

The Structure of Deference: Modeling Occupational Status Using Affect Control Theory

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Abstract

Current theories of occupational status conceptualize it as either a function of cultural esteem or the symbolic aspect of the class structure. Based on Weber's definition of status as rooted in either cultural or class conditions, we argue that a consistent operationalization of occupational status must account for both of these dimensions. Using quantitative measures of cultural sentiments for occupational identities, we use affect control theory to model the network deference relations across occupations. We calculate a measure of the extent to which one occupational actor deferring to another is incongruent with cultural expectations for all possible combinations of 304 occupational titles. Because high-status actors are less likely to defer to low-status actors, the degree to which these events violate cultural expectations provides an indicator of the relative status position of different occupations. We assess the construct validity of our new deference score measure using Harris Poll data. Deference scores are more predictive of status rankings from poll data than are occupational prestige scores. We establish criterion validity using five theoretically relevant workplace outcomes: subjective work attachment, job satisfaction, general happiness, the importance of meaningful work, and perceived respect at work.

Keywords

prestige, status, affect control theory, occupational scales, socioeconomic index

Occupational status remains a long-standing enigma. On the one hand, status is central to structural inequality. It transforms conflict over situational control of resources and power into essentialized group differences (Tilly 1998). It fuels symbolic assessments of class location (Bourdieu 1984; Chan and Goldthorpe 2007) and provides an independent base of power above and beyond control of resources (Ridgeway 2014). On the other hand, there is disagreement on how best to conceptualize and measure it.

Weber (1946, 1978) theorized that class, status, and party are three related but

independent bases of power pertaining to economic, social, and political spheres of society, respectively. He defined status as symbolic social power derived from cultural evaluations of esteem, worthiness, and value

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to society. Based on the logic that economic power (i.e., control over scarce and valued resources) leads to privilege, which in turn leads to prestige, occupational prestige scores (Goldthorpe and Hope 1972; Treiman 1977) became the predominant method of operationalizing occupational status. To construct these prestige scores, survey participants ranked occupational titles according to their *social standing* (for methodological details, see Nakao and Treas 1994). With a focus on material resources and an implicit assumption that occupations are structurally rather than culturally determined, instead of asking respondents to rate *prestige*, the survey instrument uses the academic terminology of *social standing*. This seemingly minor substitution fundamentally undermines prestige scores defined by rankings of social standing as a valid measure of status.

Because an occupation's standing is largely conditioned on prerequisites and rewards, typically education and income, GSS prestige scores perform as subjective estimates of objective occupational features. This fact led Featherman and Hauser (1976:405) to famously conclude that prestige scores do not reflect "prestige in the classical sense of deference/derogation," but instead perform as "error-prone estimates" of socioeconomic characteristics of occupations. Subsequent research reinforced this conclusion, and stratification scholars largely abandoned the use of subjective measures in favor of objective occupational features (Bukodi, Dex, and Goldthorpe 2011). We believe this is a mistake because status, in a Weberian sense, is inherently a subjective, cultural construct.

Chan and Goldthorpe (2004, 2007) contend that class and status are two qualitatively different forms of stratification, with status expressed in informal lifestyle distinctions among loose networks of status equals who "eat together and sleep together" (Goldthorpe 2012:205). This is seen in today's cultural and political polarization, where Donald Trump won 76 percent of the counties with a Cracker Barrel Old Country Store in the 2016 presidential election, but only 22 percent of

counties with a Whole Foods Market, a 54 percent gap (Allott 2017). As egalitarian principles of democratic citizenship clash with the reality of rising inequality, individuals viewed as status inferiors will resist demands for public displays of deference (Chan and Goldthorpe 2007). Rather than regarding highly-educated, well-paid professionals like lawyers and executives with esteem, as GSS prestige scores would predict, segments of the public are increasingly deriding them as self-centered, out-of-touch elites (Murray 2013). As social divisions grow along cultural and ideological lines (Bishop 2009; Jacoby 2014), new, culturally informed measures are needed to operationalize the symbolic status order and to develop non-individualistic theories of behavior (Huckfeldt 2014).¹

Using Bukodi and colleagues' (2011) review of occupational hierarchy measures as a guide, this article develops and validates a new, generalizable method of quantifying occupational status, which we call *deference scores*. We integrate relational methods found in organizational research with affect control theory, a formal mathematical theory of social action and cultural meaning (Heise 2007; MacKinnon and Heise 2010; Smith-Lovin and Heise 1988).

Bukodi and colleagues contend that the fundamental flaw with GSS prestige scores is that they lack construct validity (i.e., they do not measure what they claim to measure) and subsequently lack criterion validity. Given Bukodi and colleagues' emphasis on construct validity, we structure this article in three parts. First, we revisit Weber's definition of status to identify the salient elements to be operationalized, paying particular attention to theoretical distinctions between class and status. Next, we demonstrate how affect control theory can be used to operationalize status. Based on the idea that status can be conceptualized as a network of deferential exchanges from one person to another, we compute the likelihood that one occupational actor will defer to another based on quantitative measures of cultural sentiments for a representative list of occupational titles.

Finally, we examine construct and criterion validity of the newly defined deference scores. Because some scholars believe GSS prestige scores lack construct validity,² we begin validity testing using an alternative measure, Harris public opinion polls, which ask respondents to rate prestige rather than social standing (Corso 2009). To the best of our knowledge, this is the first systematic comparison between GSS prestige scores and public opinion polls. To differentiate these similar measures, in the following we refer to prestige scores as found in the General Social Survey (GSS) as *GSS prestige scores*, and those based on Harris Poll data as *Harris prestige scores*.

After establishing construct validity, we assess criterion validity using five subjective workplace outcomes found in the GSS: workplace attachment, job satisfaction, happiness, respect at work, and the importance of meaningful work (net of sociodemographic background controls). To preview the results, deference scores significantly predict Harris prestige scores: both rank society-serving occupations, such as firefighters, doctors, nurses, and teachers, high in status. In contrast, GSS prestige scores do not significantly correlate to Harris prestige scores. In addition, our new deference scores significantly predict all five workplace outcomes net of sociodemographic controls for age, gender, race, education, and income.

STATUS AND DEFERENCE

Sources of Status Differences

Weber (1978:305) theorized status as a distinct source of inequality based on the ability to make “an effective claim to social esteem.” In contrast to the class structure defined by labor market relations, the status order is based on cultural beliefs about the relative superiority, equality, and inferiority of members of social groups (Berger, Ridgeway, and Zelditch 2002; Ridgeway and Erickson 2000; Shils 1982). These beliefs provide a form of symbolic social power shaping life outcomes

via relations of deference, acceptance, and derogation (Goldthorpe and Hope 1972).

Where do these relations come from? Ridgeway and colleagues (Ridgeway 1991; Ridgeway et al. 2009; Ridgeway and Correll 2006) theorize that when members of nominal social categories interact to achieve shared goals, structural conditions, such as resource differences, can shape interactions, resulting in the creation of influence and deference hierarchies. Some participants will associate differences in worthiness and competence experienced during an interaction with others’ nominal social categories; via repeated interactions, these status beliefs will spread until they become largely consensual.

Cultural sentiments, and the deferential exchanges they foster, are thus central to status processes, because they provide the “symbolic means by which appreciation is regularly conveyed to a recipient of this recipient” [emphasis in original] (Goffman 1956:477). Deference cannot be seized from others but must be willingly granted based on shared beliefs of relative superiority (Ridgeway 1984). Status is a multilevel process in which position-level meanings in a culture serve to structure individual-level interaction patterns.

Institutional Approaches to Status

Given the shortcomings of GSS prestige scores, researchers within organizational and economic sociology developed an institutional lens that centers on the structural features of hierarchies and the processes that influence status evaluations (for reviews, see Piazza and Castellucci 2014; Sauder, Lynn, and Podolny 2012). A key insight of this approach is the relational nature of status. Not only are status evaluations conditioned on relational features such as authority relations (Zhou 2005), organizational affiliations (Benjamin and Podolny 1999), and strategic alliances (Stuart, Hoang, and Hybels 1999), but status itself can be conceptualized as a network of deference relationships. For instance, consistent with Podolny and Lynn’s (2013:547) definition of status as “accumulated acts of deference,”

Burris (2004) models the prestige order of academic departments by mapping the network of deferential exchanges in which lower-ranked departments *i* show deference to higher-ranked departments *j* by hiring PhDs trained by *j*.

The institutional approach has produced many insights, but its utility as a general framework for operationalizing status is limited, because organizational features may be industry or occupation specific. Intended purpose and historical context can condition organizational formation, leading to an ad hoc list of salient processes. In outlining the institutional logic of GSS prestige scores, Zhou (2005) lists a half dozen features (authority, centrality, formality, organizing capabilities, accessibility, and visibility) that may influence prestige perceptions to varying degrees depending on the industry. A generalizable approach must provide a method of ranking actors across domains operating under different conditions by operationalizing status at a more fundamental level.

The Evaluative Dimension of Status

While a valid measure of status must be based on cultural sentiments and reflect cultural expectations of deference, structural and institutional approaches implicitly treat cultural sentiments as unidimensional constructs reflecting a single status hierarchy based largely on class resources. However, a Weberian status order and the resulting symbolic meaning structure are multidimensional constructs reflecting both social and class power.

Class situation is one basis for status, but Weber (1978:932) was clear that status is not solely economically determined and “property and propertyless people can belong to the same status group.” Prestige can be viewed as the component of status based on cultural values and goodness, independent of economic conditions (Goldthorpe and Hope 1972).

Early research exploring the multidimensionality of prestige assessments found that these fell into two dimensions: a power dimension reflecting economic conditions,

such as education and income, and a second evaluative dimension reflecting perceptions of “service to humanity” (Reiss et al. 1961), “service to the country, the community, or mankind in general” (Tiryakian 1958), and “importance to the community” (Taft 1953). When respondents rated prestige rather than social standing, the resulting status order was predicted by the evaluative “value to society” dimension, not the economic dimension (Grasmick 1976).

The significance of this evaluative dimension was largely lost as macro stratification and neo-Marxist approaches supplanted the status attainment paradigm. As research shifted from subjective to objective measures, status became increasingly defined by the power dimension, due, in part, to its greater explanatory power—class resources condition life chances more than prestige. Bourdieu’s (1984) circumscription of status to the symbolic aspect of the class structure left little room for cultural assessments of social worthiness not traceable to class location.

Organizational approaches further limited the study of status solely to its material component. Conceptualized as a subjective proxy for an objective measure of relative superiority, status is only a useful sociological concept to the degree that the correlation between status and quality is imperfect (Sauder et al. 2012). Of central concern, therefore, are features affecting information transmission and processing, such as industry niches and uncertainty (Podolny 2001; Podolny, Stuart, and Hannan 1996), location within the occupational structure (Lynn and Ellerbach 2017), or other factors decoupling status from quality (Lynn, Podolny, and Tao 2009). Treated in market terms, the rewards of status are likewise economic in nature, such as greater sales and reduced costs (Benjamin and Podolny 1999; Podolny 1993).

However, if prestige rests primarily on evaluative dimensions reflecting cultural assessments of honor, goodness, and value to society, these approaches provide limited insight into status processes that are not rooted in the class domain. A multidimensional

approach is needed to independently assess processes relevant to assessments of “good” in the honorific sense—for example, that firefighters risk their lives in the service of others—from the meaning of “good” as it applies to influential corporations or product brands.

Furthermore, to construct a single useful and valid scale for status, these dimensions must be synthesized into a single score. A prominent method of operationalizing these dimensions, and the one used in this study, is the semantic differential scale developed by Osgood and colleagues (Osgood, May, and Miron 1975; Osgood, Suci, and Tannenbaum 1957; Osgood and Tzeng 1990). In cross-cultural research, Osgood and colleagues (1975) determined that social concepts evoked affective responses along three universal dimensions of evaluation (good versus bad), potency (powerful versus weak), and activity (active versus quiescent).

