012; O'Meara et al., 2017a, 2017b). The pattern is consistent across cross-sectional faculty surveys (Bozeman & Gaughan, 2011; Hurtado et al., 2012; Link et al., 2008; Mitchell & Hesli, 2013; Winslow, 2010), annual faculty activity reports (Acker & Bouchard, 2014; Guarino & Borden, 2017; O'Meara et al., 2017b), surveys, interviews and focus groups (Acker & Armenti, 2004; Misra et al., 2011; O'Meara, 2016), and time diary studies (O'Meara et al., 2017c). For example, one study found that women and men associate professors spent 25% and 37% of their work time on research, respectively (Misra et al., 2011). Although many of these studies were conducted in research universities, women engaged in more service has been found in other institutional types, such as liberal arts colleges (Acker & Bouchard, 2014).

Research shows that URM faculty spend more work time on service, teaching, and mentoring. Additional work responsibilities are placed upon faculty of color, including serving on numerous committees,

advising larger numbers of students, and serving as "departmental experts" for their particular ethno-racial group (Joseph & Hirshfield, 2011; Stanley, 2006; Wood, Hilton, & Nevarez, 2015). Women of color faculty face particular demands for service, as they are expected to represent both faculty of color and women faculty (Hurtado & Figueroa, 2013; Turner, Gonzales, & Wood, 2008). Although many scholars have revealed the burden and negative career consequences of additional service, advising, and mentoring (Turner et al., 2008; Wood et al., 2015), others have simultaneously observed aspects of mentoring and service to URM groups by URM faculty as a form of critical agency (Baez, 2000; Griffin, Pifer, Humphrey, & Hazelwood, 2011). The additional service and mentoring completed by faculty of color may be both an exercise of commitment and a tax, but remains an equity issue worthy of attention and concern.

There are fewer empirical studies revealing *how* workload becomes uneven for women and underrepresented groups. However, the research suggests that social biases play a major role. For example, women are asked more often (Mitchell & Hesli, 2013; O'Meara et al., 2017b) to complete unskilled or less rewarded tasks because of social expectations that they will be helpful and agree (Babcock et al., 2017). One experiment revealed that women faculty were more likely to be asked to engage in "non-promotable" tasks (Babcock et al., 2017), many in the categories of teaching and service, based on the assumption they would say yes. Requests not only come from colleagues but also from students, who perceive women professors to be more nurturing than male professors (El-Alayli, Hansen-Brown, & Ceynar, 2018). Women and URM faculty also volunteer for more mentoring and service activities because of communal orientations (O'Meara, 2016), preferences (Winslow, 2010), and to make a difference on social justice-related issues (Baez, 2000). Furthermore, women and URM faculty may be invited to do different tasks than male and white peers, and that work may be resourced and rewarded differently, based on implicit social biases (Babcock et al., 2017; Mitchell & Hesli, 2013).

Regardless of the mechanisms, inequitable workloads lead to negative consequences for women and URM faculty careers including increased stress, longer years to advancement, and lower retention (Eagan & Garvey, 2015; Hart & Cress, 2008; Watts & Robertson, 2011). Department conditions and practices that foster equity generally may have the greatest impact on women and URM groups because they mitigate the effect of existing social biases that have led to workload imbalances.

In sum, our review of the social science research resulted in three propositions.

(1) First, departments with *routine work practices and conditions* that support equity (e.g., transparent data on faculty work activities, planned rotations

of time-intensive roles, credit systems, commitment to fair workload, clear benchmarks and expectations) will report better faculty outcomes (e.g., greater faculty perception of fairness, greater satisfaction with teaching and service workload, and less intent to leave) than those reporting no or fewer routine work practices that support equity.

(2) Second, departments where faculty report feeling confident that they can enact department practices and conditions that shape equity (*action readiness*) will have better faculty outcomes (e.g., greater faculty perception of fairness, greater satisfaction with teaching and service workload, and less intent to leave) than those departments where faculty report less confidence in enacting equity practices.

(3) Third, departments with *routine work practices and conditions* that support equity and *action readiness* will report better outcomes for women and URM faculty.

Research design and methods

We tested our three propositions through a quantitative cross-sectional survey design. Drawing on existing research to develop survey items and scales, we designed a survey to test whether equitable routine department work practices and conditions, and action readiness were associated with positive faculty outcomes; specifically, faculty workload satisfaction, overall satisfaction, and intent to leave. An expert panel with content knowledge and survey design experience reviewed the survey instrument. We were confident after this review that face validity—the appropriateness, sensibility, and relevance of the test and its items—was established (Holden, 2010). Prior to administration, the instrument was tested to determine the survey items' validity. A pilot test before administration of the survey allowed us to reduce ambiguity in the questionnaire design, get feedback from respondents to improve the survey flow, and troubleshoot logistical problems. The author's Institutional Review Board approved the survey.

