

Are You Satisfied? PhD Education and Faculty Taste for Prestige: Limits of the Prestige Value System

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Abstract This paper empirically evaluates Caplow and McGee's (The academic marketplace, 1958) model of academia as a prestige value system (PVS) by testing several hypotheses about the relationship between prestige of faculty appointment and job satisfaction. Using logistic regression models to predict satisfaction with several job domains in a sample of more than 1,000 recent social science PhD graduates who hold tenure-track or tenured faculty positions, we find that the relationship between prestige of faculty appointment and job satisfaction is modified by PhD program prestige. Graduates of high prestige PhD programs value prestige more highly and graduates of low prestige programs value salary more highly. We explain our findings by incorporating reference group theory and a theory of taste formation into our model of the academic PVS, which identifies PhD programs as sites of socialization to different tastes for prestige (a process of cultural transmission) in addition to their well recognized role in transmission of human and social capital. We discuss practical and theoretical implications of our findings in relation to efforts to measure PhD program quality and to understand the structure of academic labor markets.

Keywords Faculty careers · Academic labor market · Job satisfaction · Prestige value system · Reference group theory · Status systems · Doctoral education · PhD programs · Social science PhD

“If the allocation of academic services is to be characterized in market terms, then surely the principal operative currency is prestige.”

– Neil Smelser and Robin Content (Smelser and Content 1980).

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Introduction

How does the prestige of the institution where faculty work influence their level of satisfaction with their jobs? The prestige value system (PVS) model of the academic labor market suggests that academics should be quite sensitive to the prestige of their institution. The PVS is a widely accepted theoretical framework that explains behavior within the academic marketplace (Caplow and McGee 1958; Burke 1988). Analogous to the neo-classical economic framework of utility maximization, it substitutes prestige maximization for income maximization. The PVS posits that individuals attempt to maximize their prestige—in part through attachment to distinguished institutions—and institutions attempt to maximize their prestige—in part through attachment to distinguished faculty members (Caplow and McGee 1958; Burke 1988; Burris 2004).

Within the PVS, success—the attainment of status—“is in part derivative; [faculty] standing depends to some extent on the prestige of their employers”¹ (Rhode 2006, p. 6). Indeed just over 90% of faculty report that the reputation of their institution is personally a “very important” or “important” factor in their work/career (Sanderson et al. 2000). Thus, obtaining a job at a high prestige institution ought to provide a strong pay-off in terms of job satisfaction.

Yet, Bisin and Verdier (1998) describe a system in which agents are dominantly driven by status preferences, and formulate models to show that such systems are “dynamically unstable”—they cannot be maintained. Rhode (2006) expresses this puzzle thusly:

... for a large proportion of the profession, this pursuit of status is a setup for frustration. There are, after all, so many ways of falling short. Academics can be at lesser institutions... The major universities which produce the vast majority of the entry-level academics, have nothing close to the number of tenure-track positions necessary employ them. As a consequence, most new faculty end up at institutions less prestigious than the one they attended... (pp. 12–13)

We consider this tension between the implications of the PVS that faculty morale should be dependent on the attainment of prestige and the dynamic instability of status preference systems in the models of Bisin and Verdier (1998). We note that the American academic labor market is not unstable.² Additionally, contrary to the expectations of Rhode (2006), academics do not appear to experience low morale.³ We thus, question how it is that prestige is related to faculty morale.

We consider this question in light of empirical data on faculty satisfaction. We draw on work by economists and economic-psychologists who have reconceptualized the neo-classical model of utility maximization through empirically investigating self-reports of subjective well being (or satisfaction) in relationship to earnings (e.g. Clark and Oswald

¹ “The value of a position to its incumbent is determined... by the prestige of the whole organization in its external environment” (Caplow and McGee 1958, p. 75).

² Kerr (2002, p. 2) states “American higher education became a model for the world.” The professoriate is ever increasing in number (Snyder et al. 2009, Table 248). Institutions of higher education are among the oldest among large organizations and have exceptionally high survival rates (Kerr 1987).

³ For example, across 6 national surveys from 1969 to 1998 levels of satisfaction (including both very satisfied and somewhat satisfied compared with very unsatisfied and somewhat unsatisfied) range from 84 to 93% (Schuster and Finkelstein 2006). Faculty attrition rates are also rather low. Ehrenberg et al. (1990) using large national samples from 1970 to 1989 find that annual within institution retention rates among full professors is 92%; among associate professors is also close to 92%, among assistant professor is close to 85%.

1996). The PVS, too, can be elaborated through an analysis of the complex way that academic job satisfaction varies systematically alongside academic prestige. This paper presents such an investigation. The goal of this paper is to better understand the operation of the PVS through observation of the patterns of faculty job satisfaction in relation to dimensions of organizational prestige.

Our findings lead us to conceptualize the PVS as more limited in scope and weaker in extension than implied by previous analyses of the academic marketplace. In order to explain academic behavior and account for stability in the faculty system, we argue that the PVS must incorporate reference group theory as well as a theory of endogeneity of the development of tastes. We find that the prestige of the graduate training institution is an important construct in the model of academic job satisfaction, and that this construct operates in ways that have previously not been specified in theoretical models of the PVS nor in previous studies of faculty satisfaction.

The Prestige Value System and Faculty Satisfaction

The PVS has been used to explain the hiring, promotion and retention practices and evaluation criteria of departments (Caplow and McGee 1958; Burke 1988); the structure and mobility patterns of academic careers (Baldi 1994; Debackere and Rappa 1995); the linkages among departments in networks of faculty exchanges (Burris 2004); the balance of effort among task sets for faculty (Clark 1987; Rhode 2006); mission drift in institutional and individual priority setting (Massey 2004); struggles for priority among researchers (Merton 1957); as well as other outcomes within the academic labor market. The exigencies of the PVS have been shown to exacerbate existing status inequalities, both at the individual level (Merton 1968) and at the departmental level (Burris 2004)—thus creating highly and rigidly stratified systems.

Only a few studies have investigated empirically the relationship of prestige with faculty morale. Analysts of quantitative survey data tend to report high faculty morale across all sectors of academia independent of prestige (Clark 1987; Sanderson et al. 2000; Brooks et al. 2005; Schuster and Finkelstein 2006).

Yet, if the prestige of the PhD-granting department is related to the prestige of graduates' employers (e.g. Baldi 1994), and faculty have a guiding desire to maximize the prestige of where they work, then graduates of more prestigious programs should have more satisfying academic careers. But this is not what previous studies have found. Instead, those who graduated from more prestigious programs were equally satisfied with their jobs as those who graduated from less prestigious programs.

A PVS Model of Academic Satisfaction

We thus have two challenges to a PVS model of faculty satisfaction—a theoretical one in which a system predicted on prestige maximization is posited to be dynamically unstable, and an empirical one in which prestige has been found to be unrelated to rates of reports of faculty satisfaction. Instead of dismissing the role of prestige in influencing faculty satisfaction, we seek to develop a prestige based model of faculty satisfaction which resolves both challenges. We begin by formalizing four propositions that are implied by a strong reading of the role of prestige in determining faculty satisfaction. We next test each of these propositions with empirical data from a sample of faculty from six social science

disciplines. We conclude by reconceptualizing a PVS model of faculty satisfaction that fit with the findings relative to the four propositions.

