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Factors Influencing Job Choice among Agricultural Economics Professionals

Katherine McGraw, Jennie S. Popp, Bruce L. Dixon, and Doris J. Newton

This article identifies factors that influence agricultural economics professionals' job choice between academic and government employment. Respondents agreed that job responsibilities were the most important factor in choosing their current position. They also agreed that having a positive work environment, good salary, family time, adequate resources, and professional and social interaction were important job attributes. Proportionally more women than men regarded partner opportunities, nondiscrimination, time for child care, and supportive colleagues as very important attributes influencing their decisions. A binomial probit of respondents' current job sector indicates significant job choice determinants include sector preference (academic or government), previous professional experience, a positive work environment, and advancement opportunities.

Key Words: academic and government agricultural economics professionals, binomial probit, job choice, job preferences, gender

JEL Classifications: C25, J24, J43, J45

Each year many new agricultural economics graduates enter the job market. Choosing a position in the agricultural economics field is not unlike the search process in other disciplines (Butler, Sanders, and Whitecotton, 2000; University of Iowa College of Education, 2011). Upon graduation, these new professionals choose positions based on their goals, skills and experience (human capital), position availability, and job attribute preferences (e.g., opportunities for advancement, location, time for family, salary). Job choice studies seek to identify sets of factors that explain one career choice over another and determine respondents' job preferences, reasons for choosing one's current position, and factors that attract employees who are good matches for different work environments. For agricultural economics professionals, there are five clear sectors in which demand occurs: academia, government, business, international, and consulting (Schneider, 1985). This study analyzes survey responses from agricultural economics professionals working in the academic and federal government sectors.

Both employers and employees benefit from job choice studies. Identifying attractive qualities of positions and determining applicants' characteristics and preferences creates a more transparent environment in which candidates and employers can make well-informed decisions to foster job satisfaction, performance, and career longevity. This study seeks to identify factors influencing job choice, specifically among agricultural economics professionals. Most job choice information in the agricultural economics

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field is becoming dated with primary sources at least 10 years old and some up to 25 years old (Cheney, 2000; Schneider, 1985). Much of the existing information on agricultural economics professionals' job choices was obtained from topics addressed in salary studies (Barkley, Stock, and Sylvius, 1999; Broder and Deprey, 1985; Popp et al., 2010). The existing studies have examined working agricultural economics professionals (Marchant and Zepeda, 1995; Thilmany, 2000), but analyses have been descriptive as opposed to modeling choice behavior. Furthermore, many studies of agricultural economics professionals have only analyzed respondents from the academic sector with a special emphasis on the relationship between gender and salary (Abdula, 2008; Thilmany, 2000). Although Hine and Cheney (2000) focused on job choices of agricultural economics professionals and presented descriptive statistics by gender and ethnicity, no analyses were presented.

The current study seeks to address gaps in the relevant topics of job choice among agricultural economics professionals and choice behavior analysis as opposed to description. The study is novel for two reasons: 1) it identifies factors influencing the choice between a position in either academia or government with a probit model; and 2) it includes sample data for both new professionals in their first professional positions and seasoned professionals who, in many cases, are currently employed in positions other than their first professional positions after matriculation. Additionally, it builds on the existing foundation of literature on job choice and the relationship between work and gender.

We present conclusions pertinent to both academic and government employing institutions and their current and potential agricultural economics employees. The results provide employers with information on how to attract applicants who match well with respective work cultures and are satisfied and productive employees. Prospective applicants can gain insight into personal job choice decisions based on their preferences and goals. Furthermore, discerning the relationships among gender, family obligations, and professional goals and responsibilities is explored specifically for agricultural economics professionals.

Previous Job Choice Studies

Early job choice studies date back to the early 1970s and have become more abundant over the last decade. Most studies examined samples from one profession: agricultural economists (Hine and Cheney, 2000), agriculture college graduates (all degrees; Barkley, Stock, and Sylvius, 1999), farm operators (Stallman and Nelson, 1995), academic sports management faculty (Mahony et al., 2006), accounting students (Bundy and Norris, 1992; Trump et al., 1970), or education doctoral degree recipients (University of Iowa College of Education, 2011). In many studies, the subjects were college students making an initial professional position decision (Bundy and Norris, 1992; Butler, Sanders, and Whitecotton, 2000; University of Iowa College of Education, 2010–11). Other research has focused on surveying current working professionals to determine factors that influenced their decisions to take their current positions (Hine and Cheney, 2000; Mahony et al., 2006; Stallman and Nelson, 1995).