This research project is supported by a National Science Foundation grant aimed at understanding faculty workload equity in STEM academic departments. We sought to recruit a diverse applicant pool of institution types and disciplines to maximize the generalizability of our findings. A call for participation went out to all provosts and STEM department chairs at 4-year public institutions in Maryland, North Carolina, and Massachusetts, selected based on proximity to project leaders. Thirty academic departments from a range of different institutional types were enlisted in the research study. Five institutions that applied were turned away because they were not STEM academic departments at public 4-year institutions.

Sample

Once department liaisons confirmed their department's participation, we sent email invitations to all full-time faculty in their departments. The participating departments were all STEM (including social science) departments from 16 public institutions in Maryland, North Carolina, and Massachusetts. One was a baccalaureate institution, six were master's, and nine were doctoral/research institutions (see Appendix). Of 496 respondents to the survey invitation, 93.5% (n = 464) agreed to participate in the survey. Of 464 participants, 41.4% (n = 192) were in social science disciplines, and 58.6% (n = 272) in natural science, technology, math, or engineering disciplines. White and tenured/tenure-track faculty were overrepresented; women faculty were slightly underrepresented (see Table 1 for respondent demographics) compared with national averages from the National Center for Education Statistics (NCES).

Variables

Our literature review informed our design of variables and survey items. We identified and tested whether the constructs of equitable work practices and conditions and department faculty action readiness predict faculty outcomes such as intent to leave, perception of overall workload fairness, and satisfaction with various aspects of workload. For brevity, we only review the constructs here, but include the full list of survey questions for each construct in Table 2.

Key factors

The *work practices and conditions* construct captures the presence or lack of routine organizational practices likely to shape perceptions of fairness and transparency, such as the creation of dashboards and rotations of time-intensive roles, the backdrops or contexts against which workload equity is being considered (e.g., whether participants felt department faculty had

Table 1. Respondent demographics.

Rank	Assistant Professors	25.8%
	Associate Professors	31.5%
	Full Professors	27.8%
	Non Tenure-Track Faculty	15.0%
Race	Asian*	9.2%
	Black/African American*	8.4%
	White	78.9%
	Multiracial*	3.5%
Gender	Female	47.5%
	Male	51.7%
	Other	0.7%

*Respondents who were coded as Minority.

Table 2. Descriptive statistics and standardized item loadings for the final CFA model.

Constructs	Survey Item	Mean	Std. Dev.	Standardized item loading	Satisfied/ Very Satisfied Confident/ Very Confident
	Equitable Department Work Practices and Conditions				
Transparency	Our department has transparent information about faculty work activities for all department faculty to see (e.g., number of advisees, committees, size of classes).	1.88	.96	0.784	47.5%
	Our department has transparent information about compensation for key roles (e.g., the agreed upon overload or support for taking on specific administrative roles).	1.72	.93	0.697	38.2%
	Our workload decisions tend to be informed by data that is visible and widely available to everyone.	1.70	.79	0.755	70.8%
	There is transparency related to faculty workload (e.g., data about faculty teaching, mentoring, and campus service activities available for public scrutiny).	1.73	.80	0.886	68.8%
Workload Practices	Our department has planned rotations of time intensive campus service or administrative roles.	1.69	.91	0.631	38.2%
	Our department has credit systems that allow faculty doing more than their share in one area to receive credit to do less in another area.	1.66	.92	0.885	35.2%
	Our department has differentiated workloads wherein faculty can adjust the percent of their effort across teaching, research and campus service roles.	1.87	.97	0.754	45.8%
Workload Policies	Our department has engaged in revision of shared governance rules to ensure that there are not more faculty on committees than are needed to get work done.	1.53	.83	0.680	31.2%
	Our department has engaged in revision of department reward system documents (e.g., merit, annual review or promotion, and tenure criteria as appropriate) to include more credit for teaching and campus service activities.	1.70	.91	0.832	39.5%
	Our department has engaged in revision of department reward system documents (e.g., merit, annual review or promotion, and tenure criteria as appropriate) to differentiate serving on committees versus providing leadership for them.	1.82	.95	0.675	44.9%
Commitment to and Experience of Equity	I think most people in our department feel work is distributed fairly.	1.99	.76	0.738	50.8%
	There is a strong commitment within our department faculty that workload be fair.	2.21	.79	0.799	34.2%
	The most important teaching, mentoring and campus service work I do is credited within my department reward system.	2.18	.83	0.559	37.6%
	Faculty in our department have a good understanding of unconscious bias and how it shapes faculty workload.	1.88	.69	0.567	37.9%

(*Continued*)

Table 2. (Continued).