P1 *Faculty are more responsive to prestige as compared with income in deriving their satisfaction.*

Caplow and McGee (1958) in their seminal study *The Academic Marketplace* raise this question in their formulation of the PVS (see pp. 55–59). They conclude that both income and prestige matter, but that prestige is more important. However, to our knowledge, no one has actually tested this proposition.

P2 *Faculty derive global job satisfaction from prestige that fosters satisfaction across a broad set of dimensions dealing with their job.*

If prestige is the ultimate reward in the academic labor market it should be positively associated with many domains of job satisfaction.

P3 *Assessment of prestige is in reference to the general system.*

This proposition is a modified version of the proposition posed by economists challenging the neo-classical framework in utility generation. Clark and Oswald (1996) asked whether those of different educational levels require different levels of income to obtain the same level of job satisfaction.⁴ They find that higher levels of income are not associated with higher levels of job satisfaction, but once education is controlled the expected relationship does obtain. They interpret this finding as evidence that individuals gain utility not by applying a general standard, but through social comparison. One must pay attention to the salient reference group in order to accurately predict levels of satisfaction. This finding has been reconfirmed in a number of studies (e.g. Stutzer 2004; Falk and Knell 2004; D'Ambrosio and Frick 2007) and a general consensus in the literature has been reached that people do not apply an absolute standard in deriving satisfaction from income but a standard derived from social comparison (see Argyle 2001, pp. 46–48 and 141).

The questions within this line of literature have changed from whether reference groups need to be incorporated into the model of satisfaction to how individuals select reference groups. For example, Bygren (2004) finds support for hypotheses that workers derive reference groups from within occupations, but not across labor markets, nor relative to one's own past. Against this finding, Levy-Garboua and Montmarquette (2004) find that one's own past does serve to set expectations for satisfaction.

With respect to academia and the framework of the PVS, we consider the individuals' graduate program as a likely source for social comparison. With regard to social comparison and prestige, a graduate program not only provides an individualized historical benchmark for prestige, but also a group of fellow alumni with whom one can compare career paths to evaluate one's achieved prestige. Thus, we interpret a finding that satisfaction returns to prestige vary across graduate training programs to be a salient challenge to proposition P3.

P4 *Among faculty, variation in the taste for prestige is exogenous to factors within a PVS model of the academic marketplace.*

Bisin and Verdier (1998) elaborate their theoretical model of a system based on maximization of status, by including an endogenous mechanism by which a taste for prestige is

⁴ The authors explicitly interpret reported job satisfaction to serve as a proxy for the concept of utility.

engendered. They posit an intergenerational ‘cultural’ transmission of preferences for social status. This theoretical model posits agents who derive utility from two sources: a private utility component and a social utility component—the latter of which Bisin and Verdier define as a “taste for recognition”. Moreover, they assign individuals to two classes—one in which utility is solely derived from a private component and one in which utility is derived from both the private and the social components. Members of the former class have not acquired a taste for recognition, while members of the latter class have acquired a taste for social status. The model incorporates an intergenerational transfer of tastes based on socialization from ‘parent’ to ‘child.’ Bisin and Verdier (1998) conclude that such a framework of intergenerational transfer of preference for social status can provide a stable system capable of reproduction. Their model has implications for the PVS in academia—‘doctoral granting program’ could easily substitute for ‘parent’ and ‘doctoral recipient’ could easily substitute for ‘child’. In other words, Bisin and Verdier’s model suggests that the taste for prestige—the social component—is endogenous and develops within the PhD program.

However, as yet, no specification of the PVS accounts for a mechanism by which academics come to internalize prestige as the highest reward that can be obtained in the academic marketplace. Without such a mechanism, proposition P4 should hold. In this paper, we ask whether, compared to graduates of high-prestige programs, those trained at the least prestigious programs are less affected by, or even immune to, prestige differences when evaluating their own satisfaction along various job domains.

In sum, each of the four propositions establishes a dichotomous set of possibilities concerning how to think about academic satisfaction in light of the PVS. Table 1 is a hermeneutic device to illustrate these dichotomies. The first dichotomy concerns the dominant value at the heart of the system—prestige versus income. The second dichotomy concerns the range of domains in which satisfaction is sensitive to variation in the core value—global versus narrow. The third dichotomy concerns the standards by which individuals judge their situation—against a fixed (absolute) criteria or against a relative criteria (determined by a reference group). The final dichotomy concerns the extent to which tastes for the dominant value are endogenous or exogenous to the PVS framework. The strongest conceptualization of the PVS would be a system where prestige is the dominant value, which influences a broad set of satisfaction domains, according to a uniform set of standards, and where all participants in the system are equally likely to ‘buy-in’ (row 1 of Table 1). In this paper, we will empirically test whether this strong version of the PVS fits with observed patterns of job satisfaction.

Empirical Model and Hypothesis Development

The four propositions raised above direct our attention to empirically investigating reported job satisfaction among academics relative to three independent variables: (1) prestige of the job, (2) prestige of the PhD-granting department, and (3) salary. We examine six dimensions of job satisfaction: satisfaction with prestige, with recognition, with contribution to society, with intellectual challenge, with autonomy and with salary. In an ordinal logistic regression analysis we control for other factors which previous research has posited contributing to reported satisfaction among academics (Seifert and Umbach 2008).

Table 1 Four dichotomies in conceptualizing the academic prestige value system in relation to faculty satisfaction

Dominant value	Range of domains of satisfaction	Standard for evaluation	Determination of dominant value	Row
Prestige	Broad	Absolute	Exogenous	1
			Endogenous	2
		Relative	Exogenous	3
			Endogenous	4
	Narrow	Absolute	Exogenous	5
			Endogenous	6
		Relative	Exogenous	7
			Endogenous	8
Income	Broad	Absolute	Exogenous	9
			Endogenous	10
		Relative	Exogenous	11
			Endogenous	12
	Narrow	Absolute	Exogenous	13
			Endogenous	14
		Relative	Exogenous	15
			Endogenous	16

Equation 1 structures the analysis:

$$\ln\left(\frac{S_{i,j,k}}{S_{i,j,(k-1)}}\right) = (\beta_{0,i,j}) + (\beta_{1,i,j} * (gradrep)) + (\beta_{2,i,j} * (prestige_emp)) + (\beta_{3,i,j} * (income)) + \sum_{m=0}^n (\beta_{m,i,j} * (X_m)) + \epsilon_{i,j} \tag{1}$$

where subscript ‘k’ refers to level of satisfaction: k = (1—‘very unsatisfied,’ 2—‘unsatisfied,’ 3—‘satisfied,’ 4—‘very satisfied’); subscript ‘i’ refers to various dimensions of job satisfaction: i = (1—‘prestige,’ 2—‘recognition,’ 3—‘contribution to society,’ 4—‘intellectual challenge,’ 5—‘autonomy,’ 6—‘salary’); subscript ‘j’ refers to the level of prestige of the graduate training program: j = (1—‘all,’ 2—‘low,’ 3—‘medium,’ 4—‘high’).