The first two dimensions, evaluation and potency, are of particular importance to this study, because they reflect two fundamental dimensions of microinteraction. Evaluation captures feelings of esteem, goodness, and warmth that provide the basis for acts of voluntary compliance. Potency reflects power, competence, and strength, which enable actors to compel behaviors from others (Kemper and Collins 1990). Therefore, a valid measure capturing the full spectrum of a status must be able to assess the effects of evaluation and potency separately, demonstrate that status is mainly driven by potency, and then synthesize this into a uniform status measure.

Status research has focused primarily on the two dimensions of potency and evaluation, but if activity is a universal dimension of meaning, then its inclusion may provide additional insights about status processes. For instance, in comparing affect control theory to the stereotype content model, a two-dimensional model consisting of warmth and competence, Rogers, Schröder, and Scholl (2013) demonstrate that both models largely describe the same semantic content, but the addition of activity improves group reaction predictions.

Integrating insights from prior approaches with Weber’s (1978:932) definition of status as “a specific, positive or negative, social estimation of honor” suggests that a valid status measure should be cultural, relational, and multidimensional. In other words, it should use cultural sentiments to model the expected likelihood that one occupational actor will show deference to another while accounting for both social and class power (i.e., evaluation and potency). In the following section, we demonstrate how affect control theory can be used to achieve these goals.

AFFECT CONTROL THEORY AND DEFERENCE SCORES

Basics of Affect Control Theory

Affect control theory (ACT) is a formal, mathematical theory of social action stating that individuals interpret events (consisting of actors, behaviors, and object-persons) and act to confirm cultural meanings for themselves and others within the interaction event (Heise 2007; MacKinnon and Heise 2010; Smith-Lovin and Heise 1988).

Using the semantic differential scale (Osgood and Tzeng 1990), cultural sentiments for interaction elements, including actors, behaviors, emotions, and settings, are quantified along three universal affective dimensions—*evaluation* (good versus bad), *potency* (powerful versus weak), and *activity* (active versus passive)—on a bi-polar scale from -4.3 to 4.3 with zero being neutral. The compilation of ratings for these three dimensions constitutes a concept’s EPA profile or rating. Meanings can take the form of *fundamental sentiments* reflecting widely shared, enduring affective meanings, themselves serving as references for understanding events, anticipating actions, and performing social roles. Alternatively, meanings can result from *transient impressions* that are situation-specific and produced in interaction events.

ACT specifies the process of meaning maintenance using empirical impression

change equations. The theory predicts how events alter transient impressions occurring within the interaction from fundamental sentiments toward the actor's identity (A), the behavior (B), and the object-person's identity (O). To develop the equations, survey respondents are first asked to rate concepts in isolation; the average of these out-of-context ratings across individuals correspond to fundamental sentiments (on the EPA dimensions) toward the identities and behaviors in the events. The fundamental sentiments associated with an actor-behavior-object (ABO) event is represented as a nine-dimensional vector, f :

$$f = \{A_e, A_p, A_a, B_e, B_p, B_a, O_e, O_p, O_a\} \quad (1)$$

where A_e represents the out-of-context rating for the actor (A) on the evaluation (e) dimension (e.g., $A_e = 2.72$ for *doctor*), and so on. Other survey respondents rate their impressions of the actor, behavior, or object-person within the context of a simple ABO event description. For example, respondents would rate *doctor* in a situation in which a *doctor* (A) *treats* (B) a *patient* (O). The average of the in-context ratings represents the transient impressions of the identity or behavior within that situation.

The transient impression for *doctor* in our example event will be reasonably close to the fundamental sentiment for *doctor*, because *treating a patient* is consistent with social expectations of a *doctor*. An event like *grandfather molests child* will produce very different ratings in- and out-of-context, because it is so culturally inappropriate (and therefore affectively disturbing). The resulting nine-dimensional vector is called the *transient impressions*, τ :

$$\tau = \{A'_e, A'_p, A'_a, B'_e, B'_p, B'_a, O'_e, O'_p, O'_a\} \quad (2)$$

In an impression-change study, transient impressions are measured for events with a wide range of positive and negative values for each of the three EPA dimensions for each event element (ABO). Statistical models then

predict in-context ratings (transient impressions) from out-of-context ratings (fundamental sentiments) for all event elements (ABO). A set of nonlinear (polynomial) features are computed from the fundamental sentiments f to create a 20-dimensional vector, $t(f)$, as follows:

$$t(f) = \{1, A_e, A_p, A_a, B_e, B_p, B_a, O_e, O_p, A_e B_e, A_e O_p, A_p B_p, A_a B_a, B_e O_e, B_e O_p, B_p O_e, B_p O_p, A_e B_e O_e, A_e B_e O_p\} \quad (3)$$

In ACT analyses, the transient impressions expected after a social event are calculated by multiplying the feature vector t by a matrix of coefficients M determined through regression analysis relating t to τ , as shown in Equation 4:

$$\tau = Mt(f) \quad (4)$$

The coefficients in M are thus what allows the prediction of transient impressions from any combination of fundamental sentiments, that is, how events alter cultural sentiments.³ For example, in the event that a *doctor* (2.72, 2.95, .23) *examines* (.78, .95, -1.22) a *patient* (.64, -1.47, -1.28), the post-event transient impression for the *doctor* becomes (1.39, 1.82, .22). The evaluation and potency of the *doctor* drops because the behavior *examine* is lower in evaluation and potency than the fundamental sentiment for *doctors*.⁴

Deflection is the squared difference between the transient impression produced by the event, as calculated using impression formation equations, and the fundamental sentiments for the event elements (Heise 1979) (see Equation 5). It is inversely proportional to the likelihood of an event (Heise and MacKinnon 1987). In other words, events that generate greater deflection are perceived to be less likely to occur, given cultural sentiments.

$$d = \sum_{i=0}^9 (f_i - \tau_i)^2 = (A_e - A'_e)^2 + (A_p - B'_p)^2 + \dots + (O_a - O'_a)^2 \quad (5)$$

For example, the event that a *mother* (A) *caresses* (B) a *baby* (O) produces a low deflection of 1.6, implying that a *mother* is likely to perform this behavior on a *baby*. In contrast, if she *punches* or *kills* the baby, this produces large deflections of 6.1 and 11.0, respectively, because these behaviors are incongruent with the cultural meanings held for *mothers* and *babies*.

Computing Deference Scores for Occupations

By applying this mathematical specification to occupational identities and deference behavior, ACT can be used to compute the deflection created when one occupational actor *defers* to another. For example, the deflection created in the event that a *surgeon* (3.09, 3.14, -1.13) *defers to* (-1.15, .45, -1.44) a *coal miner* (.78, .01, .47) is 7.2, whereas the converse event in which a *coal miner* *defers to* a *surgeon* produces a lower deflection of 5.9.

If deferential action is an expression of the underlying status order, then deflection provides a quantitative indicator of occupational status. Because deflection is an inverse function of event likelihood, the greater deflection created when a *surgeon* *defers to* a *coal miner* implies that a *surgeon* is expected not to defer to a *coal miner*, and therefore *surgeons* possess greater status than *coal miners*, per the cultural meanings of each occupational actor.

An occupational status scale, which we call *deference scores*, can then be calculated by computing the mean deflection for all possible combinations of occupations for a representative list of occupational identities. For example, the deference score for surgeons begins by computing the deflection created in the event that a surgeon-defers-accountant. This is repeated for all occupational objects of deference in the data. Deflection scores are the average deflection across all such interactions.

Note that status as defined by deference scores is conceptualized not as a characteristic resource of an occupation, but as a result of the occupation's position within a

multidimensional meaning space in relation to other occupations and the action in question. The computation of deference scores may appear unidimensional in summarizing multidimensional relations with a single scalar value. However, we contend deference scores are summary statistics helping describe these complex structural relationships. This parallels Burris's (2004) use of scalar (eigenvector) centrality scores to describe the position of universities within an academic network.

The construction of new summary statistics is useful for two reasons. First, accurate description is a critical first step in understanding complex social phenomena and informing further research. Our model of status rests not on deference scores themselves, but on the impression formation equations and the mathematical definition of deflection that underlies them. The impression formation equations combined with EPA ratings describe our conceptualization of status, but it is far too difficult to glean meaning from multiple simultaneous equations across thousands of combinations of relations. Instead, a summary statistic is required to make sense of this complexity.

Second, despite providing only a summary of a complex network of interactions, cultural heuristics provide the proximate means for enacting social structures on a day-to-day basis. Culture scholars contend that action based solely on rational calculus is too information-intensive and too cognitively costly (Swidler 2003; Vaisey 2009). Instead of deeply internalizing the social environment in great detail, people inherit from their environment "a set of heuristics, hunches and shallow (but useful because they work most of the time) practical skills" (Lizardo and Strand 2010:206).

ANALYTIC APPROACH

In their review of occupational hierarchy measures, Bukodi and colleagues (2011) contend that the fundamental problem with GSS prestige scores is that they lack construct validity, that is, they do not measure status based on cultural estimations of esteem. The

substitution of prestige with social standing in the survey instrument produced a scale based on objective characteristics, primarily education and income, and not cultural estimations of esteem or social worthiness. This lack of content validity consequentially results in a lack of criterion validity.

Guided by their critique, our goal here is to first detail the construction of deference scores and then demonstrate their construct and criterion validity. We structure this analysis in three parts. First, we describe the datasets used in deference score construction and validity testing. These data include (1) a dictionary of affective meanings that provide quantitative ratings of cultural sentiments used to compute deference scores, (2) data from the General Social Survey (GSS) that provide demographic controls and workplace outcome measures used in criterion testing, and (3) Harris opinion poll data used as a measure of occupational prestige. Second, we detail deference score construction and discuss methodological issues, including uncertainty and bias.

Third, we perform a series of construct and criterion validity tests. At its most fundamental level, any measure of occupational status must reflect what people widely believe are prestigious occupations. For deference scores to be valid, they should exhibit convergent validity and significantly correlate with public opinion prestige ratings. Conversely, if GSS prestige scores do not exhibit construct validity, then they should exhibit discriminant validity and not significantly correlate with opinion prestige ratings.

Furthermore, a valid measure must exhibit content validity and reflect the salient theoretical dimensions. Based on Weber's definition, a valid measure must primarily be composed of perceptions of esteem and goodness (positive evaluation) and, secondarily, objective power attributes (high potency). If status is based on providing an esteemed service to society, high deference score occupations should be distributed across "big" occupational classes, especially service occupations (Weeden 2002; Weeden and Grusky

2012). In contrast, high GSS prestige score occupations should be concentrated in the professional occupational class characterized by higher education and income.

Finally, a valid measure should also exhibit criterion validity. We examine this using the ability of deference scores to predict five theoretically relevant workplace outcomes: workplace attachment, job satisfaction, happiness, respect at work, and the importance of meaningful work.

Data

Affective meaning dictionary. The first dataset, used to construct deference scores, comes from a newly collected dictionary of affective meanings. As the measurement model for affect control theory, previous dictionaries were compiled in 1976 and 2002–2004 at the University of North Carolina at Chapel Hill and the University of Indiana, respectively (Heise 2016b). The data for this study come from a collaborative project between a large public university and a private university in the South.⁵

Acting as cultural informants, 848 participants rated 2,400 social concepts, including identities, behaviors, modifiers, and settings along the three EPA dimensions, with the mean value for each dimension representing a concept's EPA profile. Surveys were administered using a computer survey program that randomized the order that concepts and affective dimensions were presented. The median number of raters for each concept in this study was 62, with a standard deviation of 4.5. Reliabilities exceeding .90 can be achieved with 30 raters, and 50 raters can exceed .95 reliability across the three dimensions and .98 on the evaluation dimension (Heise 2010).⁶

We extracted a representative list of occupations from this large corpus of concepts for inclusion in the present study. We used a three-step procedure to ensure we selected a representative list of occupational titles. First, we selected high-, middle-, and low-income occupations from each of the 12 major

occupational groupings of the 2010 SOC occupational schema (U.S. Bureau of Labor Statistics 2014a). Next, for historical comparability, we added the 30 core occupations from the GSS prestige module (Nakao, Hodge, and Treas 1990), if they were not already present. Third, to examine meaning change over time, we selected occupational identities included in previous sentiment dictionaries, if they were not chosen in the two previous selections. The selection process created a final list of 304 occupation-related identities, shown in Part C of the Appendix.