Constructs	Survey Item	Mean	Std. Dev.	Standardized item loading	Satisfied/ Very Satisfied Confident/ Very Confident
Clarity	There are clearly identified benchmarks for expected campus service contributions.	1.62	.77	0.840	76.2%
	There are clear benchmarks for expected advising contributions.	1.90	.87	0.693	56.5%
	Our department chair and faculty have discussed and agreed upon which roles faculty will be compensated for (with additional resources), and which are simply part of their jobs.	1.92	.82	0.661	55.5%
	Our department has consensus on a clear set of priorities for faculty time.	1.82	.82	0.813	62.8%
Equitable Department Work Practices and Conditions	Transparency	1.72	.69	0.902	–
	Workload Practices	1.68	.69	0.766	–
	Workload Policies	1.66	.67	0.765	–
	Commitment to and Experience of Equity	2.07	.53	0.895	–
	Clarity	1.82	.61	0.967	–
	Satisfaction with Teaching and Service Activities				
Satisfaction with Classes	Number of classes taught	3.73	1.14	0.678	68.6%
	The kinds of classes you teach	4.29	.84	0.669	87.0%
	The process in which classes are assigned	3.83	1.07	0.781	70.0%
Satisfaction with Advising	The number of advisees you have	3.54	1.03	0.843	58.5%
	The kinds of advisees you have (undergraduate, continuing education, graduate students)	3.88	.85	0.822	71.8%
	The process in which advisees are assigned	3.64	.95	0.819	59.5%
Satisfaction with Committees	The number of committees on which you serve	3.61	.90	0.824	63.2%
	The amount of work you do on committees versus the amount others do	3.34	1.05	0.776	49.8%
	The attractiveness (e.g., value, visibility, importance, personal preference) of the committees on which you serve	3.48	.87	0.734	48.4%
	The process in which committee assignments are made	3.38	.99	0.816	48.4%
	The number of committees you chair	3.60	.78	0.616	56.9%
Satisfaction with Teaching and Service Activities	Satisfaction with classes	3.95	.79	0.735	–
	Satisfaction with advising	3.69	.81	0.679	–
	Satisfaction with committees	3.42	.71	0.993	–

(*Continued*)

Table 2. (Continued).

Constructs	Survey Item	Mean	Std. Dev.	Standardized item loading	Satisfied/ Very Satisfied Confident/ Very Confident
	Action Readiness				
Action Readiness*	Use data to initiate a dialogue within my department about putting practices in place to ensure the teaching and campus service burden is shared by all.	2.72	1.23	0.692	30.2%
	Ask someone in my department who typically shirks department work to participate for the good of the order.	2.34	1.24	0.802	20.9%
	Work with colleagues to create more transparent benchmarks for all faculty for things like advising loads and committee assignments.	3.11	1.17	0.911	42.9%
	Work with colleagues to make sure resource allocation and the selection of individuals for any coveted positions are more transparent and intentional (an open and consistent process for everyone, not secret or case by case).	3.04	1.16	0.933	39.6%
	Perception of Fairness				
Perception of Fairness: Fair/ Mostly Fair	Overall, do you feel the distribution of teaching and service work in your department is fair?	1.98	.73	–	72.3%
	Intent to Leave				
Intent to Leave: Definitely will leave/Likely	To what extent are you likely to leave the university in the next 5 years for reasons other than retirement?	2.10	.75	–	23.9%

*"Please indicate how confident you feel that you can perform each of the following actions."

a good understanding of implicit bias; whether faculty experienced transparency around data, clear benchmarks, and defined roles). Research shows perception of fairness and satisfaction with workload improves when there are conditions and practices in place that make decisions consistent, unbiased, correctable, and transparent (Till & Karren, 2011). Action readiness is strongly linked to behavior changes and has been used in prior research to understand precursors to equitable processes (Moss-Racusin et al., 2014). Here, *action readiness* was operationalized as how confident department faculty were about using data to create equitable workloads, allocating resources more equitably, and creating more transparent benchmarks. *Faculty outcomes* measured the perception of fairness, intent to leave the university, and satisfaction with teaching and service activities. These measures were included because unfair workload is associated with greater dissatisfaction and intent to leave (Daly & Dee, 2006; Neumann & Terosky, 2007). These items were measured using a 5-point Likert-type response scale (1 = very dissatisfied, 2 = dissatisfied, 3 = neither satisfied nor dissatisfied, 4 = satisfied, 5 = very satisfied), and the mean of the items was used as the overall measure of the constructs.