The term $S_{i,j,k}$ refers to the odds of reporting satisfaction at the level *k*, for the dimension *i*, for the respondents from graduate school reputation level *j*. Therefore the term: $\frac{S_{i,j,k}}{S_{i,j,(k-1)}}$ refers to the odds ratio of reporting a one unit higher level of satisfaction. “Gradrep” refers to the reputation of the doctoral granting program, “prestige_emp” refers to the reputation of the employing institution and “income” refers to respondent’s salary. The term x_m refers to an array of control variables of length *n*. Such variables include gender, age, race, graduate school publications, tenure status, time to degree and PhD field. The term: $\epsilon_{i,j}$ is an error term, assumed to have a mean of zero and to have a random variance set to 1.

Equation 1 allows us to address each of the four propositions with a formalized hypothesis.

1. *Prestige versus income*: The prestige value system suggests that faculty derive their utility from payoffs to prestige rather than payoffs to income. This means the effect of the prestige on job satisfaction will be larger than the effect of income on job satisfaction:

$$H_1 : \forall (i \neq 6) \beta_{2,i,j=1} > \beta_{3,i,j=1}$$

We allow one exception to the rule stated above. When dealing with salary satisfaction, the relative weight given to income and prestige is ambiguous (i.e. when $i = 6$).

2. *Prestige's influence on multiple dimensions of job satisfaction*: A strong prestige value system suggests that gains from prestige will be so highly valued that prestige will affect multiple dimensions of job satisfaction and not merely be limited to satisfaction with prestige. The effect of prestige on satisfaction with non-prestige dimensions of the job will be similar to the effect of prestige on satisfaction with prestige:

$$H_2 : \forall (i \neq 6, i' < i) \beta_{2,i,j=1} \approx \beta_{2,i',j=1}$$

3. *Absolute versus relative effect of prestige on prestige satisfaction*: The neoclassical model argues that utility is derived from maximization. Therefore, those with more of a valued good will experience greater utility and therefore greater satisfaction. The relative framework suggests that utility is derived with reference to relative standard—a reference group. These two frameworks suggest competing expectations for the coefficient estimating the effect of graduate school prestige when the model is tested with all respondents (i.e. when $j = 1$). The neoclassical model suggests a positive effect (or no effect) of the prestige of the graduate training program on faculty satisfaction:

$$H_{3a} : \text{Neoclassical model: } \forall (i) \beta_{1,i,j=1} \geq 0$$

The relative deprivation model suggests a negative effect of prestige of the graduate training program on faculty satisfaction:

$$H_{3b} : \text{Relative deprivation model: } \forall (i) \beta_{1,i,j=1} < 0$$

In other words, reference group theory suggests people compare their success with salient others, and derive satisfaction from outperforming these others. In this framework, others are people trained at the same quality PhD-granting departments. When we control for income and prestige of the current job, as our model does, then the effect of graduate school reputation will be negative. Those from more prestigious graduate schools will require more prestige to derive the equivalent amount of satisfaction as those from less prestigious graduate school programs.⁵ The neoclassical model on the other hand does not account for relative payoff and therefore suggests no mechanism by which the effect of graduate school would be negative. In fact, to the extent that graduate school prestige might lead to benefits that are not accounted for by salary and employer prestige, higher prestige of the PhD-granting department might be associated with higher job satisfaction.

4. *Universal taste for prestige versus endogenous taste for prestige*: Endogenous preference formation suggests that graduate school not only provides a reference standard by which people evaluate their success and thus derive their utility, but also that PhD-granting departments systematically construct preference functions. An endogenous model suggests that the PVS is most salient for those from the most prestigious programs. The exogenous preference formation model suggests that preference functions vary independently of variables in the model. In the exogenous model the effect of prestige of the current job for those trained in high prestige programs should be the same as the effect of prestige of the current job for those trained in lower prestige programs:

⁵ If it turns out that income and not prestige drives job satisfaction among academics, the relative deprivation model suggests that those trained at higher prestige programs will require more income for equal amounts of satisfaction than those who were trained at lower prestige programs.

$$H_{4a} : \text{The exogenous model: } \forall (j \neq 1, j' < j) B_{2,ij} = \beta_{2,ij'}$$

In the endogenous model, those from the most prestigious institutions will derive the highest payoff to prestige:

$$H_{4b} : \text{The endogenous model: } \forall (j \neq 1, j' < j) B_{2,ij} = \beta_{2,ij'}$$

Data and Methods

Data

The hypotheses posited above are tested using a national sample of PhDs who earned their degrees in U.S. institutions between July 1, 1995 and June 30, 1999 in anthropology, communication, geography, history, political science, and sociology. Doctorate holders were surveyed in 2005–2006, 6–10 years after being awarded the PhD. Respondents provided information on career path, family history, and graduate school achievements and evaluated the quality and usefulness of their doctoral education. In addition, they answered open-ended questions reflecting upon personal experiences with diversity, and giving advice to beginning graduate students and to graduate programs. This dataset—*Social Science PhDs—Five+ Years Out* (hereafter *SS5*), collected by the Center for Innovation and Research in Graduate Education (*CIRGE*), allows researchers to examine relationships within and between spheres of work, family, and doctoral education (Nerad et al. 2007).

The 3,025 respondents represent about one-fifth of all U.S. PhDs in these fields during this time. They were sampled from 65 PhD programs that varied broadly in terms of prestige.⁶ Only those respondents whose job at the time of the interview was tenure-track or tenure faculty at a U.S. postsecondary institution were selected for this analysis—a final sample size of 1,472. Their career paths take them through institutions that are positioned at very different places on an institutional academic prestige hierarchy—ranging from “elite” to “mass” in the terminology of the literature of the prestige stratification system (e.g., Burris 2004).

The dependent variables in our analyses measure six different dimensions of job satisfaction: satisfaction with the prestige of the employing organization, with recognition for one’s work, with contribution to society, with the intellectual challenge of the work, with autonomy, and with income. Each of these variables is measured on a four point scale ranging from “very satisfied,” to “very dissatisfied.”

Two of the three focal independent variables in this analysis deal with prestige—the prestige of employing institution at the time of the survey and the prestige of the PhD program. Prestige of academic organizations is a subjective concept and one that is difficult to measure (Wilson 1966). Geiger (2002) notes, that at the institutional level, prestige is the product of two distinct but related dimensions, the scholarly reputation of the faculty and the selectivity of the undergraduate students. With regard to the prestige of the graduate school—the first of the focal independent variables in this study—the faculty scholarly reputation is the salient component structuring the status hierarchy. This variable is observed using the National Research Council’s (NRC) 1995 rating of the scholarly quality of the program’s faculty. The NRC ratings reflect the aggregated ratings on a five point

⁶ See “Appendix 2” for a list of institutions and programs that participated in the *SS5*.

scale from a sample of faculty from within the field on their subjective perception of the scholarly quality of the department (Goldberger et al. 1995).⁷

With regard to the prestige of the job at the time of the survey—this study operationalizes prestige in terms of the second dimension—the selectivity of the undergraduate student body. Conceptualizing prestige in terms of selectivity of the undergraduate students offers greater coverage of the academic labor market. A majority of the higher education institutions who employ faculty with PhDs are not evaluated in terms of the scholarly reputation of their faculty—the dimension is not salient. Among those institutions in which both faculty scholarly prestige and selectivity of undergraduates are both measured, the correlation between measures is extremely high, although not completely coextensive. Thus, conceptualizing prestige in terms of undergraduate selectivity should provide largely consistent results with conceptualizing in terms of faculty scholarly reputation. The measure of prestige of current job is derived from data from the U.S. News and World Report (USNWR) 2005 rankings (Morse et al. 2005). The method of calculating prestige scores based on this data is discussed in “Appendix 1”.