Harris prestige scores. The second dataset, used for initial construct validity testing, comes from public opinion polls conducted by Harris Interactive. Weberian status rests on widely held beliefs of prestige or cultural esteem. However, GSS prestige scores measure social standing, not prestige. Therefore, an alternative benchmark is required, one that specifically surveys the central theoretical construct of prestige. In 1977, Harris Interactive began polling the public on their opinion of occupational prestige. This study uses five years of data, 2005 to 2009, because the list of occupations and question wording remained consistent throughout this period (Corso 2009).⁷

Harris polls were administered by telephone to approximately 1,000 adults (age 18 and over) in each annual sample. However, only approximately 500 people were asked about each occupation. Proportional weights were used to maintain representativeness based on age, gender, race, education, region, size of place, and number of adults and number of voice/telephone lines in the household. Harris Interactive reports a sampling error of 3 percent for a 95 percent confidence interval, but other methodological details, such as non-response rates, are unavailable.

Although Harris Poll data have their limitations, they are a reasonable benchmark for several reasons. First, and most important, an instrument that surveys a large, representative sample about their opinions of prestige consistently over several years provides a

reasonable measure of the underlying theoretical referent, widely held opinions of prestige. Second, although standing may be related to prestige, preference should be given to instruments that measure constructs most directly. Third, the status order produced by Harris prestige scores is more consistent with overt cultural displays of honor. In the United States, parades commonly honor firefighters and soldiers; counter to GSS prestige scores, there are few parades for business executives and engineers.

General Social Survey. The third set of data comes from the General Social Survey (GSS). These data provide measures of demographic characteristics and workplace outcome measures used in criterion validity testing, as well as GSS prestige score ratings. The GSS is a general-use survey, using a full-probability sample design, administered by the National Opinion Research Center (NORC), that biannually collects data on core background, behavioral, and attitudinal questions with additional topical modules administered in specific years (NORC 2014). The data used for this study are limited to adults (18 years of age and older) for the years 1990 to 2010. This time frame provides a sufficiently large pool of cases while being recent enough to reflect current occupational conditions. Response rates have been over 70 percent, higher than other major social science surveys (Smith 2016).

We linked EPA ratings from the affective dictionary to GSS data based on occupation. During the years of the study, occupations were coded using the ISCO-88 occupational classification schema. When possible, we appended EPA ratings to GSS data using the Bureau of Labor Statistics (BLS) 2010 SOC crosswalk (U.S. Bureau of Labor Statistics 2014b). We matched titles not in the crosswalk according to job characteristics listed in the Occupational Information Network (O*NET) provided by the U.S. Department of Labor (2014). We matched codes that included multiple identities, such as 4222 *receptionists and information clerks*, to the identity with

the greatest number of workers, in this case *receptionist*. We used a similar criterion to match gender-specific titles, such as *waitress* for 5123 *waiters*, *waitresses*, and *bartenders* instead of *waiter*. This procedure matched occupational identities to 186 unique occupation codes in the GSS sample. Part D of the Appendix shows the crosswalk of ISCO-88 occupation codes to EPA identities.

Because workers are concentrated in a limited range of occupations, we could match EPA ratings from the sentiment dictionary to 91 percent of GSS cases. We dropped from the study cases that could not be matched to EPA profiles or that were missing data on age, education, race, or occupation. This resulted in an analytic sample of 25,947 respondents. Table 1 shows variable coding and descriptive statistics.

Variables

Deference scores. The independent variable for this study is the occupational deference score. First, for all combinations of the 304 occupational titles in the affective dictionary listed in Part C of the Appendix, we computed the deflection created for the event that one occupational actor *defers to* another occupational identity. (The behavior *defers to* has a rating of E = -.15, P = .45, and A = -.44.) We then computed deference scores as the mean deflection for each occupational identity across all interactions with all other occupational identities. Because deflection is inversely proportional to event likelihood, greater deflection implies a lower likelihood of deferring and therefore greater status.

Deflection calculations are commonly performed using the software program *Interact* using survey means (Heise 2016a). This study uses a new Bayesian formulation, BayesACT, that accounts for uncertainty by including information on the distribution of survey ratings in its calculations (Hoey, Schröder, and Alhothali 2016; Schröder, Hoey, and Rogers 2016). Accounting for variation across informants is important, because the use of central tendencies, or means, may mask

systematic lack of cultural consensus (Lynn and Ellerbach 2017). The two primary sources of systematic variation involve the degree of dispersion, or lack of consistency, of EPA ratings and the degree to which people's social location influences their ratings.

Some occupational identities, such as police officers, are viewed very differently across raters; these occupations have greater variance in their ratings compared to other occupations, such as hairdressers. This greater variance increases the likelihood of high deflection interactions occurring given the wider distribution. BayesACT addresses this issue in a number of ways. Most importantly, BayesACT models shared cultural sentiments as probability distributions in the three-dimensional EPA space rather than as point estimates. BayesACT therefore explicitly accounts for the variance in ratings of a particular sentiment, providing a more comprehensive estimate that takes into account these differences, rather than an average that can lead to a bias toward the central tendency. Part B of the Appendix provides BayesACT parameters and further discussion of these issues.

Because ratings for most affect control dictionaries, including the one used in this study, consist of homogeneous samples (mainly college students), the degree to which stratification might affect ratings, or how these meanings are processed, is a central concern to the validity of deference scores. Like occupational prestige research, an extensive ACT literature supports the claim that meanings are generally consensual within groups (for a review, see MacKinnon and Robinson 2014).

Two recent studies have collected heterogeneous, representative samples to specifically test the consensus assumption. Wisecup (2011) uses a sample of 112 respondents in Durham, NC; Ambrasat and colleagues (2014) collected a larger sample of 2,849 respondents in Germany. Their findings support the consensus assumption in general, but like Lynn and Ellerbach (2017), they find that socioeconomic status, especially education,

Table 1. Measures and Weighted Descriptive Statistics

Measure	Coding	N	Min.	Max.	Mean	SD
Age	Years	25,947	18	89	45	16.5
Education	Highest year of school completed	25,947	0	20	13	2.97
Female	Female = 1	25,947	0	1	.53	
White	White = 1 (reference category)	25,947	0	1	.79	
Black	Black = 1	25,947	0	1	.13	
Other	Other race = 1	25,947	0	1	.08	
Evaluation	Evaluation rating (−4.3 to 4.3)	25,947	−1.15	3.24	1.31	.62
Potency	Potency rating (−4.3 to 4.3)	25,947	−1.44	2.96	.79	1.12
Activity	Activity rating (−4.3 to 4.3)	25,947	−2.12	3.04	.57	.80
Deference score	Mean deflection when actor defers to all object occupations	25,947	4.14	10.09	5.74	1.06
GSS prestige score	GSS occupational prestige score	25,947	17	86	43.7	13.6
Income	Logged constant \$US	17,554	6.0	13.0	10.0	1.12
Attachment	Would continue working if rich = 1	10,534	0	1	.69	
Happiness	General happiness (1 = very happy; 0 = pretty happy, not too happy)	22,061	0	1	.32	
Job satisfaction	On the whole, how satisfied are you with the work you do? (1 = very satisfied; 0 = moderately satisfied, little dissatisfied, very dissatisfied)	18,238	0	1	.47	
Respect	At the place where I work, I am treated with respect (1 = strongly agree; 0 = agree, disagree, strongly disagree)	4,258	0	1	.40	
Meaningful job	Work important and feel accomplishment (1 = most important; 0 = second, third, fourth, fifth)	3,879	0	1	.47	

affects ratings. High-status individuals viewed intimate identities (wife, pal) as relatively less positive and powerful, and deviant identities (criminal, villain) as more threatening (Ambrasat et al. 2014). Nevertheless, both previous theory and evidence suggest deference scores are less sensitive to these issues than are GSS prestige scores.

Deference scores are distinct from GSS prestige scores in two critical ways. First, they are based on shared subjective criteria rather than objective features (education and income). Second, they should primarily be determined by evaluation versus potency. A mental map of the occupational landscape based on objective prerequisites and rewards requires extensive and accurate information. Not only may information access and

accuracy be conditioned on class location, but class location and information may be empirically linked. If GSS prestige scores are a function of education and income, it is not surprising that persons who view education in higher regard are also those more likely to invest in education (Lynn and Ellerbach 2017). But subjective cultural beliefs are a simpler, less information-intensive process (Martin 2010). Instead of requiring respondents to make complex assessments of relative standing between a wide array of occupations, they need only know how they feel about one particular occupation. This simplicity allows interactions to readily diffuse sentiments across cultures (Berger et al. 2002; Ridgeway et al. 2009; Ridgeway and Erickson 2000).

Consistent with this conception, Wisecup (2011) finds that a respondent's socioeconomic status, especially education and income, does affect potency and activity ratings but has no significant effect on evaluation. Although Ambrasat and colleagues (2014) did find SES to affect the evaluation of some identities, they also found that, as a class, occupations are the most affectively neutral. The combination of these theoretical considerations and empirical findings supports the assertion that deference scores are less sensitive to issues of central tendencies than are GSS prestige scores.

Construct validity testing begins by analyzing the correlation of deference and GSS prestige scores to Harris prestige scores. In the Harris Poll, respondents were read a list of 23 occupations and asked: "For each, would you tell me if you feel it is an occupation of very great prestige, considerable prestige, some prestige, or hardly any prestige at all?" We computed the Harris prestige scores used in this study as the mean percent of respondents who selected "very great prestige" for each occupation in the five years of poll data. Table 2 shows the results.

GSS prestige scores. The General Social Survey provides data on GSS prestige scores as well as demographic controls and workplace outcome measures used in criterion validity testing. During the years used in this study, GSS prestige scores were measured in the variable PRESTG80. Respondents were asked to evaluate 110 occupations according to their social standing by sorting cards on a nine-rung ladder (for methodological details, see Nakao and Treas 1994). The key element of this methodology is that it does not ask about "prestige" but "social standing." Because the standing of an occupation is structured by prerequisites and rewards (primarily education and income) and not subjective cultural esteem, this substitution undermines GSS prestige scores as a valid measure of prestige.

Another methodological issue is that PRESTG80 scores may be outdated. Recognizing this, the NORC began measuring a

new prestige variable, PRESTG10, beginning in the 2012 GSS (for methodological details, see Smith and Son 2014). The issue of historical change has important implications, and we will return to it in the Discussion section. To preview the discussion, PRESTG10 scores, like PRESTG80 scores, are largely predicted by two factors: education and income.

GSS workplace outcomes and control variables. We selected five theoretically relevant subjective workplace outcome measures to test criterion validity: (1) workplace attachment, (2) job satisfaction, (3) happiness, (4) respect at work, and (5) the importance of performing meaningful work. Outcome measures are coded as dichotomous variables. We also included sociodemographic controls for age, race, gender, income, and education. Table 3 shows descriptive statistics and coding.