Faculty demographics and department characteristics

We analyzed the variables of gender (male = 0, female = 1), race (White = 0, Faculty of Color = 1), rank (dummy coded with assistant professors as the referent group), discipline (social and STEM sciences), department size (small, 0–15; medium, 16–30; large, 31–60; dummy coded with small as the referent group), and gender diversity in the department (low, 1–34%; medium, 35–50%; high, 51–100%; dummy coded with low as the referent group).

Data analysis

First, to reduce data into meaningful composites we conducted principal component analysis (PCA) using oblique (non-orthogonal) factor rotation method (direct oblimin with Kaiser normalization). PCA is a dimension reduction tool that reduces a large number of correlated predictor variables to a less correlated smaller set, thus addressing an issue of multicollinearity between predictor variables (Lafi & Kaneene, 1992). Oblique methods allow for potential factor correlation, which has to be taken into account because behavioral outcomes do not function independently (Osborne, 2015). Since the data had a large number of variables, the Kaiser–Guttman rule of eigenvalues greater than 1 suggested extracting a number of redundant components. In contrast, Cattell's scree plot provided a clear graphical picture with large drops in eigenvalues (Figure 1). Based on the scree plot and item loadings in pattern matrix, we extracted three factors: two independent variables of equitable department work practices and conditions and

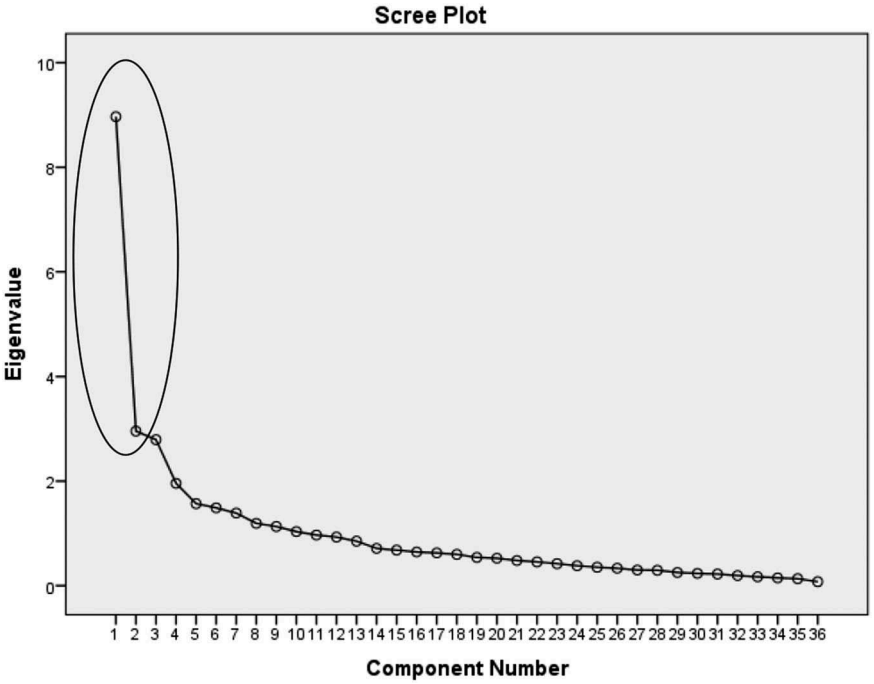

Figure 1. Cattell's scree plot of eigenvalues in PCA analysis.

action readiness, and one dependent variable of satisfaction with teaching and service activities. Next, we further tested the construct validity of each latent factor using confirmatory factor analysis (CFA) (Hancock & Mueller, 2013). In this step, following Comrey and Lee's (1992) approach in using cut-offs, we determined standardized item loadings on each latent factor and retained items with standardized loadings of 0.5 and higher (Table 2). As opposed to exploratory factor analyses, where models are entirely data driven, CFA allows the researcher to explore and confirm the originally envisioned theoretical structure (Hair, Tatham, Anderson, & Black, 1998; Pett, Lackey, & Sullivan, 2003; Stevens, 1992).

Based on PCA and CFA results, we created composite scales of the three extracted latent factors. To have a clearer structure of the multiple items that contributed to two of the extracted constructs, we treated them as second-level constructs. The work practices and conditions construct included survey items grouped into subconstructs of transparency, workload practices, workload policies, commitment to and experience of equity, and clarity. The faculty outcome of satisfaction with teaching and service activities construct included subconstructs of satisfaction with classes, advising, and committees. The action readiness construct stood alone without subconstructs. See Table 2 for descriptive statistics for survey items and final constructs.

Then, we ran regression analyses on faculty outcomes controlling for gender, race, and rank. As evident in Appendix, we further applied structural equation modeling (SEM) using latent variable path analysis (LVPA) to test structural links between faculty outcomes and key factors of equitable department work practices and conditions and action readiness. LVPA analyses were run using Mplus software. We tested the model with SEM because in contrast to regression, SEM can account for measurement error which is typical in surveys of perceptions and behaviors. The final path analysis model demonstrated good fit to the data (root mean square error of approximation [RMSEA] = 0.070; confidence interval [CI 95%] 0.068, 0.073).