The final of the three focal independent variables is income, measured as “basic annual salary for current position before deductions.” All three variables—the prestige of the graduate program, the prestige of the current job, and income—are converted into z-scores in order to promote comparability of regression coefficients in the analysis.^{8,9} Control variables included in the analysis include the respondents’ gender, the educational attainment of the respondents’ parents, the respondents’ time to completing their degree, their underrepresented minority status, their age, their productivity in graduate school, and their doctoral field. We also control for tenure status.

Methods

The hypotheses specified above were tested using ordinal logistic regression consistent with the model described in Eq. 1.¹⁰ For each dependent variable the model was estimated first using all 1,472 eligible cases and next splitting the cases by the prestige of the

⁷ An argument may be advanced that the NRC rating of the educational quality of the graduate training program is a more salient measure of prestige. However, the measures of educational quality and faculty scholarly reputation are correlated at above 0.9, so that in practical terms it does not matter which measure is used.

⁸ z-Scores for the reputation of the graduate training program are calculated within field. In one of the six fields, Communications, the NRC does not report reputation of programs. In this field a surrogate measure was used for reputation of graduate program—the undergraduate student selectivity of the degree granting institution. For the five fields where both NRC program ratings and USNWR ratings are available, the correlation between measures is 0.69. Thus, institutional selectivity was deemed to be a reliable, albeit imperfect, surrogate measure of prestige of the PhD-granting department in the field of communications. Like the other five fields, z-scores for the reputation of the degree granting program in Communications were converted to with field z-scores.

⁹ z-Scores for income and for PhD program prestige are computed relative to the set of cases in the SS5, and therefore have a mean of zero and a standard deviation of 1. However, as described in “Appendix 1”, z-scores for employing institutional prestige are calculated relative to the field of all institutions of higher education. As institutional prestige is positively related to size of the institution, the respondents to the SS5 are more concentrated in the higher prestige institutions. (In other words, higher prestige institutions have more jobs than lower prestige institutions.) Within this analysis, the average institutional prestige score is 0.66. However, the standard deviation, fortuitously happens to be near one, making coefficients from statistical model conducive for comparison across variables.

¹⁰ The appropriate application of ordinal logistic regression depends on conformity to the parallel effects assumption. This assumption and empirical tests verifying conformity are presented in “Appendix 4”.

graduate school program. Low prestige programs are operationalized as those scoring more than one-half standard deviation below the mean ($n = 396$), high prestige programs are those scoring more than one-half standard deviation above the mean ($n = 568$), medium prestige programs are all others ($n = 508$).

The findings section will present exponentiated coefficients depicting the predicted change in likelihood of a one unit improvement in self-reported satisfaction given a one unit change in the referenced independent variable. Since the focal independent variables (prestige and salary) are specified as z-scores, a unit is a standard deviation. Models are estimated using sixteen variables (including both focal independent variables and controls). Not all variables have complete observations, with missing values ranging from 0 to 12% of the cases. Therefore, estimates are made using multiple imputation with chained equations (Royston 2004, 2005). Reported estimates are derived from ten imputations. The reported model fit statistics are averaged across each of the ten imputations, and we report both these averages and the standard deviation across the ten imputation. Finally, we report model fit statistics and coefficients for all variables for analyses using all cases. However, when we split our sample by the prestige of the graduate degree granting program, we report only coefficients relevant to our hypotheses.

Correlation Among Key Variables

The concern in this paper has to with the role of the PhD training program along with the role of the employer in determining job satisfaction among faculty. However, in interpreting these relationships, one must consider how much variation in the prestige of the PhD training program determines prestige in employers. Previous research provides an expectation that the academic labor market has very little upward mobility from low prestige PhD training programs to high prestige employers (Baldi 1994; Debackere and Rappa 1995; Burris 2004). We examine this relationship with the *SS5*.

First, we consider whether prestige of the PhD program affects the likelihood of an academic position. We run three logistic regression models to determine the effect of a standard deviation increase in the prestige of the PhD program on the likelihood of working in a ladder faculty position at the time of the survey—first with no controls, second with controls for PhD field, and third with controls for all co-variates set at or before completion of graduate school that are entered in the models of satisfaction. Overall, about half of the respondents to the *SS5* survey have ladder faculty positions at the time of the survey. In the model with no controls, the prestige of the PhD training program has a significant positive effect on the likelihood of working in a ladder faculty position at the time of the survey. One standard deviation increase in the prestige of the graduate training program increases the likelihood of being ladder faculty at the time of the survey by 8%—a rather small effect. The effect remains little changed when controls are added (analysis not shown).

Second, we consider for those who do have ladder-faculty positions at the time of the survey, the relationship between prestige of the PhD training program and the prestige of the employer. We present this relationship in Fig. 1. The relationship is positive, and rather strong. A one standard deviation increase in the prestige of the PhD training program is associated with a 0.47 standard deviation increase in the prestige of the employing institution. This effect remains when controls are added as in the analysis described above (analysis not shown). Despite the unsurprising evidence that prestige of the PhD training program is strongly related to the prestige of the current job, a considerable amount of

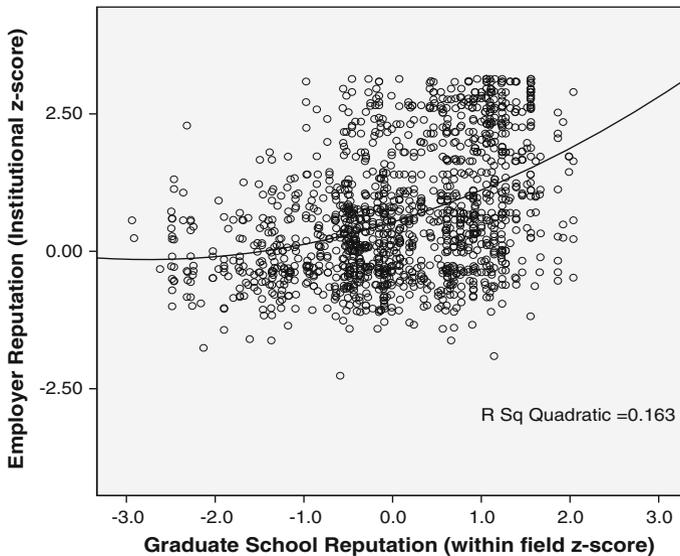


Fig. 1 Relationship between prestige of the PhD program and prestige of the employer among social science faculty

variation remains unexplained.¹¹ Moreover, despite claims that the academic marketplace is caste system (Burriss 2004) with closed mobility, Fig. 1 suggests that cases of upward mobility from low prestige PhD programs into very selective institutions do exist.