Subjective workplace attachment is based on the binary variable RICHWORK, which asks, "If you were to get enough money to live as comfortably as you would like for the rest of your life, would you continue to work or would you stop working?" Attachment is measured as a binary variable coded 1 if respondents indicated they would continue to work. Job satisfaction was measured in SATJOB, which asks, "On the whole, how satisfied are you with the work you do?" With 47 percent of respondents reporting very satisfied, 40 percent moderately satisfied, 10 percent a little dissatisfied, and 3 percent very dissatisfied, job satisfaction is a binary variable coded 1 if respondents reported being very satisfied. General happiness, measured in HAPPY, asks, "Taken all together, how would you say things are these days? Would you say that you are very happy, pretty happy, or not too happy?" Happiness is measured as a binary variable coded 1 if respondents indicated very happy (32 percent) and 0 for those responding pretty happy (58 percent) and not too happy (10 percent). Questions on job satisfaction and happiness were administered in each survey year of the dataset. Workplace respect, administered in 2002, 2006, and

2010, asked respondents to indicate the degree that they agree or disagree with the statement, "At the place where I work, I am treated with respect." A binary variable for respect was coded 1 if respondents indicated that they strongly agree (40 percent) and 0 if they indicated agree (52 percent), disagree (6 percent), or strongly disagree (2 percent).

The importance of performing meaningful work was asked as part of a topical module on workplace values administered in 1990, 1991, 1993, 1994, and 2006. Respondents were presented the following five job characteristics: (1) work that is important and gives a feeling of accomplishment, (2) high income, (3) no danger of being fired, (4) short working hours, and (5) chances for advancement. They were then asked, "Would you please look at this card and tell me which one thing on this list you would most prefer in a job? Which comes next? Which is third-most important? Which is fourth-most important?" Work meaning is coded 1 for respondents who listed performing important work first (47 percent), and 0 otherwise. Kalleberg and Marsden (2013) found that although the relative importance of income and job security has increased over time, importance/accomplishment remained the most important job characteristic in all survey periods.

Methods

Construct validity tests. The first, and most important, step is to determine whether deference scores reflect widely held perceptions of occupational prestige. To that end, we regress Harris Poll prestige scores on deference scores. For comparison, we perform a similar analysis but this time with Harris prestige scores as the main predictor of GSS prestige scores.

The next step in construct validity testing involves demonstrating the content dimensionality of deference scores. To that end, we regress the evaluation, potency, and activity ratings of each occupation on both deference scores and GSS prestige scores. As noted earlier, a coherent operationalization of Weberian status should primarily be

determined by the evaluation dimension, with potency and activity ratings being less important predictors of an occupation's position in the status order. We should thus expect deference scores to be mainly predicted by the evaluation dimension. In contrast, if GSS prestige scores reflect objective class power, then they should be predicted mainly by the potency dimension.

If evaluation is the main predictor of status, why would one not simply use evaluation alone or the three EPA dimensions independently? Questions of multidimensionality have long plagued the construction of occupational scales. Status is a multidimensional construct consisting not only of evaluation but also some measure of potency and activity. Firefighters, nurses, and teachers are not only good; they also possess some degree of power and agency to actualize this goodness. However, a fundamental problem lies in determining what weight each dimension should have.

In reviewing multidimensional composite measures, Warren, Sheridan, and Hauser (1998) find that scales become an arbitrary function of the weights assigned to each dimension. Take, for example, three common occupations: social workers (2.13, 1.28, -.05), professors (1.79, 2.28, .34), and managers (1.20, 2.66, 1.30). Depending on the weighting of each dimension, any status order can be obtained. Considering evaluation alone produces the order social worker, professor, manager. If evaluation and potency have equal weights, this becomes professor, social worker, manager. And if all three EPA dimensions are treated independently with equal weighting, managers rank highest because they rate consistently high across all three dimensions.

The impression formation equations used to compute deference scores are multidimensional, involving all three dimensions; they provide a unique and non-arbitrary solution to the weighting problem. The effect of each dimension on deference behavior is determined by the coefficients of the impression formation equations, discussed above and shown in Part A of the Appendix. Impression

Table 2. Harris Prestige Score

Occupation	Harris Score
Firefighter	59.8
Scientist	55.4
Doctor	54.6
Nurse	52.2
Teacher	51.2
Military Officer	49.8
Police Officer	43.8
Clergy	39.8
Farmer	38.5
Engineer	35.4
Member of Congress	27.2
Architect	26.8
Lawyer	22.2
Athlete	20.6
Business Executive	16.0
Entertainer	16.0
Journalist	15.6
Union Leader	15.0
Banker	14.6
Actor	13.6
Accountant	13.4
Stockbroker	10.8
Real Estate Agent	6.2

formation coefficients are empirically determined based on how people process symbolic meaning, as previously described. The use of impression formation equations to determine each dimension's relative effect is a key innovation of the deference score approach.

In addition to evaluation, service is another theoretically relevant component of status. If prestige is based on service to others rather than objective class conditions, high-status occupations should be more evenly distributed across "big" classes, especially service occupations. In contrast, if a measure like GSS prestige scores mainly reflects education requirements and income, high-status occupations will be concentrated within the category of professionals characterized by high education and income. To examine the distribution of status across occupations, we explore mean standardized scores for each major occupational grouping.

Criterion validity tests. We specify a series of binary linear regression models to examine the ability of deference scores to significantly predict workplace outcomes net of sociodemographic controls, including respondent's age, ethnoracial status, gender, income, and education. Because the primary purpose of this study is to develop a theoretically valid measure of Weberian status, these tests are not meant to ascertain whether deference scores have greater explanatory power than other sociodemographic factors, like education and income. Instead, our main interest is in establishing whether they perform empirically as theoretically expected, by serving as statistically significant predictors of important workplace outcomes while adjusting for other relevant factors.

Focusing on the dimension of greatest explanatory power, rather than the dimension most representative of the underlying construct, is responsible, in part, for the prominence of GSS prestige scores and conceptualizing status in terms of class position. Under some conditions, such as an occupational landscape exhibiting extensive social closure (Weeden 2002; Weeden and Grusky 2012), objective conditions may have more explanatory power than status.

RESULTS

Harris Prestige Scores

Before exploring validity tests, it is worthwhile to examine the structure of status rankings according to Harris data, as shown in Table 2. The occupational status order reflects theoretical assertions that status is based on cultural evaluations of esteem, worthiness, and value to society (Goldthorpe and Hope 1972; Hope 1982; Wegener 1992). Several characteristics of Harris prestige scores are noteworthy. First, highly-ranked occupations, such as firefighters, doctors, nurses, and teachers, share a common orientation toward providing a service to society but, with the exception of doctors, are not among the most highly paid occupations. In contrast,

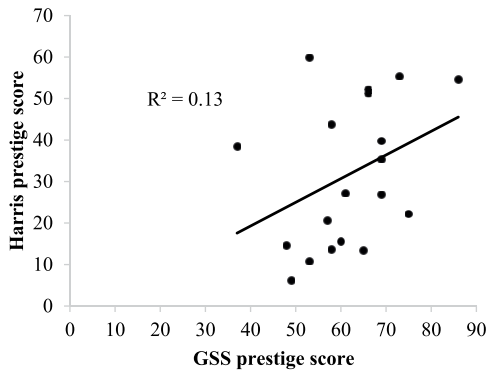


Figure 1. GSS Prestige and Harris Prestige Scores

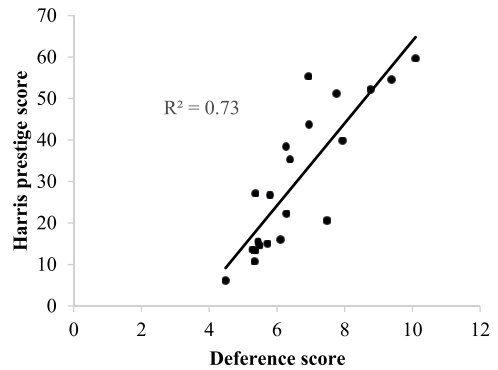


Figure 2. Deference and Harris Prestige Scores

occupations with the lowest prestige are those oriented toward economic services that do not provide society-oriented services, such as banker, accountant, and stockbroker.⁸

Second, although service-orientation is a component of status, it is not deterministic; many occupations, including real estate agents and stockbrokers, are high in service-orientation yet rank at the bottom of the list. Similarly, high-status occupations require some level of professional education but are not strictly a function of educational credentials; several occupations requiring extensive education, such as lawyers, are in the bottom half of the list.

Finally, high-status occupations such as firefighters, doctors, nurses, and teachers involve professional skills, but they also tend to involve some degree of physical activity, whereas many low-ranked occupations, like accountants and bankers, work with abstract symbols and require little physical activity. Combining these elements, public perceptions of prestige reflect Weber's conception of status characterized by actively performing a social service to others and involving some degree of professional skill, but not strictly being a matter of educational attainment. This reinforces a multidimensional conception of status as not only embodying cultural goodness and esteem, but also containing an agentic goodness accompanied by some degree of power and activity.

Construct Validity Results

To begin construct validity testing, we compute the Pearson product-moment correlation between GSS prestige and both deference scores and Harris prestige scores. Figure 1 shows the correlation between Harris prestige and GSS prestige scores. The bivariate correlation between these measures is .37, with a non-significant p -value of .123. The fact that GSS prestige scores exhibit no statistically significant correlation to polls about prestige reinforces the position that they do not measure what is commonly thought of as prestige. In contrast, deference scores, shown in Figure 2, exhibit a strong, significant relationship to Harris prestige scores, with a correlation coefficient of .85 ($p < .001$).

Model 1 in Table 3 shows the coefficient estimates from an OLS regression predicting GSS prestige scores from the mean ratings on the symbolic affective dimensions of evaluation, potency, and activity of the corresponding occupational identities. Potency (in a positive direction) and activity (in a negative direction) were the primary determinants of GSS prestige scores in terms of the effect-size metric. The potency dimension, capturing perceptions of power and competence, has the strongest effect, with a standardized coefficient of .72; evaluation has the weakest effect, with a coefficient of .12. These results mirror the findings of MacKinnon and Langford

Table 3. Linear Regression Predicting GSS Prestige and Deference Scores

	Model 1	Model 2
	GSS Prestige Score	Deference Score
	Beta (<i>t</i>)	Beta (<i>t</i>)
Evaluation	.117* (2.15)	.762*** (17.0)
Potency	.724*** (13.1)	.202*** (4.44)
Activity	-.295*** (-5.50)	.189*** (4.26)
<i>R</i> ²	.58	.71
<i>N</i>	186	186

* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

(1994), who also find evaluation to be the least important predictor of GSS prestige scores. Furthermore, the negative coefficient of $-.33$ for activity suggests that in contrast to opinion polls rewarding active service, high-status occupations according to GSS prestige scores are those possessing quiescent power, such as judges or lawyers. These findings further reinforce the criticism that GSS prestige scores primarily reflect occupational prerequisites and rewards (Bukodi et al. 2011).

Model 2 in Table 3 shows that unlike GSS prestige scores, the deference scores are primarily predicted by evaluation, with potency and activity having smaller positive effects; standardized regression coefficients are .76, .20, and .19, respectively. This shows that although perceptions of esteem, goodness, and worth captured by evaluation are the main correlate of deference scores, these also involve a degree of objective power, as captured in the potency dimension and a nearly equal degree of activity. This suggests that status is a multi-dimensional construct represented not by the quiescent power of such identities as judges, but by good, slightly powerful, and active actors like firefighters and doctors. Activity as a component of status has received little attention in prior research, and its significance illustrates how deference scores can be useful in furthering our understanding of the agentic, relational nature of status.

The comparison shown in Table 3 and the linear regression shown in Figure 2 provide support for the construct validity of deference scores as a valid indicator of occupational status order. These scores are consistent with widely held perceptions found in prestige assessments and the Weberian notion of status based on cultural evaluations of esteem/goodness.

In reviewing occupational hierarchy measures, Hauser and Warren (1997) note that prestige outliers are often the most visible occupations (farmers, secretaries, teachers, and truck drivers), suggesting that the most or least prestigious occupations act as prototypic examples of status. Therefore, before analyzing status distribution across occupational groupings, it is useful to compare features of the highest ranked occupations according to deference and GSS prestige scores.