In the Appendix, we present hierarchical linear modeling (HLM) that accounted for the two-level structure of the data and tested whether faculty outcomes were influenced by individual and department-level predictors, to verify the regression and SEM results. As outcome variables, we used satisfaction with teaching and service activities, perception of fairness in workload distribution, and intent to leave. As level-1 predictors we used group-centered variables of gender, race, rank, equitable department work practices and conditions, and action readiness. As level-2 predictors we used disciplines, department size, and gender composition in the department. The fully unconditional HLM model is presented below:

The model specifies that a survey response score Y_{ij} of a faculty member i in department j is a function of the mean response score across departments $\gamma_{00,}$ the random effect of department u_{0j} (variation between departments), and the random effect of a faculty member r_{ij} (individual variation).

Results

Descriptive findings

We first ran descriptive statistics on each survey item and the constructs for all respondents (Table 2). Here, we note only highlights of that data as context for the analyses that follows. In terms of equitable department workload practices and conditions, almost half of respondents reported having differentiated workloads and transparent information about faculty work activities. Less than one-third reported having revised rules to reduce the amount or size of committees. Over two-thirds reported having workload decisions informed by data, and clearly identified benchmarks for expected campus service contributions. Yet only one-third reported a strong commitment within their department faculty that workload be fair. In terms of action readiness, less than one-third were confident that they could ask someone in their department who typically shirks department work to participate for the good of the order (20.9%), or use data to

Table 3. Descriptive statistics on dependent variables.

Construct	White Men	White Women	Minority Men	Minority Women
Satisfaction with Teaching and Service Activities	3.61 (.65)	3.65 (.58)	3.80 (.64)	3.26 (.73)
Perception of Fairness	1.99 (.75)	1.89 (.72)	2.21 (.71)	1.95 (.71)
Intent to Leave	1.98 (.73)	2.15 (.72)	2.26 (.85)	2.13 (.74)

Note: Means and standard deviations.

initiate a dialogue within their department about putting equity practices in place (30.2%).

Faculty generally perceived the distribution of teaching and service work in their department as fair (72.3%), and less than one-third were likely to intend to leave the university in the next 5years for reasons other than retirement (23.9%). The majority of respondents were satisfied with the number of classes taught, the kinds of classes they taught, and the process in which classes were assigned. Respondents were mostly satisfied with the kinds of advisees they have (71.8%), and less satisfied with the number of advisees they have (58.5%) and the process in which advisees were assigned (59.5%). A little less than half were satisfied with the amount of work they do on committees versus the amount others do (49.8%), the attractiveness of the committees on which they serve (48.4%), and the process in which committee assignments were made (48.4%).

Gender and race are often implicated in workload differences. For example, faculty members who are women and members of underrepresented groups, may engage in more teaching, mentoring, and service work. Table 3 further describes how race and gender relate to satisfaction with teaching and service, perceptions of fairness, and intent to leave. Generally, men appear more satisfied with their teaching and service activities, while women, and particularly minority women are less satisfied. Minority men have higher perceptions of fairness. Intent to leave appears strongest among minority men and women.

Regression analyses findings

We found evidence of one of our main propositions in Table 4. In the overall regression models, department work practices and conditions that support equity were significant, positive predictors of faculty outcomes, controlling for gender, race, and rank. Gender composition in the department, discipline, and department size did not have significant effects and were not retained in the final models. Equitable department work practices and conditions had a significant positive impact on satisfaction with teaching and service activities for all faculty groups by gender and race, and for some faculty groups the construct had a significant positive impact on perception of fairness and

Table 4. Results from multiple linear regression models.

	Satisfaction with Teaching and Service Activities			Perception of Fairness			Intent to Leave		
Variable	B	SE	*p*-value	B	SE	*p*-value	B	SE	*p*-value
EDWPC*White Men	.613	.136	<.001	.921	.126	<.001	−.224	.176	.207
EDWPC*White Women	.596	.208	.005	.874	.183	<.001	−.546	.256	.035
EDWPC*Minority Men	.892	.357	.014	.902	.237	<.001	−.513	.330	.123
EDWPC*Minority Women	1.499	.394	<.001	.577	.395	.147	−.312	.552	.573
Action Readiness*White Men	.083	.068	.224	−.071	.063	.264	−.097	.088	.273
Action Readiness*White Women	.105	.100	.297	−.026	.091	.778	.114	.127	.374
Action Readiness*Minority Men	−.058	.217	.788	−.011	.156	.943	.168	.218	.443
Action Readiness*Minority Women	−.498	.184	.008	.282	.186	.131	−.133	.260	.611
Associate Professors	.042	.183	.819	.089	.160	.581	−.166	.224	.460
Full Professors	.199	.181	.273	.234	.157	.138	−.200	.219	.362
Non Tenure-Track Faculty	−.170	.366	.643	.571	.257	.028	−.088	.359	.807
Adjusted R^2		.328			.416			.008	

EDWPC = Equitable Department Work Practices and Conditions.

a significant negative impact on intent to leave. Therefore, proposition 1 was confirmed.