Findings

Table 2 presents the distribution of scores on the dependent variables—the six dimensions of job satisfaction—for our respondents. Respondents reported the highest level of satisfaction with the autonomy of their work, followed by satisfaction with intellectual challenge and with contribution to society. Respondents were much more likely to report lower levels of satisfaction with the prestige of their organization and with recognition for their work. They report the lowest levels of satisfaction with their salaries—43% of respondents were dissatisfied.

Table 3 presents model fit statistics and exponentiated coefficients for ordinal logistic regression estimations of satisfaction using all 1,472 eligible respondents. The table provides information sufficient to evaluate hypotheses H_1 to H_3 .

Hypothesis H_1 tests a general proposition emerging directly out of the PVS: that returns to prestige are more important than returns to income in determining satisfaction. This hypothesis was formalized as:

$$H_1 : \forall (i \neq 6) \beta_{2,i,j=1} > \beta_{3,i,j=1}$$

¹¹ We also test for the possibility of multicollinearity in our models due to high correlations between prestige of employer and prestige of the institution where the respondent earned the doctorate. Results of this analysis are presented in “Appendix 3”.

Table 2 Distribution of scores on six domains of job satisfaction

Dimension of satisfaction	n	Very satisfied (%)	Somewhat satisfied (%)	Somewhat dissatisfied (%)	Very dissatisfied (%)
Prestige of organization	1457	31.8	45.0	20.2	3.0
Recognition for work	1465	33.2	44.4	15.1	7.4
Contribution to society	1456	42.4	46.3	9.8	1.4
Intellectual challenge	1472	56.0	35.0	7.8	1.2
Autonomy	1466	70.1	25.0	4.1	0.9
Salary	1465	18.8	38.3	29.7	13.2

The reputation of the employing institution indeed is a stronger predictor of satisfaction with prestige of the job than is respondent's salary. However, salary has a greater effect than prestige does on satisfaction with recognition of work; the prestige of the job has a surprising (given the hypothesis) negative effect on satisfaction with contribution to society while the effect of salary is positive; the positive effect of prestige and salary on satisfaction with intellectual challenge is comparable. In short, hypothesis H_1 is rejected except for the case of one dimension of satisfaction—satisfaction with prestige.

Hypothesis H_2 tests a proposition that emerges from a strong conception of the prestige value system. This proposition is that returns to prestige will be so highly valued that it casts a positive light on multiple dimensions of the job. If this proposition were true then the effect of prestige on satisfaction would be substantively equivalent across dimensions of satisfaction. Formally hypothesis H_2 is presented as:

$$H_2 : \forall (i \neq 6, i' < i) \beta_{2,i,j=1} \approx \beta_{2,i',j=1}$$

This hypothesis receives little support. Prestige has a positive effect on only two of the five dimensions of satisfaction—satisfaction with prestige and satisfaction with the intellectual challenge of work.

The third and fourth hypotheses adjudicate between a neo-classical framework on satisfaction and a relative deprivation framework. The neoclassical model suggests that with regard to utility (and by extension, satisfaction) more is always better. The more gains the more satisfaction. The relative deprivation framework suggests that satisfaction is derived relative to a standard, and that early differences create differences in expectations. If the neoclassical model is true, then the effect of the PhD granting program should be zero, or positive if it creates gains to the job that are not controlled for in the model. If the relative deprivation model is true, then a more prestigious PhD programs should lead to less satisfaction since the model controls for salary and the prestige of the job. These two hypotheses have been formalized as follows:

$$H_{3a} : \text{Neoclassical model: } \forall (i) \beta_{1,i,j=1} \geq 0$$

$$H_{3b} : \text{Relative deprivation model: } \forall (i) \beta_{1,i,j=1} < 0$$

The findings relative to this hypothesis are mixed. Controlling for the prestige of the employer, and the salary of the job, the reputation of the graduate program is negatively associated with satisfaction with the prestige of the organization, the intellectual challenge of the work, and the salary. On the other hand, it has no effect on satisfaction with the recognition for work, the contribution to society, or autonomy.

Table 3 Effect of PhD Department, employer reputation, and salary on six domains of job satisfaction (ordinal logistic regression model) ($n = 1472$)^a

	Prestige of org. ($i = 1$)	Recognition ($i = 2$)	Contrib. to soc. ($i = 3$)	Intellect. chal. ($i = 4$)	Autonomy ($i = 5$)	Salary ($i = 6$)
Reputation of PhD Dept. (z -score) B ₁	0.71** (5.64)	0.94 (1.18)	0.91 (1.69)	0.84** (2.87)	1.02 (0.29)	0.83** (3.14)
Reputation of employing institution (z -score) B ₂	1.92** (11.23)	1.02 (0.27)	0.87* (2.50)	1.53** (6.67)	1.08 (1.15)	1.04 (0.71)
Salary (z -score) B ₃	1.46** (5.14)	1.68** (7.25)	1.25** (3.35)	1.39** (4.41)	1.06 (0.70)	2.76** (12.99)
Tenure status (1 = tenured, 0 = tenure track)	0.77* (2.40)	0.95 (0.47)	1.10 (0.91)	0.89 (1.04)	1.21 (1.59)	0.80* (2.07)
Female (1 = female, 0 = male)	1.15 (1.31)	1.04 (0.35)	1.43** (3.40)	1.14 (1.18)	1.07 (0.55)	0.88 (1.25)
Parents education (1 = high school, 5 = PhD/Professional)	0.96 (0.70)	0.96 (0.79)	1.03 (0.61)	1.05 (0.98)	1.03 (0.49)	1.00 (0.06)
Time to degree (logged years)	0.54** (3.00)	0.60* (2.56)	0.63* (2.28)	0.47** (3.50)	0.69 (1.62)	1.00 (0.01)
Under-represented minority (1 = black/Hispanic/other, 0 = white/Asian)	0.98 (0.09)	0.74 (1.57)	0.86 (0.84)	0.78 (1.24)	0.69 (1.83)	0.75 (1.63)
Young PhD (1 = younger than 30 years, 0 = older than 30)	0.94 (0.45)	1.02 (0.12)	0.98 (0.12)	1.02 (0.14)	1.22 (1.27)	0.88 (1.00)
Old PhD (1 = older than 40 years, 0 = younger than 40)	1.39* (2.11)	1.07 (0.47)	1.64** (3.09)	1.11 (0.61)	0.95 (0.30)	1.21 (1.21)
Grad school pubs (0 = none, 1 = 1, 2 = 2 or more)	0.94 (0.92)	0.95 (0.80)	0.91 (1.41)	0.97 (0.43)	1.08 (1.06)	0.99 (0.21)
Anthropology	1.24 (1.08)	1.05 (0.28)	1.37 (1.73)	1.38 (1.60)	1.36 (1.48)	0.78 (1.36)
Communications	1.37 (1.68)	0.82 (1.08)	0.69 (1.95)	0.76 (1.43)	0.94 (0.30)	0.72 (1.79)
Geography	1.14 (0.53)	0.65 (1.69)	1.10 (0.35)	0.82 (0.75)	1.38 (1.03)	0.75 (1.14)
Political science	0.95 (0.32)	0.79 (1.64)	0.87 (0.95)	0.99 (0.07)	1.27 (1.48)	0.66** (3.00)
Sociology	1.06 (0.37)	0.77 (1.67)	0.94 (0.35)	1.08 (0.43)	1.07 (0.37)	0.75 (1.88)
Log likelihood	-1531.8	-1717.2	-1454.2	-1299.3	-1107.0	-1765.8
χ^2	327.2	110.2	62.3	176.5	32.7	329.1