Table 4 shows the 10 highest status occupations for each scale. Starting with GSS prestige scores, one remarkable feature is that all the highest-ranked occupations fall exclusively within the major occupational grouping of professionals characterized by high levels of professional knowledge and pay (International Labor Organization 2014).

In contrast, the highest status occupations by deference scores, also shown in Table 4, parallel Harris prestige scores in several ways. Both scales list firefighter as the

Table 4. Highest Rated Occupations by GSS Prestige and Deference Scores

GSS Prestige Score			Deference Score		
Occupation	ISCO-88	Prestige	Occupation	ISCO-88	Deference
Doctor	2221	84	Firefighter	5161	10.09
Professor	2310	74	Doctor	2221	9.38
Computer Programmer	2131	74	Elementary School Teacher	2230	8.79
Scientist	2111	73	Nurse	2223	8.77
Dentist	2222	72	Teacher	2331	7.76
Chemical Engineer	2146	71	Veterinarian	3475	7.71
Judge	2422	71	Athlete	2321	7.47
Geologist	2114	70	Cook	5122	7.30
Lawyer	2421	69	Nursing Assistant	2432	7.28
Civil Engineer	2142	69	Social Worker	3221	7.12

Note: Scientist consists of biologist, chemist, and physicist, with equal prestige scores of 73.

highest ranked occupation. The very high scores for firefighters on both scales likely reflect the cultural esteem of a post-9/11 era. We further explore how history might affect esteem, and therefore ratings, in the Discussion section. In addition, the highest ranked occupations for both Harris prestige and deference scores include a mixture of professional and non-professional occupations, often characterized by an element of physical activity.

To explore the distribution of status across occupational groupings, Figure 3 shows the mean standardized scores for each major occupational grouping for all occupational titles used in this study. According to GSS prestige scores, only occupations within the first three major groupings (legislators/managers, professionals, technicians) have above-average scores, with professionals dominating. The category of professionals exhibits a strong z -score of 1.52, whereas elementary occupations, ones that perform routine tasks through physical labor, such as farming, freight handlers, and transportation, exhibit a strong negative z -score of -1.15 . Also noteworthy is that the category of service workers, which includes firefighters, the highest ranked occupation according to public opinion data, has a negative z -score of $-.54$. This pattern parallels Chan and Goldthorpe's (2004) typology of high-status occupations

working with abstract symbols, mid-status working with people, and low-status performing physical labor with objects.

The mean deference scores across occupational categories exhibit several notable features. First, the range of scores is more compressed. The highest ranked category, professionals, has a mean z -score of .81; the lowest ranked category, craft/trade occupations, has a mean z -score of $-.57$, compared to a range of 1.52 to -1.15 for GSS prestige scores. This compressed range suggests that the ability to provide a service to others is not limited to professionals and managers. Second, service occupations rank just below professionals, with a z -score of .68, suggesting that serving others provides a positive, rather than negative, contribution to status. Finally, the category of legislators and managers, which ranked second to professionals according to GSS prestige scores, exhibits a marginally positive mean deference z -score of .04, suggesting that economic and political power is not a strong determinant of status as measured by deference scores.

Criterion Validity Results

We test criterion validity using workplace outcome measures found in the GSS. Table 5 shows the coefficient estimates from a series of logistic regression models predicting subjective

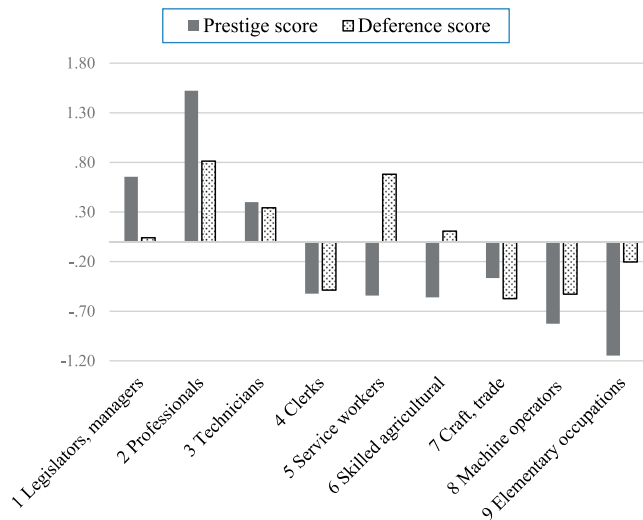


Figure 3. Mean Standardized Prestige and Deference Scores for the Major Occupational Groupings

workplace outcomes from deference scores and control covariates. As previously noted, the intent of these tests is not to demonstrate that deference scores are a better predictor of these outcomes than other features, but to determine whether deference scores empirically perform as theoretically predicted, by displaying statistically significant effects net of other variables in the right direction (e.g., positive for beneficial outcomes). Deference scores, years of education, and income measures were standardized for all models.

We begin with workplace attachment (whether respondents indicated that they would continue working if they became rich). If status provides cultural value in addition to monetary returns, then workers in high-status occupations should be more likely to indicate they would keep working if they had the financial freedom to quit. The results in Table 5 support this assertion; the odds ratio of 1.07 for the deference score indicates that individuals in high-status occupations are more likely to report that they would continue working net of controls. Education and income also have statistically significant effects, suggesting that human capital and material rewards are also important correlates

of workplace attachment, although deference remains a significant predictor net of other factors.

Job satisfaction is one of the most well-studied subjective workplace outcomes in the literature. Huang and Van de Vliert (2004) found that job satisfaction is not only a function of an occupation's level within a hierarchy, but the cultural orientation of the nation in which workers are embedded also has an effect. The results of the second set of models in Table 5 show that deference scores have a very strong effect on positive reports of job satisfaction, with an odds ratio of 1.21, comparable to that of income, with an odds ratio of 1.15.

Because work is a significant part of an employed individual's life, and occupational identities affect non-work interactions, if deference leads to greater satisfaction at work, it should also lead to greater respect outside the work environment, and thus should increase general happiness. This is precisely what we find; people in high-status occupations report being happier than people in low-status occupations, net of hedonic factors (such as income) and educational status.

We now turn to the factors predicting the relative importance of meaning and a feeling

Table 5. Logistic Regression Models Predicting Workplace Attachment, Job Satisfaction, General Happiness, Meaningful Work, and Respect at Work

		Attachment	Job Satisfaction	Happiness	Meaningful Work	Respect
		Odds Ratio (SE)	Odds Ratio (SE)	Odds Ratio (SE)	Odds Ratio (SE)	Odds Ratio (SE)
Full						
	Deference	1.069** (.025)	1.209*** (.018)	1.087*** (.018)	1.176*** (.045)	1.173*** (.036)
	Education	1.168*** (.027)	1.041* (.020)	1.103*** (.021)	1.833*** (.054)	1.084* (.040)
	Income	.865*** (.029)	1.154*** (.020)	1.147*** (.021)	.956 (.048)	1.058 (.039)
	Age	.980*** (.002)	1.019*** (.001)	1.006*** (.001)	1.017*** (.003)	1.016*** (.003)
	Female	.725*** (.049)	1.048 (.036)	1.062 (.038)	1.391*** (.086)	1.080 (.073)
	Black	.932 (.070)	.651*** (.053)	.678*** (.058)	.318*** (.144)	1.001 (.103)
	Other	1.300** (.090)	.782*** (.064)	.842* (.068)	.424*** (.171)	.958 (.120)
	-2LL	11,102.4	19,453.4	18,510.2	3,462.6	4,798.0
Deference						
	Deference	1.097*** (.024)	1.240*** (.018)	1.133*** (.018)	1.373*** (.043)	1.206*** (.034)
	Age	.978*** (.002)	1.012*** (.001)	1.008*** (.001)	1.014*** (.003)	1.017*** (.003)
	Female	.774*** (.047)	.972 (.035)	.983 (.036)	1.316** (.080)	1.049 (.070)
	Black	.919 (.069)	.626*** (.053)	.644*** (.058)	.293*** (.141)	.974 (.103)
	Other	1.281** (.089)	.762*** (.064)	.810** (.068)	.358*** (.163)	.948 (.120)
	-2LL	11,147.2	19,523.9	18,6067.0	3,614.6	4,806.9
Baseline						
	Age	.978 (.002)	1.022*** (.001)	1.009*** (.001)	1.015*** (.003)	1.016*** (.003)
	Female	.800*** (.046)	1.049 (.034)	1.030 (.035)	1.440*** (.079)	1.123 (.068)
	Black	.919** (.069)	.625*** (.053)	.641*** (.058)	.301*** (.139)	.957 (.102)
	Other	1.279*** (.089)	.757*** (.063)	.807** (.067)	.349*** (.161)	.931 (.119)
	-2LL	11,162.5	19,677.4	18,656.8	3,672.4	4,837.1
	N	8,891	14,146	14,588	2,706	3,557

Note: Standardized values for deference scores, education, and income measures were used in all models.

* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

of accomplishment in people's work. In analyzing the relationship between status, meaning, and satisfaction, Van Ryzin (2014) found

that after 9/11, government workers' job satisfaction rose 5 to 10 percent. We find that people in high-status occupations are more

likely to report finding meaning and accomplishment in their work, net of educational attainment, which also has a strong positive effect, and income, which does not have a statistically significant effect.

Previous work suggests high status is linked to feelings of respect as well as deference. Accordingly, in the final set of models in Table 5 we examine the factors predicting whether people feel respected at work. Consistent with expectations, the results show deference is a strong predictor of workplace respect, with an odds ratio of 1.17.

DISCUSSION AND CONCLUSIONS

Summary of Argument and Findings

Weber (1978:932) defined status as a form of social power based on a “positive or negative, social estimation of honor.” Status can rest on class conditions, but it “normally stands in sharp opposition to the pretensions of sheer property,” implying that status is a multidimensional construct reflecting both class power and cultural esteem (Weber 1946:187). Early prestige research focused on subjective cultural beliefs regarding an occupation’s esteem, goodness, and service to others, but as the status attainment paradigm waned in use, attention to the distinction between the two distinctive status components also declined. Paradigms using either institutional or neo-Marxist frameworks shifted the theoretical focus to the class component, conceptualizing status as either a symbolic reflection of an underlying class order (Bourdieu 1984) or a signal of market quality (Podolny 2010). We contend that unidimensional approaches, such as GSS prestige scores, are inadequate to capture the multidimensional structure of status, and the emphasis on the class component is particularly problematic, because cultural esteem rather than class power is the dominant component of the occupational status order.

To support these claims, we develop and test a new operationalization of status we call

deference scores, based on three widespread dimensions of cultural meaning (evaluation, potency, and activity). Based on the theoretical foundation that status can best be conceptualized as a network of deference relationships based on cultural beliefs (Goffman 1956; Shils 1982), we integrate relational approaches developed in organizational research with affect control theory, a general theory of social action, to compute the likelihood that one occupation will “defer to” another for all possible combinations of over 300 occupations.

Contributions of the Present Research

This study makes a number of contributions. Theoretically, we develop a multidimensional approach for conceptualizing occupational status that is consistent with Weber’s definition. We highlight the cultural component reflecting evaluative dimensions of goodness and esteem, which is deemphasized in contemporary research. However, we also contend that status is not solely a function of goodness. Instead, status is an agentic goodness characterized by some power and activity in addition to high evaluation; the process (using affect control theory) described in the creation of deference scores provides a method for determining to what extent each dimension should be considered a component of status in a given societal and historical context.

Methodologically, the development of deference scores represents an important step for the long tradition of work on occupational scaling. This is for several reasons. First, because we construct deference scores using a formal theory of social action and quantitative ratings of cultural meaning, the processes determining the status ranking of occupations are relatively unambiguous. This bottom-up, generative approach contrasts with other measures where researchers first create a status ranking and then demonstrate that the ordering process is consistent with theoretical assertions (which, in the case of GSS prestige scores, was shown not to be true [Bukodi et al. 2011]).