Specifically, the more faculty agreed that equitable department work practices and conditions were present in their departments, the more they were satisfied with teaching and service activities: the scores were higher for minority men (B = .892) and minority women (B = 1.499), followed by white men (B = .613) and white women (B = .596). As scores for equitable department work practices and conditions rose, so did scores for perception of fairness in workload distribution for white men (B = .921), minority men (B = .902), and white women (B = .874). Finally, as scores for equitable department work practices and conditions rose, scores for intent to leave decreased for white women (B = −.546). However, greater *department faculty action readiness* was not found to be a significant predictor of faculty outcomes. The models predicted 32.8% of the variance (adjusted R^2) in satisfaction with teaching and service activities, and 41.6% in perceived fairness of workload distribution (Table 4).

When we corrected for the hierarchical structure of the data using HLM, we did not observe significant changes in the effects. SEM path, regression and multilevel analyses led to similar results with few differences (see Appendix for additional information on SEM and HLM results). Generally, the equitable department work practices and conditions construct was a positive significant predictor of satisfaction with teaching and service activities and perception of fairness of workload distribution, and a small or nonsignificant predictor of intent to leave, depending on the type of analysis. Satisfaction with teaching and service activities was notably higher for minority men and women when equitable work practices were present. The action readiness construct did not produce any significant effects across different types of analyses.

Limitations

This study has several limitations. First, the study is not causal and should not be interpreted as such. We cannot say that these work practices and conditions caused the positive workload outcomes studied, only that they were associated with them. Second, we have no sense of how long these conditions and work practices were in place to produce these outcomes. Third, by virtue of agreeing to participate in a research study about faculty workload equity, these departments may be more committed than others to issues of workload equity. Finally, we focus on the relationship between equitable department work practices and conditions, action readiness, and satisfaction with workload equity. Perceptions and experiences of workload equity are important to retention and other career outcomes, but are not an objective measure of workload equity. In subsequent research, we plan to study the presence of these three factors and the variance in faculty advising, teaching load, committee assignments, and other work activities.

Discussion and implications

It is easy to see why there have been many concerns raised but few solutions identified in discussions of faculty workload equity. Perceptions of equity are subjective, department leaders often lack data to make informed decisions, and individuals are inherently bad estimators of their own and others' contributions (Thaler et al., 2013). Implicit social bias influences many aspects of faculty careers, including how faculty work is taken up, assigned, and rewarded (Babcock et al., 2017; Mitchell & Hesli, 2013; O'Meara et al., 2017b). Department chairs are often not trained in how to help those predisposed to do more than their share cut back, or those predisposed to shirk their share do more. Furthermore, there have been many more studies proving the existence of biases and inequity in how work is taken up, assigned, and rewarded, than empirical analyses of conditions or practices associated with equity (real and perceived). This study makes an important contribution by identifying specific kinds of work practices and conditions that departments might cultivate to correct what is not working and proactively design toward greater perceptions and realities of workload equity.

In the opening scenario, six faculty felt they worked harder than others in their department. Imagine the same six faculty in a different backdrop. It is spring. Before the semester is over, the department chair and advisory group need to assign committee roles for the following year. Because they created a dashboard of faculty work activities and published it within the department, everyone knows the range of service, advising, and administrative activity of the department's 25 members. No one is guessing the average number of committees or advisees; the information is available for all to see. The condition of transparency adds to

the sense faculty have that workload decisions are made using data, and in general that the system is fair (Athena Forum, 2018; O'Meara, 2016).