^a Exponentiated coefficients indicate odds of reporting a one unit higher level of satisfaction (t statistics in parentheses)** $p < 0.01$, * $p < 0.05$

The final two hypotheses emerge from the proposition that the PVS is a product of socialization that occurs within the most prestigious PhD programs. If this proposition is true, then preference formation is endogenous to the model, and the effects of prestige will be most realized by those trained at the elite graduate training institutions. If the proposition is not true, then preference formation is exogenous and effects of prestige and salary will be similar across levels of status of the graduate training programs. These hypotheses have been formalized as follows:

$$H_{4a} : \text{The exogenous model: } \forall(j \neq 1, j' < j) B_{2,i,j} = B_{2,i,j'}$$

$$H_{4b} : \text{The endogenous model: } \forall(j \neq 1, j' < j) B_{2,i,j} > B_{2,i,j'}$$

In order to test these hypotheses we turn to Table 4 in which the models presented in Table 3 were replicated separately for three different prestige levels of graduate training programs: low prestige programs that were more than one-half standard deviation below the mean level of prestige, medium prestige programs that span from one-half standard deviation below the mean level of prestige to one-half standard deviation above the mean level of prestige, and high prestige programs that are at least one-half standard deviation above the mean level of prestige. Table 4 presents only the coefficients for prestige of the current job and for salary although all controls are included in the analysis.

Consistent with hypothesis H_{4b} , the effects of prestige of the job on satisfaction with prestige rise with the level of prestige of the graduate training program. The same pattern holds for satisfaction with intellectual challenge. Also intriguing, since the model with all eligible respondents had no significant effect on satisfaction with autonomy is that when the sample is limited to only those from high prestige programs, the prestige of the job does significantly predict satisfaction with autonomy.

Table 4 Effect of salary and job prestige on six domains of job satisfaction by prestige of PhD-granting program (ordinal logistic regression model)^a

		Prestige of PhD-granting department		
		Low prestige (n = 396)	Medium prestige (n = 508)	High prestige (n = 568)
Prestige of organization (i = 1)	B ₂ —Prestige of current job	1.56** (3.42)	1.62** (4.58)	2.60** (9.71)
	B ₃ —Salary	1.62** (3.70)	1.45** (2.70)	1.37** (2.85)
Recognition for work (i = 2)	B ₂ —Prestige of current job	1.07 (0.48)	1.02 (0.18)	1.02 (0.25)
	B ₃ —Salary	1.98** (5.39)	1.57** (3.20)	1.59** (4.30)
Contribution to society (i = 3)	B ₂ —Prestige of current job	0.87 (1.08)	0.82 (1.94)	0.89 (1.31)
	B ₃ —Salary	1.40** (2.62)	1.29* (2.01)	1.15 (1.27)
Intellectual challenge (i = 4)	B ₂ —Prestige of current job	1.39* (2.53)	1.47** (3.57)	1.68** (5.17)
	B ₃ —Salary	1.58** (3.38)	1.29 (1.87)	1.33* (2.16)
Autonomy (i = 5)	B ₂ —Prestige of current job	1.08 (0.51)	0.92 (0.71)	1.34** (2.79)
	B ₃ —Salary	1.17 (1.18)	1.03 (0.20)	0.94 (0.51)
Salary (i = 6)	B ₂ —Prestige of current job	1.11 (0.77)	0.94 (0.65)	1.11 (1.16)
	B ₃ —Salary	2.61** (7.07)	2.93** (7.63)	2.89** (7.67)

^a Models include control variables displayed in Table 3. Exponentiated coefficients indicate odds of reporting a one unit higher level of satisfaction (t statistics in parentheses)

** $p < 0.01$, * $p < 0.05$

Also intriguing given the proposition stated above is that—for satisfaction with the prestige of the organization, with the recognition of work, with the contribution to society, and with intellectual challenge—returns to salary are the highest for those from the lowest prestige group. Although not formally hypothesized, Table 4 provides evidence that those from low prestige programs derive satisfaction from faculty work differently than those from high prestige programs.

Discussion: The Coin of the Realm

While Merton (1968) notes that “graded rewards in science are distributed principally in the coin of recognition,” we ask the related question: ‘is prestige really the coin of the academic realm?’ Our systematic, empirical investigation of the impact of employer prestige on multiple dimensions of job satisfaction suggests it is not so simple. Using ordinal logistic regression models of satisfaction controlling for a number of individual level characteristics set during or prior to graduate school, we found that prestige matters, but that it matters mostly for the elite segment of the academic labor market.

First, we examined the central conceit of the PVS—that for college and university faculty prestige matters more than money. We looked at the relative impact of respondent salary and employer prestige on six dimensions of job satisfaction. We found that prestige of an appointment is related in the expected direction to only two of six job satisfaction items while salary of the job is related to four of six job satisfaction items. In only one of the six items, “satisfaction with prestige,” was prestige of the job a significantly better predictor. These findings challenge the notion that prestige is the universal coin of the academic realm.

However, our further tests show that the concept of prestige predicts faculty morale in a non-obvious way. We find that faculty evaluate prestige relative to different reference groups. Because a graduate program provides a personal historical benchmark and a ready comparison group of fellow alumni, we investigated the impact of the prestige of respondents’ PhD-granting departments on job satisfaction. In models controlling for employer prestige, we found for ladder faculty, that the higher the prestige of the graduate training departments the lower the satisfaction with multiple dimensions of their work. These findings suggest that if we are to take the PVS seriously as a framework for understanding behavior in the academic marketplace we must incorporate within it a reference group theory by which agents calibrate their perceptions of quanta of prestige relative to internal utility.

We further find a second, non-obvious way in which prestige operates in a model of faculty job satisfaction. The prestige of a graduate program differentiates the returns to future prestige, and the value of prestige relative to salary. In short, the taste for prestige is endogenous. Compared to graduates of lower-prestige programs, among graduates of high prestige programs employer prestige has a larger impact on satisfaction with prestige of the current job, intellectual challenge, and autonomy of the work. Conversely, compared to graduates of high prestige programs, among graduates of lower prestige programs salary has a larger impact on satisfaction with prestige, recognition for work, intellectual challenge and contribution to society. While graduates of higher prestige programs are seemingly more sensitive to distinctions in employer prestige, graduates of lower prestige programs are more sensitive to distinctions in salary.