Second, unlike other approaches to creating empirical scales, our generative approach begins with general sociological theory. Prior attempts to develop subjective scales typically involve post hoc groupings based on occupational outcomes, such as similarities in job satisfaction (Rose 2003) or a composite of multiple outcomes (Jencks, Perman, and Rainwater 1988). Because these approaches are empirically, not theoretically, grounded, it is not clear which processes or occupational features are driving differential outcomes. In contrast, deference scores provide a unique, generative approach that predicts the degree of occupational deference based on quantitative measurements of cultural sentiments without any prior knowledge of outcomes. Rather than an empirical generalization that links occupations to outcomes, it is a theoretical statement closely linked to the definition of status.

Relational measures based on friendship (Chan and Goldthorpe 2004, 2007) or marriage (Alderson, Junisbai, and Heacock 2007) ties are an important exception. As with GSS prestige scores, the resulting status order is dominated by highly paid, well-educated professional occupations. Chan and Goldthorpe (2004:389) find the status order is primarily based on an occupation's "manuality," with workers manipulating abstract symbols, such as accountants and insurance brokers, in the top category, "people processing" occupations like nurses in the middle, and occupations involving inanimate objects, like firefighters and ambulance drivers, at the bottom. Although Chan and Goldthorpe (2004:392) argue that they are capturing "something clearly different" from other prestige measures, Bukodi and colleagues (2011) show this "something" may be some other material aspect of the occupational hierarchy. Given that their status ranking involves marketable skills, especially abstract problem-solving (Liu and Grusky 2013), Chan-Goldthorpe scales appear to be rooted in objective class value, not cultural beliefs of cultural worthiness.

Finally, although we use the behavior *to defer* because of its theoretical centrality in the construction of status value, the procedure developed in this study provides a flexible framework that can be applied to other actions, such as *honor*, *respect*, or *serve*. Future work could explore how other actions might affect occupational rank, shedding light on which other actions may be involved in status construction and whether there is a typology of status behaviors. Applying this procedure to ratings from other affective dictionaries collected over different time periods and nations (described in Heise 2010) can be used to examine how the relationship between status, occupations, and outcomes varies by time and place.

Implications for Research on Stratification and Status

This study has immediate relevance for stratification research while helping inform scholarship beyond occupational status. As noted, researchers have identified a number of institutional factors, such as authority, that condition prestige assessments (Zhou 2005). High evaluation occupations scoring high in deference, like firefighters and teachers, also possess authority, as suggested by the significance of the potency dimension. The extensive media coverage of firefighters following 9/11 has likely contributed to their reaching top status today. Combining the approach developed in this study with organizational and economic sociology research may help explain how institutional factors influence status beliefs.

In addition, focusing on multiple meaning dimensions may help move the literature beyond economic outcomes. Because organizational approaches treat status in market terms, the rewards of status are likewise viewed in economic terms, such as greater sales and reduced costs (Benjamin and Podolny 1999; Podolny 1993). Analyzing how high-status brands, such as Apple and Ferrari, affect dimensions of affective meaning, Shank and Lulham (2017) find that they operate

within the potency dimension, reflecting power and dominance, but have no significant effect on perceptions of goodness captured in the evaluation dimension. By adopting a multidimensional framework, organizations may be better able to theorize how esteem and worth evoke evaluative responses. In other words, if organizations want people to feel good as well as powerful, they must incorporate the evaluation dimension.

One notable feature of occupational status research is that high-status occupations like teachers and nurses tend to be female-dominated. The tendency for women to be sorted into high evaluation occupations (Langford and MacKinnon 2000) suggests that exploring the relationship between the multiple EPA dimensions of status, gender composition, and pay may be a fruitful line of future research. Other models based on cultural meanings, such as the stereotype content model (Cuddy, Fiske, and Glick 2008; Fiske, Cuddy, and Glick 2007), have focused on this line of occupational gender stratification inquiry. However, because dimensions of warmth and competence overlap a great deal with EPA dimensions (Rogers et al. 2013), affect control theory and deference scores may be helpful in providing new answers to some of the questions dealt with in stereotype content research. Similarly, in their analysis of friendship ties, Chan and Goldthorpe (2004) find a second dimension reflecting occupational sex segregation. One possible interpretation is that their first two dimensions may reflect much of the same semantic dimensionality found in the competence/warmth of the stereotype content model and the potency/evaluation found in this study.

Limitations and Suggestions for Future Research

We discuss several methodological issues throughout this article, but others require attention. One important issue is that of historical change. A central assertion of this study is that GSS prestige scores reflect

objective class power and not status. Because the GSS prestige scores used in this study utilize a decades-old measure of prestige, described by Nakao and Treas (1994), it is possible that their structure may be due to historical changes. Several factors suggest this is not the case.

One of the most notable features of prestige scores is their remarkable stability across culture, time, and place, which Hout and DiPrete (2006) call the “Treiman constant.” If these scores have been resistant to past historical change, they will likely continue to resist change. Lynn and Ellerbach (2017) suggest one would find variability, but once prestige scores are recognized as measures of objective occupational features (primarily education and income), there is little reason to believe that the structural relationship between prerequisites and rewards is culturally determined. In other words, even though individuals may swap positions within the occupation structure, the Treiman constant describes the invariant structural relationship between prerequisites and rewards, education and income.

More importantly, the multidimensional nature of status demonstrated in this study implies that deference scores should vary with cultural beliefs, but GSS prestige scores should not. If cultural estimations of esteem and worthiness are reflected in the evaluation dimension, and GSS prestige scores measure objective conditions in the potency dimension, then cultural changes should have no effect on GSS prestige scores. Two prominent cultural events that occurred during the study period were the terrorist attacks on 9/11 and the Great Recession of 2008. Given the cultural energy following 9/11, we would expect a rise in the prestige of “heroic” occupations like the military and firefighters. Conversely, the financial crisis of 2008 should diminish the prestige of economic elites like executives and lawyers.

Preliminary analyses of the new prestige scores, PRESTG10, collected by the NORC beginning in 2012, find that prestige rankings have not substantially changed. Supplemental

data from the GSS study (NORC 2017) show that judges (PREST10 = 75), chief executives (72), and lawyers (69) continue to outrank military (62), firefighters (59), and registered nurses (64) (Smith and Son 2014). Over 70 percent of the variance is determined by just two material factors: having at least a bachelor's degree ($\beta = .48, p = .000$) and having incomes over \$45,000 ($\beta = .40, p = .000$). This provides strong support for Bukodi and colleagues' (2011) assertion that prestige scores are invalid, because they do not measure prestige but instead are subjective estimates of objective conditions. If prestige is reflected in the evaluation dimension, future research should explore whether deference scores and opinion poll rankings have changed over time along with cultural events.

Because our approach is new, data limitations are an issue that future research should address. This study includes a large number of occupational titles, but an occupation-specific dictionary of EPA ratings should be collected. Researchers should collect ratings for all occupational titles found in the GSS prestige score instrument to enable a more robust comparison between the two measures, and a more heterogeneous set of raters should be surveyed. The few ACT studies examining this issue (Ambrasat et al. 2014; Wisecup 2011) include only a limited number of occupations. Studies using GSS prestige scores, such as Lynn and Ellerbach (2017), suggest that patterns of variability may apply to deference scores, but this cannot be assumed,

because they reflect fundamentally different underlying constructs. Only by collecting a large dictionary of occupational ratings from a heterogeneous sample of raters can this issue be fully addressed.

APPENDIX

Part A. Impression Formation Equations

We used nine equations to model how events alter the three affective dimensions (evaluation, potency, and activity) for each of the three interaction elements (actor, behavior, and object). For clarity, we arranged equation coefficients used in this study in the matrix shown below, with columns representing one of the nine post-event equations. For example, the first column represents the equation for A'_e , which predicts the post-event evaluation of the actor. Proceeding down the column, the first term in the A'_e equation is the constant $-.26$ followed by the term $.41A_e$ (the evaluation of the actor before the event) and so on. The full equation for A'_e is as follows, with subsequent columns representing the remaining equations:

$$\begin{aligned} A'_e = & -.26 + .41A_e + .42B_e - .02B_p \\ & - .1B_a + .03O_e + .06O_p + .05A_eB_e \\ & + .03A_eO_p + .12B_eO_e - .05B_eO_p \\ & - .05B_pO_e + .03A_eB_eO_e - .02A_eB_eO_p \end{aligned}$$

	A'_e	A'_p	A'_a	B'_e	B'_p	B'_a	O'_e	O'_p	O'_a
Constant	-.26	-.1	.14	-.19	.06	.11	-.11	-.37	.02
A_e	.41	0	.05	.11	0	.02	0	0	0
A_p	0	.56	0	0	.16	-.06	0	0	0
A_a	0	.06	.64	0	0	.27	0	0	0
B_e	.42	-.07	-.06	.53	-.13	.04	.11	.18	.02
B_p	-.02	.44	0	0	.7	0	0	-.11	0
B_a	-.1	0	.29	-.12	0	.64	0	0	0
O_e	.03	.04	0	0	.03	0	.61	-.08	.03
O_p	.06	0	0	.05	.01	0	0	.66	-.05
O_a	0	0	0	0	0	0	.03	.07	.66
A_eB_e	.05	0	0	0	.01	0	.03	0	0

(continued)

	A'_e	A'_p	A'_a	B'_e	B'_p	B'_a	O'_e	O'_p	O'_a
A_eO_p	.03	0	0	0	0	0	0	0	0
A_pB_p	0	-.05	0	0	0	0	0	0	0
A_eB_a	0	0	-.06	0	0	0	0	0	0
B_eO_e	.12	.01	0	.11	.03	0	.04	.03	0
B_eO_p	-.05	0	0	-.05	0	0	0	.03	0
B_pO_e	-.05	0	0	-.02	0	0	-.03	0	0
B_pO_p	0	0	0	0	0	0	0	-.05	0
$A_eB_eO_e$.03	0	0	.02	0	0	0	0	0
$A_eB_eO_p$	-.02	0	0	0	0	0	0	0	0

Part B. BayesACT Deference Score Computation

A Bayesian formulation of affect control theory, called BayesACT (Schröder et al. 2016), generalizes the original statement of the ACT theory by modeling shared cultural sentiments about identities and behaviors as probability distributions in the three dimensional space of E, P, and A, rather than as point estimates. BayesACT therefore explicitly takes into account the variance in ratings of a particular sentiment, whereas ACT ignores that information. Considering that the variance in the sentiment ratings comes directly from individual differences in raters, BayesACT is a more comprehensive estimate than an average that can lead to a bias toward the central tendency.

The BayesACT deference score calculations were done with the BayesACT source (version 0.5.1 from bayesact.ca), and initialized parameters as given in the following table (for further details on these parameters, see Hoey et al. 2016).

Identities are initialized as N samples drawn from a normal distribution with mean as the mean E, P, A in the survey data, and covariance set to an axis-aligned (diagonal) covariance with variances (diagonal terms) set equal to the marginal variances for each dimension (E, P, and A). BayesACT can also use the full covariance of the data; for results, see the supplementary material webpage (<https://cs.uwaterloo.ca/~jhoey/research/deference/>).