To assign the time-intensive role of undergraduate program director, the advisory group refers to an established rotation and assigns the next faculty member on the list. Having an automatic rotation of time-intensive roles rather than an opt-in system reduces the possibility of social loafing (Curcio & Lynch, 2017), or that some faculty will carry extra weight for others (Pyke, 2015). Someone also needs to chair the promotion and tenure committee, with five candidates being considered for promotion next year. To acknowledge the greater amount of work inherent in chairing this committee, the advisory group "credits" the faculty member serving in this role so that she does less service in other areas. Assigning credit for various activities and allowing faculty to bank or swap credit in one area for less work in another creates not only more equitable workloads, but also greater clarity about what an activity is "worth" in the system (Rikleen, 2013; Valantine & Sandborg, 2013). During winter and summer terms, a faculty member is needed to serve as admissions chair, a role the department had determined by consensus would be compensated with a stipend. The advisory group turned to the list of faculty interested in this role and assigned the next person on that list. The advisory group then reviewed the list to make sure every faculty member was serving on the equivalent of at least two committees, the minimum benchmark for faculty service. Having clarity in what was considered the lowest level of participation, as well as what constitutes "going above and beyond," reduces the risk that social biases might invade the process, that some faculty would be asked to serve more than others (Curcio & Lynch, 2017; Mitchell & Hesli, 2013; O'Meara et al., 2017c), or that a "foggy climate" (Beddoes et al., 2014) could allow some faculty to do no service at all.

Leadership and consensus building also made a difference. The entire faculty, department chair, and advisory group described the policies and practices they would use to make committee assignments, articulating a commitment to fairness and equity, and acknowledgment of different faculty career stages and appointment types – key contexts impacting faculty workloads (Bensimon et al., 2016). Such communication, or "sense-making" (Weick, 1995), an ingredient found in other efforts to create inclusive organizational cultures (Latimer et al., 2014; Rudman & Phelan, 2008), engendered faculty perception that equity was important to members within their department.

In sum, we found the conditions and practices described above to be positively associated with faculty satisfaction with workload, perception of equity, and intent to leave. Built into the "choice environment" or operating system of division of labor, this backdrop scaffolded perceptions of workload equity. Such work practices and conditions are important because the structure and culture of workload allocation in academic departments without them is often "unscripted" (Ridgeway & Correll, 2004). Each of the conditions and practices

sought to superimpose structure, transparency, and accountability into otherwise structureless, foggy, and unaccountable situations (Beddoes et al., 2014). Equitable practices appear to disproportionately improve minority men's and women's satisfaction with teaching and service loads, and reduce white women's intent to leave. These practices may be associated with perceived equity for all groups, including women or URM groups.

We did not find action readiness to be positively associated with the outcomes we studied, even though action readiness is a key goal of many equity-minded interventions—including those trying to make hiring more inclusive and equitable (Fine et al., 2014) and interventions aimed at creating strong department climates for faculty diversity to thrive more generally (Latimer et al., 2014; Moss-Racusin et al., 2014). Prior research suggests that faculty confidence in their ability to enhance equity and self-efficacy around equity strategies makes individuals more willing to take these steps (Moss-Racusin et al., 2014).

We offer three possible explanations for why action readiness was not found to be associated with the outcomes studied. Departments that participated in the study did so voluntarily. However, when they completed the survey, participants were not required to have previously participated in evidence-based training to shape workload equity. In fact, evidence-based training to improve faculty workload equity is rare, especially for entire department faculties. This is a very different context than previous studies wherein participants were provided workshops lasting at least 3 hours and evidence-based tools. The context of our data, which includes 30 departments that had shown an interest in equity, but for which there was no training to increase action readiness per se, is different, and may explain this finding.

A second possible explanation of the null finding may be that when conditions and routine practices are in place to produce equitable outcomes, the action readiness of the faculty to promote equity or step in and alter inequitable situations becomes less relevant. If there are policies and practices ensuring transparency and accountability in place, faculty may perceive the need for interventions to be less important, and therefore their confidence in stepping in becomes less relevant as well. A third explanation may relate to the outcomes we studied. The conditions and practices we studied seem well suited to shape long-term, ongoing workload and faculty outcomes; whereas faculty action readiness may shape short-term outcomes such as professional relationships between faculty or satisfaction with a particular committee assignment.

We do not, however, interpret this to mean that action readiness to address issues of workload equity is irrelevant. We believe further study is needed to understand the role of action readiness using more measures, a larger database, and a comparison between department faculty provided

training and tools to a control group, set against the backdrop of departments with different entering levels of department conditions and practices.

Encouraged by these findings, our future research will seek to understand the relationship between department work practices and conditions, action readiness, and objective measures of equitable workload. This study examines data from one time point. In future research, we hope to understand whether departments that increase or enhance work practices, conditions, and action readiness also increase or enhance faculty outcomes and equitable workloads. Relatedly, we want to understand how long these work practices and conditions need to be in place before the department experiences the associated positive outcomes. We are interested in whether faculty in departments with these conditions and work practices experience other associated benefits—such as better professional relationships, or greater individual and collective productivity. The findings in this study offer a pathway from the opening scenario to the department more satisfied with its division of labor.