Our findings suggest a reconceptualization of the PVS. The PVS is a system which incorporates a cultural transmission process for preferences for social status, as described by Bisin and Verdier (1998). While Bisin and Verdier posit families as the agent that differentially socializes into status preferences, the graduate training program serves this role in

the academic marketplace. Those trained at elite PhD programs have a much higher propensity to enter the academic marketplace with a taste for prestige than those trained in mass programs do. Because students could bring the taste for prestige with them into graduate school, our models controlled for family cultural capital (parents' educational attainment), as well as graduate school performance variables (such as publication productivity during graduate school) that could indicate preferences set before PhD completion.

Implications

Our reconceptualization of the PVS has several implications. First, as Rhode (2006) suggests and Bisin and Verdier (1998) model, the PVS, as generally conceived, is not a sustainable system. Yet the academic labor system does reproduce and heretofore system changes that have occurred have yet to emerge through crisis. Thus, we are faced with a tension between theory and observed reality. Our reconceptualization of the PVS helps overcome this tension. The system reproduces because mechanisms are in place to alleviate pressures that would emerge from a universal, absolute PVS. In this analysis, we identify one such mechanism, the stratification of graduate training institutions which serve to differentiate both reference standards and preference functions.

Our reconceptualization helps overcome a second tension between theory and observed reality. Brooks et al. (2005) find that more prestigious graduate programs do not produce doctorates who are more satisfied with their careers. This finding is surprising given a basic formulation of the PVS because graduates of more prestigious programs should be getting more prestigious jobs which according to the PVS ought to be more rewarding. Brooks et al., adhering to a standard interpretation of the PVS, conclude that the National Research Council system of rating graduate program prestige was a poor measure of quality—since the more highly rated programs did not produce more satisfied alumni. Our reconceptualized model of the PVS provides an alternative explanation—that those from more highly rated programs required higher prestige in their job attainment to gain an equal quanta of satisfaction. More generally, our reconceptualized model of the PVS suggests that future cross institutional comparisons of faculty morale ought to simultaneously take into account the prestige of the institutions where faculty work and the prestige of the institutions where faculty obtained their degree. Models which take only one of these two factors into account will produce biased estimates of effects.

A third implication of our model has to do with the process by which agents within the academic labor market are matched to jobs—the sorting process. Prestige most certainly matters in structuring competition for jobs among academics. However, it does not strictly segment the academic labor market, nor does research and teaching mission. Theoretical models of how prestige does structure the competition have until now relied either on human capital or social capital theories of mobility. In these approaches, it is argued that high prestige PhD programs place their alumni at higher prestige institutions because they endow their alumni with some combination of greater substantive knowledge (human capital) and network of connections (social capital). The findings of this paper suggest that a third mechanism must be incorporated into the model of competition in the academic labor market, an element of cultural capital, in which the graduate training program is associated with differential tastes for prestige. In short, future research may attempt to more directly measure preference orientation, satisficing criteria, and conceptions of equivalent substitutes among academic posts that agents use when considering academic jobs they desire. The employment of these measures alongside measures of productivity

and measures of personal networks would benefit theories of mobility in the academic marketplace.

Limitations and Conclusion

While this study does arrive at some non-obvious conclusions about the operation of the PVS, the empirical analysis is not without limitations. Most notably, we are limited to conceptualizing prestige on an individual level as an attribute that is derived from program level prestige (with regard to graduate training) and institutional level prestige (with regard to job appointment). Of course, this conception of prestige is more limited than way in which others have considered prestige within the PVS as also incorporating personal level awards, citations and other forms of recognition. Our data do not allow us to consider this more general conceptualization of prestige. Given our conceptualization of individual prestige as derivative of organizational level prestige our study is also limited by the quality of our measures of organizational prestige. Prestige is difficult to measure, and the indicators that we employ have both problems of reliability and validity. Nevertheless, it is important to note that our measures, imperfect as they are, do produce findings that can be understood within a coherent theoretical framework.

In conclusion, our reconceptualization of the PVS challenges the notion that “[a]n instructorship at a great university is more desirable than a deanship at a local denominational college” (Caplow and McGee 1958, p. 75). This view, presented in the work which coined the term “the prestige value system,” may be valid from a perspective. However, the evidence presented in this paper suggests it is not universally held. The fact that scholars of the prestige value system have never considered the limited scope of the PVS is coincident with the fact that research in this area tends to be limited to elite sections of the academic marketplace—luminaries, historic figures and Nobel Prize winners in the case of Merton (1957); faculty at research intensive programs in the case of Caplow and McGee (1958) and Burke (1988); and faculty at doctoral degree granting programs in the case of Burris (2004) and Hermanowicz (2003). Yet most faculty in the U.S. are not employed by high status research universities (Nevil and Bradburn 2006, p. 9). Future research using the PVS framework may consider implications of the PVS for non-elite sectors of the academic marketplace.

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Appendices

Appendix 1: The Measure of Prestige of the Higher Education Institutions

Our measure of prestige of the institution where the faculty member works is not an exact replication of the U.S. News and World Report (USNWR) rankings. The USNWR rankings would be a valid measure of institutional prestige, insofar as the concept of prestige is merely the intersubjective perception of a status order by significant others (Wilson 1966). The USNWR rankings are an attempt to formalize such a concept. However, the USNWR rankings do not suffice for a measure that is comparable for all undergraduate degree granting institutions across the U.S. The problem with using U.S. News rankings to construct a unidimensional measure is that rankings are constructed and reported within region

(and within college type). We cannot use the USNWR rankings to compare institutions classified in the southern region with those classified in the western region, nor can we compare rankings of selective colleges with those of national universities.

Instead of using the USNWR rankings, an OLS model using USNWR is generated to predict student test scores—the 75th percentile score for both the SAT and for the ACT and the 25th percentile score for both the SAT and the ACT. Test scores are the data element from the USNWR that are most strongly linked to the concept of student selectivity—which is at the heart of the dimension of prestige that Gieger (2002) singles out as a critical element of prestige. The independent variables, used to predict test scores in this model, included: classification (akin to Carnegie class), region, tier of ranking, the peer assessment, the graduation rate, acceptance rate, and percent of freshmen in the top quarter of their high school class. Models explained from 86% of the variation in first quartile SAT scores to 71% of the variation in third quartile ACT scores. Most importantly the models enabled the prediction of test scores where none were reported (for example the first quartile ACT scores among freshmen in a university that relies exclusively on SAT scores for admission). Each of the four predicted data points were converted into z-scores and averaged. Thus each institution rated by USNWR in 2005 was assigned a single measure on a continuous scale that reflects the selectivity of its student body. These scores are used to measure the prestige of the employing institutions for the SS5 respondents.

Appendix 2

See Table 5.