Identities are selected (from the set of $M = 304$ total occupations) corresponding to two occupations (say A and B), and the behavior of “defer to” is chosen. We then ran a simulation by computing a single-step update in BayesACT with the behavior variable directly set (i.e., using “agent” turn in BayesACT). Therefore, the parameter γ is not used. The expected total deflection is the deference score for the pair of identities, recorded as the corresponding entry in an $M \times M$ matrix on row A, column B. Once the matrix is filled,

Parameter	Setting	Meaning
α	1.0	std. deviation of a diagonal uniform Σ , the deflection potential covariance
β_a	.0001	identity inertia for agent (std. dev)
β_c	.0001	identity inertia for client (std. dev)
β_{0a}	from data	initial identity std. dev. for agent
β_{0c}	from data	initial identity std. dev. for client
γ	not used	model environment noise std. dev.
N	500	number of samples
σ_r	$N^{-1/3} = .126$	roughening noise
<i>gender</i>	male	gender of agent

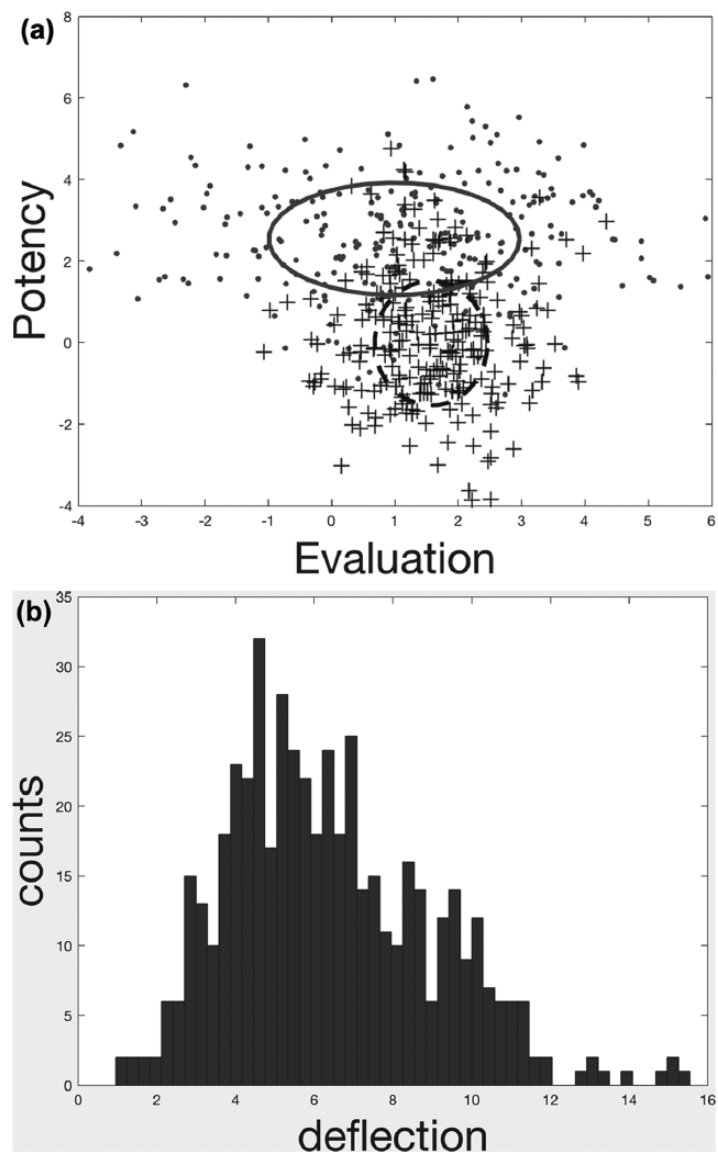


Figure A1. Identity Sentiment Distributions and Resulting Distribution of Deflections
Note: (a) Samples drawn from normal distributions for identities hairdresser and police officer. One standard deviation is shown as a dashed or solid ellipse for hairdresser and police office, respectively. (b) Histogram of deflections.

row averages are computed as the deference scores.

Illustrative examples. For example, consider the average ratings for *hairdresser* (1.57, −.02, 1.11) ± (.89, 1.53, 1.36) and *police officer* (.99, 2.54, 1.54) ± (1.98, 1.38,

1.54). Figure A1(a) shows two sets of samples drawn from normal distributions with means at the mean sentiment for the identities hairdresser (crosses) and police officer (dots), and variances given by the measured variances, plotted as P on the vertical axis versus E on the horizontal (the A dimension is

projected onto this plane). The ellipses (dashed for hairdresser, solid for police officer) show one standard deviation. We can see the spread is quite large in both dimensions. Panel b is a histogram of the deflections caused by these two point clouds. Each deflection is caused by one combination of a point from the samples for hairdresser and another from the samples for police officer. Some very high deflections (around 15) are caused by some combinations of deviations from the mean sentiment. On average, the deflection computed by BayesACT is 6.4 (compare to ACT at 3.5). This value takes into account the variations in sentiments from the population that was sampled.

The key is that BayesACT is computing average deflections of individual feelings about deference, rather than deflections of the feelings of an average person about deference. The difference is significant due to the nonlinearity of the impression formation equations in ACT. These nonlinearities make it such that

$$\left[\begin{array}{l} \text{deflection (A1 defers to O)} \\ + \text{deflection (A2 defers to O)} \end{array} \right] / 2 \neq \text{deflection (average [A1,A2] defers to O)}$$

An issue with traditional prestige scores is one of central tendencies: they compute how an average person will feel about an occupation. ACT does the same thing, but from an affective standpoint. The BayesACT approach is a more accurate representation of the population's status feelings, because the impression formation equations have some kind of "social responsibility norm" embedded in them. BayesACT does not average personal sentiments before computing deflection. Rather, it averages deflections that are computed based on individual sentiments. We expect this to be more in line with the prestige scores, because these are measuring the status evaluations of individuals directly, then averaging these values to generate a score.

Part C. Deference Scores of Occupational Identities Used in Deflection Calculations

Accountant	5.36	Bartender	5.90	Chaplain	6.59
Actor	5.27	Beautician	5.94	Chauffeur	5.23
Advertising copy writer	4.39	Bellhop	5.80	Cheerleader	7.52
Advertising executive	5.57	Bill collector	4.89	Chef	6.87
Airline pilot	6.98	Biologist	5.83	Chemical engineer	6.25
Ambassador	6.11	Blacksmith	5.53	Chemist	6.00
Anesthetist	6.45	Board director	6.24	Chief operations officer	5.71
Architect	5.78	Bodyguard	7.37	Chiropractor	5.75
Artist	5.94	Bookie	4.94	Choreographer	5.94
Assembly line worker	5.41	Bookkeeper	5.24	Church deacon	6.12
Assistant	5.45	Bouncer	5.42	City councilor	4.91
Astronaut	8.22	Bricklayer	5.09	Civil engineer	6.22
Athlete	7.47	Broadcast news analyst	4.90	Civil servant	6.18
Attorney	6.22	Building contractor	4.92	Cleaning woman	5.56
Attorney general	5.88	Bulldozer operator	5.02	Clergy	5.24
Auctioneer	6.23	Bus driver	5.16	Clerical worker	4.68
Auditor	4.36	Busboy	5.44	Clerk	4.51
Auditor general	4.52	Butcher	4.86	Coach	7.73
Author	5.62	Cabinet maker	4.48	Coal miner	5.17
Auto mechanic	5.56	Cabinet member	5.74	Comedian	7.65
Automobile assembler	5.34	Carpenter	5.43	Commentator	5.34
Baby sitter	6.31	Cashier	4.62	Commissioner	5.00
Bailiff	5.34	Casual laborer	4.53	Computer programmer	5.78
Bailsmen	4.21	Cement worker	5.05	Computer security specialist	5.50
Baker	6.09	CEO	7.57	Computer support specialist	5.85
Bank manager	5.49	Chairman of the board	6.08	Construction contractor	5.32
Bank teller	5.16	Chairwoman	6.08		
Barber	4.92	Chambermaid	5.46		

(continued)

Part C. (continued)

Construction foreman	5.81	Hairdresser	5.49	Nutritionist	6.63
Construction laborer	5.26	Hairstylist	5.83	Online merchant	4.65
Consultant	5.92	Handyman	5.55	Ophthalmologist	5.82
Cook	7.30	Host	7.10	Optical engineer	5.41
Coroner	4.44	Hostess	6.15	Organizer	7.44
Cosmetologist	5.38	Housekeeper	5.57	Parking attendant	4.96
Counselor	7.96	Immigration officer	4.98	Part-time employee	4.63
CPA	4.98	Inspector	4.90	Pastor	7.42
Craftsman	5.78	Instructor	6.01	Patrolman	5.04
Crane operator	4.74	Insurance agent	4.14	Pawnbroker	3.88
Creditor	5.21	Insurance claims	4.12	Pediatrician	9.23
Custodian	5.62	investigator		Pharmacist	6.67
Customer systems analyst	5.22	Intern	6.31	Philanthropist	7.62
Customs officer	4.36	Interpreter	6.80	Philosopher	6.30
Dairy farmer	5.49	Interrogator	5.01	Photographer	5.85
Decorator	5.76	Interviewer	5.05	Physician	7.86
Defense attorney	5.64	Investigator	6.32	Physicist	6.15
Dental assistant	5.34	Janitor	5.26	Plumber	4.75
Dental hygienist	5.70	Jeweler	4.18	Police officer	6.94
Dentist	5.76	Journalist	5.44	Policeman	5.86
Deputy	5.25	Judge	6.40	Political scientist	4.96
Detective	6.48	Labor union leader	5.71	Politician	5.84
Dietitian	5.14	Laborer	5.04	Pornographer	5.76
Diplomat	6.39	Landscape architect	5.79	President	7.80
Dishwasher	6.95	Landscaper	5.24	Priest	7.94
District attorney	5.99	Lawyer	6.27	Principal	6.22
Divorce lawyer	5.22	Lecturer	6.04	Private eye	5.31
Doctor	9.38	Legislator	5.36	Probation officer	5.19
Economist	4.83	Librarian	6.85	Professional	6.32
Editor	5.39	Library assistant	6.34	Professor	6.26
Education administrator	5.92	Lobby attendant	4.94	Prosecuting attorney	5.45
Educator	8.36	Lobbyist	5.48	Prosecutor	5.68
Electrical engineer	5.76	Locksmith	4.72	Psychiatrist	6.71
Electrical linesman	4.57	Logger	4.90	Psychoanalyst	4.58
Electrician	4.72	Machine operator in a	5.25	Psychologist	5.96
Elementary school teacher	8.79	factory		Public relations specialist	6.12
Engineer	6.38	Machine repairer	5.21	Radio and television an-	6.04
Entrepreneur	6.84	Magician	5.48	nouncer	
Environmentalist	6.70	Maid	5.50	Railroad conductor	4.80
Executive	6.10	Mail carrier	6.19	Railroad engineer	5.16
Farm laborer	5.79	Manager	6.02	Rancher	4.59
Farmer	6.26	Manager of branch store	5.58	Real estate agent	4.49
Fast food server	5.42	Mayor	5.65	Receptionist	5.24
File clerk	4.52	Mechanical engineer	5.68	Referee	5.55
Film star	5.10	Medic	9.27	Reporter	5.82
Fire investigator	6.11	Merchant	5.20	Researcher	6.42
Firefighter	10.09	Migrant worker	5.17	Restaurant operator	5.97
Fisherman	5.90	Miner	4.80	Retailer	4.46
Flight attendant	5.51	Missionary	7.39	Roofer	5.21
Foreman	4.17	Motel owner	4.15	Salesclerk	4.55
Forest ranger	5.97	Music director	5.48	Salesperson	5.76
Fundraiser	8.52	Musician	7.02	Scholar	8.43
Funeral director	4.90	Negotiator	6.84	Scientist	6.92
Garbage collector	5.97	Newscaster	5.88	Secretary	5.98
Gas station attendant	4.71	Night watchman	6.29	Security guard	5.64
Geologist	5.08	Nurse	8.77	Self-employed worker	6.56
Governor	5.11	Nursing assistant	7.28	Senator	5.47

(continued)

Part C. (continued)