Review of Previous Methodologies

Almost all job choice studies have relied on surveys to collect data. In fact, Hine and Cheney's data were collected using a precursor to this study's survey that had a 55% response rate (Cheney, 2000). Survey response rates varied from 27% (Barkley, Stock, and Sylvius, 1999) to 68% (Bundy and Norris, 1992). Trump et al. (1970) and the University of Iowa College of Education (2011) did not provide response rates, but the sample size for Trump et al. (1970) was 177. Butler, Sanders, and Whitecotton (2000) surveyed a focus group of 27 participants.

Most results have been descriptive rather than analytic. Hine and Cheney (2000), Trump et al. (1970), and the University of Iowa College of Education (2011) used survey instruments and published preference rankings and/or descriptive statistics as results. A few studies have published analytical results. Bundy and Norris' (1992) preference variables were presented to participants on a Likert scale and results included chi-squared analyses. Results in Mahony

et al. (2006) included not only descriptive statistics, but also a multiple regression model of the dependent variable "willingness to leave current job." The dependent variable was a function of location, feeling wanted by their university employer, compensation (including salary, retirement and insurance benefits, normal pay raises, cost of living, relocation costs, and supplemental pay), rank/tenure, satisfaction of work needs, reputation (of potential job setting), teaching workload responsibilities, similarity of goals/culture/fit, research opportunities, work setting, leadership opportunities, recruiter approach, and recruiter description. Stallman and Nelson (1995) used a probit model to estimate the probability of off-farm employment for farm operators but collected only demographic and human capital data, not respondent preferences. From Barkley, Stock, and Sylvius' (1999) multiple regression models of starting and current salaries of Kansas State University (KSU) agriculture college graduates, possible factors affecting job choice were identified from independent job preference variables the researchers included in the salary models. Butler, Sanders, and Whitecotton (2000) identified the most important job attributes to accounting students by comparing students' self-reported job preferences with recruiters' opinions of students' preferences and with students' statistically computed job preferences (based on a survey of job descriptions). Because most previous literature did not attempt to model job choice, previous results provide a starting point from which to choose potential regressors and build an analytic model based on previous literature.

Studies Sampling College Students

The three types of highly important attributes to college students have been advancement opportunities, compensation (of a wider breadth than merely starting salary; also including health benefits, future earnings potential, and job security), and work environment (including social and professional relationships in the workplace; Bundy and Norris, 1992; Butler, Sanders, and Whitecotton, 2000; Trump et al., 1970; University of Iowa College of Education, 2011). Although some studies have found that starting salary was a less important factor influencing job choice (Bundy and Norris, 1992), compensation, as widely defined, was an important attribute. Although accounting students ranked starting salary only 22nd of 35 factors, job security, health benefits, and expected future salary were first, fourth, and ninth, respectively (Bundy and Norris, 1992). Other college student samples have likely underestimated the importance of long-run compensation as a result of the ambiguous nature of the response options "salary" or "compensation." These two response options may have been interpreted as starting salary, but for college students or recent graduates, potential or expected future compensation/salary is probably a better indicator of the importance of compensation/salary to job choice. An initial professional position provides many nonpecuniary benefits to recent college graduates that may result in their preference ranking of compensation/salary being divergent from samples of current working professionals.

Studies Sampling Working Professionals

To working professionals, the three types of highly important attributes have been job location, work environment (including social and professional relationships in the workplace), and compensation (including salary and health benefits; Barkley, Stock, and Sylvius, 1999; Hine and Cheney, 2000; Mahony et al., 2006). The major dissimilarity between current working professionals and college students seems to be the relative importance of advancement opportunities to college students and importance of job location to working professionals. Attuned to the possible dissimilarities between the salaries, job attribute preferences, and other characteristics of college students (or recent graduates) and working professionals, Barkley, Stock, and Sylvius (1999) created two salary models: one for starting salaries and one for current salaries of agricultural professionals who had graduated with agricultural degrees (e.g., animal sciences, agribusiness, food science, natural resources) from KSU. Despite separate salary models, job attribute preferences measured

for initial job choice were ranked quite similarly to those for current job choice. Job location and benefits were first and second, respectively, for both groups. Highest salary was fourth in initial preferences but third in current preferences, and working conditions was ranked third and fourth for initial and current preferences, respectively. Important job attributes were not vastly changed from first professional position to current position for this sample.