Table 5 Participating Institutions and Programs

	Anth.	Comm.	Geog.	Hist.	Poli Sci.	Soc.
Arizona State University	×	×	×	×	×	×
Boston College				×	×	×
Brandeis University	×			×	×	×
Catholic University	×			×	×	×
City University of New York	×			×	×	×
Clark University			×			
Columbia University	×			×	×	
Cornell University	×	×		×	×	×
Duke University	×			×	×	×
Emory University	×			×	×	×
Florida State University		×		×	×	×
Harvard University	×			×	×	×
Howard University		×			×	×
Indiana University	×	×	×	×	×	×
Johns Hopkins University	×			×	×	×
Kent State University	×	×	×	×	×	
Louisiana State University		×	×	×	×	×
Massachusetts Institute of Tech.			×	×	×	
Michigan State University	×	×	×	×	×	×
New York University	×			×	×	×

Table 5 continued

	Anth.	Comm.	Geog.	Hist.	Poli Sci.	Soc.
Northwestern University	×	×		×	×	×
Ohio State University	×	×	×	×	×	×
Pennsylvania State University	×	×	×	×	×	×
Princeton University	×			×	×	×
Purdue University	×	×		×	×	×
Rutgers University	×	×	×	×	×	×
Southern Illinois University	×	×	×	×	×	×
Stanford University	×	×		×	×	×
SUNY at Buffalo	×	×	×	×		×
Syracuse University		×	×	×	×	×
UC—Berkeley	×		×		×	×
UC—Davis	×		×	×	×	×
UC—Irvine	×			×	×	×
UC—Los Angeles	×		×	×	×	×
UC—Riverside	×		×	×	×	×
UC—San Diego	×	×		×	×	×
UC—Santa Barbara	×	×	×	×	×	×
UC—Santa Cruz	×			×		×
University of Chicago	×			×	×	×
University of Colorado	×	×	×	×	×	×
University of Connecticut						
University of Georgia	×	×	×	×	×	×
University of Illinois	×	×	×	×	×	×
University of Iowa	×	×	×	×	×	×
University of Kansas	×	×	×	×	×	×
University of Maryland		×	×	×	×	×
University of Massachusetts	×	×		×	×	×
University of Michigan	×	×		×	×	×
University of Minnesota	×	×	×	×	×	×
University of Missouri	×	×		×	×	×
University of Nebraska		×	×	×	×	×
University of North Carolina	×		×	×	×	×
University of Oregon	×	×	×	×	×	×
University of Pennsylvania	×	×		×	×	×
University of Pittsburgh	×	×		×	×	×
University of Rochester	×			×	×	
University of Tennessee	×	×	×	×	×	×
University of Texas	×	×	×	×	×	×
University of Virginia	×			×	×	×
University of Washington	×	×	×	×	×	×
University of Wisconsin	×	×	×	×	×	×
Washington State University	×			×	×	×
Washington University	×			×	×	

Table 5 continued

	Anth.	Comm.	Geog.	Hist.	Poli Sci.	Soc.
Wayne State University	×	×			×	×
Yale University	×			×	×	×

Appendix 3: Collinearity Diagnostics

We ran collinearity diagnostics for each of the six dependent variables in the analysis presented in Table 3. A Variance Inflation Factor (VIF) above 10 is a conventional threshold which indicates that collinearity threatens proper inference. Table 6 presents VIFs calculated for the model in which Satisfaction with Salary is the dependent variable. The VIFs associated with the models for the other dependent variables are not displayed because they varied by less than 3 one-hundredths of a point from the estimates displayed below. None of the VIFs suggest that multicollinearity may be a problem.

Appendix 4: Tests for Parallel Effects Assumption

The appropriate application of ordinal logistic regression relies on the assumption that the estimated coefficients capture the effects of a unit increase in the independent variables on the likelihood of a one-unit increase in the dependent variable regardless of the value of the dependent variable. This assumption is known as the parallel effects assumption (Long and Freese 2003, pp. 165–168).

For example, in our analysis in Table 3 Model 1, we estimate the ordinal logistic regression coefficient 1.92 for the effect of the employing institution prestige on satisfaction with prestige. The parallel effects assumption demands that this effect is interpreted

Table 6 Variance inflation factors for Table 3 Model 6

Variable	VIF
Reputation of PhD Dept.	1.28
Reputation of employing inst	1.55
Salary	1.51
Tenure status	1.11
Female	1.07
Parent's education	1.16
Time to degree	1.31
Under-represented minority	1.05
Young	1.18
Old	1.17
Grad school pubs	1.14
Anthropology	1.31
Communications	1.44
Geography	1.15
Political science	1.49
Sociology	1.49

as meaning that a one standard deviation increase in employing institutional prestige increases the odds of reporting ‘very satisfied’ compared to the odds of reporting ‘somewhat satisfied’ by 92%, and that it also increases the odds of reporting ‘somewhat satisfied’ compared to the odds of reporting ‘somewhat dissatisfied’ also by 92%.

If the parallel effects assumption is violated and the effects of an independent variable on an ordinal dependent variable are different for each step of the dependent variable, then a multinomial logistic regression is to be preferred over an ordinal logistic regression. However, we can apply a Brant test to evaluate whether the parallel effects assumption has been violated. A sufficiently high and statistically significant Brant test statistic indicates a violation of the parallel effects assumption. Table 7 presents Brant test statistics for all variables in each of the six models presented in Table 3.

None of the Brant test statistics at the model fit level are sufficiently high to suggest violation of the parallel effects assumption. Only eight of the ninety-six test statistics at the coefficient level are significant at the $p < 0.05$ level and all of these are control variables, none having any bearing on any of the hypotheses. In sum, the Brant-tests for violations of the parallel effects assumption suggest little reason to abandon the ordinal logistic regression model.

Table 7 Brant test statistics and p -values testing the potential violations of the parallel effects assumption in ordinal logistic regression ($n = 1472$)

	Prestige of org.	Recognition	Contrib. to soc.	Intellect. chal.	Autonomy	Salary
Reputation of PhD Dept.	0.00	2.08	0.35	4.39	2.35	4.20
Reputation of employing institution	2.06	1.41	1.06	3.49	5.83	5.27
Salary	3.02	2.76	4.64	2.23	1.53	2.57
Tenure status	0.22	1.07	0.28	6.92*	8.16*	6.82*
Female	2.39	2.67	1.16	0.64	4.44	0.61
Parents education	4.41	0.70	2.26	1.21	1.16	1.91
Time to degree	0.56	0.21	0.39	1.05	1.82	0.95
Under-represented minority	0.05	8.91*	3.48	0.25	0.54	0.20
Young PhD	5.60	7.58*	0.74	0.29	1.12	0.22
Old PhD	1.13	4.69	1.77	0.90	1.65	0.69
Grad school pubs	1.41	2.54	2.88	0.41	0.36	0.07
Anthropology	3.80	0.43	0.53	0.01	0.06	0.04
Communications	0.37	0.34	3.37	1.41	0.61	1.14
Geography	0.99	0.24	1.98	9.05*	8.49*	9.37**
Political science	0.21	0.92	5.23	1.15	1.84	0.71
Sociology	0.46	4.17	2.05	0.54	0.31	0.35
Model	29.81	41.66	34.63	37.79	33.99	39.85

** $p < 0.01$, * $p < 0.05$

^a Brant test statistics above 5.99 are significant at $p < 0.05$. Brant test statistics above 9.21 are significant at $p < 0.01$ (χ^2 distribution with 2 degrees of freedom)

^b The model as a whole has 32 degrees of freedom. Brant test statistics above 46.19 are significant at $p < 0.05$. Brant test statistics above 53.49 are significant at $p < 0.01$

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