Server	6.08	Street musician	6.37	Transportation ticket agent	4.29
Sewing machine operator	5.18	Street preacher	6.69	Travel agent	5.87
Sheet metal worker	5.09	Student teacher	5.56	Truck driver	4.65
Sheriff	6.59	Supervisor	4.86	Tutor	6.70
Ship captain	7.21	Surgeon	10.33	TV repairman	4.62
Ship engineer	5.89	Switchboard operator	4.74	Typist	5.00
Shoe repairman	4.88	Systems engineer	5.14	Usher	4.92
Shop clerk	5.45	Tailor	4.71	Veterinarian	7.71
Shopkeeper	5.02	Tax preparer	4.95	Wage earner	5.35
Skilled worker	7.82	Taxi driver	5.70	Waiter	5.39
Social worker	7.12	Teacher	7.76	Waitress	5.61
Speech-language pathologist	6.08	Technician	5.38	Warden	5.61
State trooper	5.84	Telemarketer	7.78	Watchman	5.58
Statistician	4.94	Telephone installer	4.54	Web developer	5.70
Steel worker	5.15	Telephone operator	4.94	Welder	4.76
Stenographer	3.84	Temporary worker	4.67	Wholesaler	4.78
Stockbroker	5.34	Textile worker	4.45	Writer	6.84
Storyteller	7.02	Ticket taker	4.51		
		Tool and die maker	4.71		

Part D. ISCO-88 Occupation Code to Identity Crosswalk

ISCO-88	Description	Identity
1110	Legislators	Legislator
1120	Senior government officials	Governor
1229	Production and operations department managers	Manager
1231	Finance and administration department managers	Bank manager
1232	Personnel and industrial relations department managers	Manager
1233	Sales and marketing department managers	Manager
1240	Misc. office supervisors	Supervisor
1311	Agriculture, hunting, forestry, fishing manager	Forest ranger
1314	General managers in wholesale and retail trade	Manager of branch store
2110	Physicists, chemists and related professionals	Physicist
2111	Physicists and astronomers	Physicist
2113	Chemists	Chemist
2114	Geologists and geophysicists	Geologist
2122	Statisticians	Statistician
2131	Computer programmers	Computer programmer
2132	Computing professionals	Computer support specialist
2141	Architects, town and traffic planners	Architect
2142	Civil engineers	Civil engineer
2143	Electrical engineers	Electrical engineer
2145	Mechanical engineers	Mechanical engineer
2146	Chemical engineers	Chemical engineer
2149	Architects, engineers and related professionals	Architect
2211	Biologists, botanists, zoologists	Biologist
2221	Medical doctors	Doctor
2222	Dentists	Dentist
2223	Veterinarians	Veterinarian
2224	Pharmacists	Pharmacist
2230	Nursing and midwifery professionals	Nurse
2310	College, university teaching professionals	Professor

(continued)

Part D. (continued)

ISCO-88	Description	Identity
2321	Secondary school teachers	Teacher
2331	Primary education teaching professionals	Elementary school teacher
2359	Other teaching professionals	Teacher
2411	Accountants	Accountant
2421	Lawyers	Lawyer
2422	Judges	Judge
2431	Archivists and curators	Librarian
2432	Librarians and related information professionals	Librarian
2441	Economists	Economist
2445	Psychologists	Psychologist
2446	Social work professionals	Social worker
2451	Authors, journalists and other writers	Journalist
2452	Sculptors, painters and related artists	Artist
2455	Film, stage and related actors	Actor
2460	Religious professionals	Clergy
3111	Chemical and physical science technicians	Technician
3113	Electrical engineering technicians	Technician
3115	Mechanical engineering technicians	Technician
3119	Physical and engineering science technicians	Technician
3122	Computer equipment operators	Computer support specialist
3132	Telecommunications equipment operators	Switchboard operator
3143	Aircraft pilots	Airline pilot
3151	Building and fire inspectors	Fire investigator
3211	Life science technicians	Technician
3221	Medical assistants	Nursing assistant
3223	Dieticians and nutritionists	Nutritionist
3225	Dental assistants	Dental assistant
3231	Nursing associate professionals	Nurse
3410	Finance and sales associate professionals	Bank teller
3411	Securities and finance dealers and brokers	Stockbroker
3412	Insurance representatives	Insurance agent
3413	Estate agents	Real estate agent
3415	Technical and commercial sales representatives	Salesperson
3416	Buyers	Wholesaler
3417	Appraisers, valuers and auctioneers	Auctioneer
3429	Brokers	Stockbroker
3444	Government licensing officials	Civil servant
3460	Social work associate professionals	Social worker
3471	Decorators and commercial designers	Decorator
3472	Radio, television and other announcers	Radio and television announcer
3473	Street, night-club and related musicians	Street musician
3475	Athletes and related associate professionals	Athlete
3480	Religious associate professionals	Church deacon
4100	Clerks	Clerk
4111	Stenographers and typists	Typist
4113	Data entry operators	Clerical worker
4115	Secretaries	Secretary
4131	Store clerks	Shop clerk
4132	Production clerks	Clerk

(continued)

Part D. (continued)

ISCO-88	Description	Identity
4133	Transport clerks	Clerk
4141	Library and filing clerks	Library assistant
4142	Mail carriers and sorting clerks	Mail carrier
4143	Coding, proof-reading	Advertising copy writer
4190	Other office clerks	File clerk
4211	Cashiers and ticket clerks	Cashier
4212	Tellers and other counter clerks	Bank teller
4215	Debt-collectors and related workers	Bill collector
4221	Travel agency and related clerks	Travel agent
4222	Receptionists and information clerks	Receptionist
4223	Telephone switchboard operators	Telephone operator
5110	Personal and protective services workers	Security guard
5112	Transport conductors	Railroad conductor
5120	Housekeeping and restaurant services workers	Chambermaid
5121	Housekeepers and related workers	Housekeeper
5122	Cooks	Cook
5123	Waiters, waitresses and bartenders	Waitress
5131	Child-care workers	Baby sitter
5132	Institution-based personal care workers	Nursing assistant
5141	Hairdressers, barbers, beauticians	Hairdresser
5161	Fire-fighters	Firefighter
5162	Police officers	Police officer
5169	Protective services workers	Security guard
5220	Shop salespersons and demonstrators	Salesclerk
6113	Gardeners, horticultural and nursery growers	Landscaper
6132	Farmers	Farmer
6133	Farm supervisors	Farmer
6141	Forestry workers and loggers	Logger
7110	Extraction and building trades workers	Coal miner
7111	Miners and quarry workers	Miner
7112	Shotfirers and blasters	Miner
7122	Bricklayers and stonemasons	Bricklayer
7123	Concrete placers, finishers and related workers	Cement worker
7124	Carpenters	Carpenter
7129	Building frame and related trades workers	Construction laborer
7131	Roofers	Roofer
7132	Floor layers and tile setters	Cement worker
7133	Plasterers	Construction laborer
7136	Plumbers and pipe fitters	Plumber
7137	Building and related electricians	Electrician
7143	Building structure cleaners	Custodian
7212	Welders and flamecutters	Welder
7213	Sheet-metal workers	Sheet metal worker
7221	Blacksmiths and forging-press workers	Blacksmith
7222	Tool-makers and related workers	Tool and die maker
7230	Machinery mechanics and fitters	Machine repairer
7231	Motor vehicle mechanics and fitters	Auto mechanic
7233	Agricultural- or industrial-machinery mechanics	Machine repairer
7234	Misc. garage helpers	Laborer
7240	Electrical and electronic equipment mechanics	Electrician

(continued)

Part D. (continued)

ISCO-88	Description	Identity
7241	Electrical mechanics and fitters	Electrical linesman
7242	Electronics fitters	TV repairman
7244	Telegraph and telephone installers	Telephone installer
7245	Electrical line installers	Electrical linesman
7310	Precision workers in metal and related materials	Sheet metal worker
7311	Precision-instrument makers	Tool and die maker
7313	Jewelry and precious-metal workers	Jeweler
7331	Handicraft workers in wood and related materials	Carpenter
7344	Photographic and related workers	Photographer
7411	Butchers and related food preparers	Butcher
7412	Bakers and confectionery makers	Baker
7420	Cabinet-makers and related trades workers	Cabinet-maker
7422	Cabinet-makers	Cabinet-maker
7433	Tailors, dressmakers and hatters	Tailor
7436	Sewers, embroiderers	Sewing machine operator
7442	Shoe-makers	Shoe repairman
7510	Supervisors, crafts and trades	Supervisor
7520	Misc. crafts and trades	Craftsman
8122	Metal melters, casters and rolling-mill	Steel worker
8151	Crushing-, grinding, mixing-machinery operators	Machine operator
8211	Machine-tool operators	Machine operator
8223	Metal finishing-, plating and coating machine operators	Sheet metal worker
8229	Chemical-products machine operators	Machine operator
8240	Wood-products machine operators	Machine operator
8251	Printing-machine operators	Machine operator
8262	Weaving- and knitting-machine operators	Textile worker
8263	Sewing-machine operators	Sewing machine operator
8264	Bleaching, dyeing machine operators	Textile worker
8266	Shoemaking and related machine operators	Shoe repairman
8269	Textile products machine operators	Textile worker
8270	Food products machine operators	Machine operator
8274	Baked-goods products machine operators	Machine operator
8275	Fruit, vegetable processing-machine operators	Machine operator
8290	Other machine operators and assemblers	Machine operator
8311	Locomotive-engine drivers	Railroad engineer
8312	Railway brakemen, signalers and shunters	Railroad engineer
8322	Car, taxi and van drivers	Taxi driver
8323	Bus and tram drivers	Bus driver
8324	Heavy truck and lorry drivers	Truck driver
8330	Other mobile-plant operators	Bulldozer operator
8332	Earth-moving and related plant operators	Bulldozer operator
8333	Crane, hoist and related plant operators	Crane operator
8334	Lifting-truck operators	Bulldozer operator
8400	Fabricating machine operator	Machine operator
9131	Domestic helpers and cleaners	Housekeeper
9132	Cleaners in offices, hotels and other establishments	Janitor
9140	Building caretakers and related cleaners	Janitor
9141	Building caretakers	Handyman
9151	Luggage porters and deliverers	Bellhop
9161	Garbage collectors	Garbage collector

(continued)

Part D. (continued)

ISCO-88	Description	Identity
9211	Farm-hands and laborers	Farm laborer
9300	Laborers in mining, construction, manufacturing	Laborer
9311	Mining and quarrying laborers	Miner
9313	Building construction laborers	Construction laborer
9320	Manufacturing laborers	Laborer
9321	Assembling laborers	Assembly line worker
9322	Hand packers and other manufacturing laborers	Assembly line worker
9333	Freight handlers	Laborer


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Notes

1. For a more extensive discussion regarding the need for greater status research, see Ridgeway (2014).
2. We use the term “validity” narrowly in reference to Bukodi and colleagues’ specific critique of operationalizing Weber’s particular definition of status. This does not imply that prestige scores do not reflect other definitions of status or other aspects of occupational stratification. For example, Lynn and Ellerbach (2017) demonstrate the utility of prestige scores in explaining how social location, especially education, can condition perceptions of occupational characteristics.
3. Impression formation coefficients used in this study are shown in Part A of the Appendix.

4. For more detailed descriptions of this procedure, see Smith-Lovin and Heise (1988) and Heise (2007).
5. Affective dictionaries and EPA ratings are available from the affect control website. Replication can be done using these EPA ratings, the impression formation coefficients shown in Part A of the Appendix, and the BayesACT program parameters shown in Part B of the Appendix. Supplemental materials, including computer codes, are available at <https://cs.uwaterloo.ca/~jhoey/research/deference/>.
6. For a detailed review of methodological issues, including reliability and measurement error, see Heise (2010).
7. Harris Interactive began surveying occupational prestige again in 2014 and 2015, but the methodology changed to an online format, question wording was modified, and several occupational titles were used inconsistently. For example, legislator and actor were used consistently in prior surveys, but switched to Member of Congress and entertainer in 2014, then to politician and musician in 2015. Supplemental analyses found that inclusion of these data produced no substantive difference in the association between deference scores and opinion poll results; we excluded them from this study to avoid introducing error due to these inconsistencies.
8. This pattern is consistent with research that contends that the gender wage gap is influenced by women entering prototypical female occupations, such as nurses and teachers, to gain social esteem at the expense of maximizing income (England 2010; Hauser and Warren 1997).

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