However, other differences may exist across fields either as a result of dissimilar respondent preferences or survey techniques. For example, Barkley, Stock, and Sylvius (1999) did not measure importance of opportunities for advancement, but survey results from Mahony et al. (2006) suggested opportunities for advancement (rank/tenure) were important to current professionals in academic sports management positions. Furthermore, for agricultural economists, salary was only ranked seventh out of 10 job preferences, but "being a good match to career objectives" was the second most important factor behind work environment (Hine and Cheney, 2000), a concept either not relevant to or not considered by other studies (Barkley, Stock, and Sylvius, 1999; Mahony et al., 2006). Hine and Cheney (2000) also uniquely explore the relationship between respondents' personal sector preferences (in their case, sectors in which demand for agricultural economics professionals occurs) and their actual employment situations.

Methods

Survey Development and Sample

For the current study, survey instruments were e-mailed to agricultural economics professionals employed in either government or land-grant academic institutions in 2007–2008. This approach is consistent with prior studies that focused on professionals within the same discipline (Hine and Cheney, 2000; Mahony et al., 2006; Trump et al., 1970; University of Iowa College of Education, 2011).

Both government and academic survey instruments included five sections: 1) education and professional experience; 2) employment preferences/changes and factors influencing job choice; 3) job responsibilities, publications, grant monies, tenure (academics only), and career challenges; 4) job benefits; and 5) demographic characteristics (Abdula, 2008). The academic questionnaire included additional questions related to academic-specific topics such as tenure, number of classes taught, and number of students taught or mentored/advised. Data included initial and current job preferences, demographic and human capital characteristics (e.g., gender, age, years of experience, previous professional experience in a nongovernment, nonacademic position), and importance of attributes influencing job choice (e.g., advancement opportunities, salary, positive work environment; McGraw, 2010). These variables were used to estimate a binomial probit model of the choice between currently being employed in an academic or government position.

The academic population sampled consisted of known agricultural economics professionals employed mainly at U.S. land grant institutions (1862, 1890, and 1994) and other academic institutions that employ agricultural economics professionals. Professionals in agricultural economics departments were targeted unless there was no such department. In the latter case, agricultural economics professionals employed in economics departments were contacted. The government population sampled consisted of all U.S. Department of Agriculture Economic Research Service (USDA ERS) professionals. They were contacted by the ERS employee e-mail list plus subscribers to the USDA Economist Group listserv (www.usdaeconomists.org/), which included government professionals outside of ERS, most of whom were USDA employees. Complete details on survey development and execution can be found in Abdula (2008).

A total of 2,200 agricultural economics professionals (539 in government [24.5%], 1,657 in academia [75.3%], and four unknown [0.2%]) were identified and surveyed online using Snap Survey Software (Snap Surveys, 2007). Government professionals surveyed could be classified as ERS or non-ERS employees. Academic professionals surveyed

could be classified by region, size, and type of institution.[1]

Statistical Analyses of Survey Data

Summary statistics were computed for 249 variables for completed surveys. These data describe overall preferences and differences between subgroups: academia vs. government and women vs. men. Only results relevant to job choice are presented. For variables deemed relevant (see Table 1 for variable definitions), chi-squared tests were used to test the null hypothesis of homogeneity of the distributions of responses between two groups (i.e., between men and women and between academic and government professionals) regarding professional experience (one variable), demographic characteristics (four variables), job preferences (two variables), and job attributes (17 variables). Table 1 also includes the regressand, employment in the academic or government sector (*Employment*). Chi-squared tests were first calculated using original survey instrument categories, but some results were unreliable as a result of some categories containing fewer than five respondents (respondent's age category [*Age*], current sector preference [*Prefer*], importance of a good salary [*Good Sal.*], and importance of job responsibilities [*Job Resp.*]). For the four variables with fewer than five respondents in a category, collapsed categories were used for initial chi-squared analysis (see Table 1). Job attribute variables found to have a significant chi-squared result were subjected to tests for equal proportions to determine if one subgroup chose "very important" at a significantly different rate than another subgroup. Along with 12 job attribute variables, *Age*, *Prefer*, and previous employment in a nonacademic, nongovernment position (*Non Pos.*) were included for analysis in the *Employment* probit model.

[1] Regions were defined as the U.S. Bureau of the Census defines regions: West, Midwest, South, and Northeast. Also included was a category for other locations outside the 50 states such as Guam and Puerto Rico. Size refers to the number of students at an institution.