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Appendix

Table A1. *Results from final 2-level HLM models*

	Satisfaction with Teaching and Service Activities			Perception of Fairness			Intent to Leave		
Variable	Coefficient	S.E.	*p*-value	Coefficient	S.E.	*p*-value	Coefficient	S.E.	*p*-value
Fixed effects									
GENDER, γ_{10}	−.075	.155	.631	.159	.155	.311	−.014	.201	.945
RACE, γ_{20}	−.076	.180	.676	.391	.167	.026	.315	.329	.346
DWPC, γ_{30}	.668	.148	<.001	.812	.143	<.001	−.425	.298	.163
ACTION, γ_{40}	.123	.075	.112	−.031	.062	.623	−.047	.100	.644
	Std. Dev.	Variance Component	*p*-value	Std. Dev.	Variance Component	*p*-value	Std. Dev.	Variance Component	*p*-value
Random effects									
GENDER slope, u_1	.505	.255	.138	.548	.300	.020	.460	.212	.333
RACE slope, u_2	.369	.136	.075	.254	.065	>.500	.779	.608	>.500
DWPC slope, u_3	.159	.025	.322	.089	.007	.226	.803	.644	.343
ACTION slope, u_4	.232	.053	.328	.143	.020	.146	.192	.037	.225
Variance within departments, *r*	.452	.204		.440	.194		.694	.482	
ICC (unconditional model)		.152			.234			<.001	

Note: The partitioning of variance in the fully unconditional models found that 15.2% of the variance was explained at level 2, an ICC (Intraclass Correlation Coefficient) = .152, in the model of satisfaction with teaching and service activities, meaning that 15.2% of total variance in faculty responses occurred between departments; 23.4% in the model of perception of fairness in workload distribution (ICC = .234), and a negligible amount (ICC< .001) in the model of intent to leave. The perception of fairness in workload distribution varied between departments by gender (u_1: SD = .548, variance component = .300, p = .020). Race was a significant positive predictor of the perception of fairness in workload distribution. Minority faculty on average reported higher perception of fairness than White faculty (γ_{20} = .391, SE = .167, p = .026). The equitable department work practices and conditions construct was a significant positive predictor of satisfaction with teaching and service activities (γ_{30} = .668, SE = .148, p < .001), and perception of fairness in workload distribution (γ_{30} = .812, SE = .143, p < .001), but not a significant predictor of intent to leave (γ_{30} = −.425, SE = .298, p = .163). Action readiness was not found to be a significant predictor of the faculty outcomes. Action readiness and equitable department work practices and conditions factors did not have significant random effects meaning that they did not contribute to department variation in the outcomes. We found that rank was not a significant predictor of any of the three outcomes. Level-2 predictors were not found to be significant and we did not retain them in the final models.

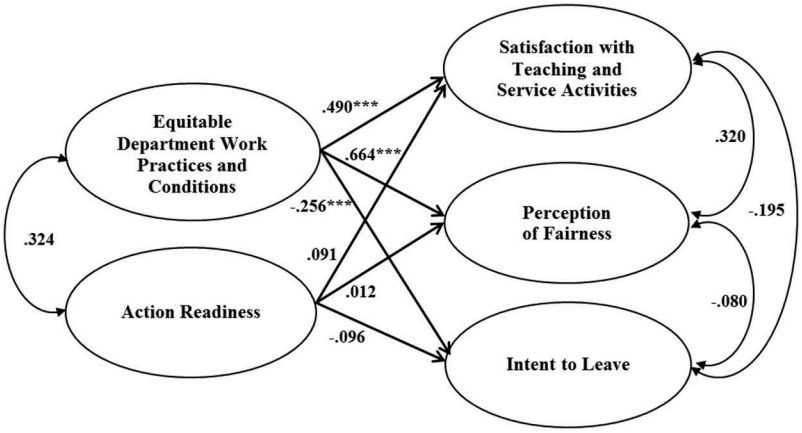

Figure A1. Final path analysis (SEM) model of latent factors' effects on faculty perceptions. *$p < .05$. **$p < .01$. ***$p < .001$.

Equitable department work practices and conditions exerted a moderate positive influence on satisfaction with teaching and service activities, and a strong positive influence on perception of fairness, but a small negative influence on intent to leave. Action readiness was not found to have a statistically significant effect on the faculty outcomes. The model explained 44.7% of the variance in perception of fairness ($r^2 = 0.447$), 27.7% of the variance in satisfaction with teaching and service activities ($r^2 = 0.277$), and 9.1% of the variance in intent to leave ($r^2 = 0.091$). Below are the standardized structural equations for the final model:

F3 = .490*F1 + .091 F2 + .226 D3

F4 = .664*F1 + .012 F2

F5 = −.256*F1 + .096 F2

Note: equitable department work practices and conditions (F1), action readiness (F2), satisfaction with teaching and service activities (F3), perception of fairness (F4), intent to leave (F5), prediction error associated with latent factor F3 (D3).