Probit Model Specification

A customary probit modeling approach was used to model the choice between academic and government positions (Eq. 1), as Stallman and Nelson (1995) used in their off-farm employment participation equations. It was assumed that some unobservable index, y_i*, exists, where

$$(1) \qquad y_i^* = \sum \beta_j x_{ij} + \varepsilon_i \qquad \varepsilon_i \sim N(0,1)$$

and the observable dependent variable is y_i where y_i = one if $y_i^* \geq 0$ and $y_i = 0$ otherwise.

The regressand (y_i) is *Employment*. Potential regressors (x_{ij}) were identified based on previous literature capturing the theoretical constructs of compensation and other job attributes and statistical test results (Table 1). Previous studies suggest that variables related to advancement opportunities or professional growth, colleague/university support and work environment, job location, and compensation (including salary, health benefits, future earnings potential, and job security) may be the most important factors influencing job choice among various disciplines (Barkley, Stock, and Sylvius, 1999; Bundy and Norris, 1992; Butler, Sanders, and Whitecotton, 2000; Mahony et al., 2006; Trump et al., 1970; University of Iowa College of Education, 2011). Additionally, personal preferences likely affect job choice (Hine and Cheney, 2000).

To align survey data with previous collected data, some job attribute preferences were classified as "compensation," "location," or "work environment" variables (Table 1, footnotes c, d, e). All possible compensation measures were not available for consideration as regressors in the model. *Good Sal.* was measured on a Likert scale, like other job attributes, but starting salary and future earnings potential data were not collected in this survey, so this aspect could not be addressed. Tenure and pension data were collected, which are measures of job security and closely related to compensation. However, tenure and pension were not considered as potential regressors because tenure is uniquely academic and pensions are not universally available in academia. Importance of good health benefits

Table 1. Variable Definitions and Descriptions

	Professional Experience
Employment	Current employer type. 0 = government; 1 = academic
Non Pos.	Held other, nonacademic, nongovernment positions since receiving highest degree. 0 = no; 1 = yes
	Job Preferences
Prefer[b]	What is your current preferred type of employment? 0 = government; 1 = academic; 2 = other
Init. Rank[a]	What was your preferred type of employment upon receiving your terminal degree? 0 = government; 1 = academic; 2 = other
	Job Attribute Preferences
	For each attribute listed below, indicate how important each factor was to you in your current employment choice. Likert scaled responses: 1 = not important to 5 = very important.
Fam. Time[a]	Having enough time for family care
Chd. Time[b]	Having enough time for child care
Eld. Time[a]	Having enough time for elder care
Part. Opp.[b,d]	Partner's employment opportunities
Role Mod.[a,f]	Availability of role models/mentors
Supp. Coll[b,e]	Support from colleagues
Adv. Opp.[b]	Opportunities for professional advancement
Good Sal.[b,c,f]	Good salary
Location[b,d]	Desirable location
Job Resp[f]	Desirable job responsibilities
Adeq. Res.[a]	Availability of adequate resources
Socl. Iso.[a]	Lack of social isolation
Prof. Iso.[b,e]	Lack of professional isolation
Empl. Perc.[b,e]	Employer's perception of your potential
Work Env.[b,e]	Positive workplace environment
Nondisc.[b,e]	Nondiscrimination by employers
Hlth. Ben.[b,c]	Good health benefits
	Demographic Characteristics
Age	0 = 20–50; 1 = 51+
Gender[a]	0 = female; 1 = male
Parent[a]	Has dependents under age 26. 0 = no; 1 = yes
PhD[a]	Has PhD. 0 = no; 1 = yes

[a] Chi-squared test only; not included in the probit model.
[b] Suggested by literature as a determinant of job choice.
[c] "Compensation" measurement.
[d] "Location" measurement.
[e] "Work Environment" measurement.
[f] Collapsed categories: 1–2 = not very important, 3 = neutrally important, and 4–5 = very important.

(*Hlth. Ben.*) was measured and considered a measure of compensation. Five potential measures of importance of work environment were collected: importance of a lack of professional isolation (*Prof. Iso.*), importance of a positive work environment (*Work Env.*), importance of supportive colleagues (*Supp. Coll.*), importance of your employer's perception of your potential (*Empl. Perc.*), and importance of employer nondiscrimination (*Nondisc.*). Both importance of a desirable location (*Location*) and importance of partner's employment opportunities (*Part. Opp.*) were considered measurements of location. In addition to the previous literatures' suggested preference data such as compensation, location, work environment,

and advancement opportunities (*Adv. Opp.*), the survey captured novel attribute preference data that were also tested in the model such as *Job Resp.* and importance of time for child care (*Chd. Time*).

Fifteen separate probit models with only one independent variable each (*Employment* as a function of each potential independent variable) showed five job attribute preference variables (*Chd. Time*, *Part. Opp.*, *Good Sal.*, *Prof. Iso.*, and *Work Env.*) and the demographic variable *Age* to be insignificant ($p > 0.10$). Three of these variables (*Good Sal.*, *Prof. Iso.*, and *Work Env.*) were retained because previous literature pointed toward their importance to job choice. In the model, *Employment* = 1 indicated the academic sector and *Employment* = 0 indicated the government sector. Consequently, the initial estimated job choice probit model was

$$\text{Prob}[\textit{Employment} = 1] = \text{f}(\textit{Non Pos.}, \textit{Prefer}, \textit{Supp. Coll.}, \textit{Adv. Opp.}, \textit{Good Sal.}, \textit{Location}, \textit{Job Resp.}, \textit{Prof. Iso.}, \textit{Empl. Perc.}, \textit{Work Env.}, \textit{Nondisc.}, \textit{Hlth. Ben.}). \quad (2)$$

The final model is presented in the "Results and Discussion" section.

Results and Discussion

Of the 2,200 surveys sent, 428 surveys (a 19.5% response rate) were received. For these analyses, there were 392 usable surveys (17.8% of the sample) as a result of some incomplete or skipped questions on returned surveys. Of the 392 respondents, 306 were academic employees and 86 were government employees (*Employment*). Furthermore, 88 respondents were female, 297 were male, and seven respondents did not provide their gender (*Gender*). Almost two-thirds (63.5%) of respondents were parents (*Parent*; defined as having dependents younger than age 26 years). Although 351 (89.5%) held PhDs (*PhD*), 41 respondents (10.5%) held a MA or MS degree. Respondent ages (*Age*) were distributed around the modal 51–55-year age group, which included 90 participants (23.0%). Fifty-four (14.0%) had previously held a nongovernment, nonacademic position during their professional careers (*Non Pos.*).

There were 1,772 nonrespondents (80.5% of population). The vast majority of nonrespondents were academic professionals, but government and academic professionals responded at approximately the same rates of survey. Academic institutions in the Northeast and West responded at the lower rates than the Midwest and South. Universities of all sizes were proportionally represented equally except those with fewer than 10,000 students, which were underrepresented.

Demographic and Professional Experience Characteristics of Survey Respondents

Academic and government professionals' distributions were similar with regard to *Age*, *Gender*, and *Parent*. Although men and women showed no significant differences for *Parent*, proportionally more ($p = 0.0003$) women (68.2%) than men (46.1%) were age 50 years or younger. The homogenous ethnic composition of the sample did not lend itself to analysis (87.1% reported "white" as their only ethnicity).

Unlike previous job choice studies, these data allowed an analysis of how previous job choices may have affected one's current position. Since receiving their terminal degrees, 35 current academic professionals reported previous professional government experience, and 11 current government professionals reported previous academic experience. Furthermore, 33 academic and 21 government professionals reported previous professional nongovernment, nonacademic experience (*Non Pos.*), which was a measure of human capital theorized to affect current job choice. Responses provided insight into respondents' previous work experience and resulting skill set, which could reveal how previous work experience prepared a respondent for his or her current position. Men and women were statistically equally experienced as measured by *Non Pos.*: 13.7% of men and 13.8% women had held other types of positions. However, proportionally more ($p = 0.0013$) government professionals (24.7%) than academic professionals (11.0%) had worked in nongovernment, nonacademic sectors of employment (i.e., industry/private, international

organizations, nongovernmental organizations [NGOs], and self-employment).

Because current government employees were more likely than academic employees to have previously held positions outside of government and academia, professional preparation for the two sectors may be dissimilar. Moving from self-employment, NGOs, or industry into government sectors seems to be either more feasible or more desirable for those who wish to change sectors. These findings may also indicate that experience in other sectors is a valuable qualification for government professionals, but additional data are necessary to confirm this conjecture.

Initial and Current Job Preferences

Hine and Cheney (2000), using an earlier version of this survey, reported that personal preferences regarding positions may be major factors to job choice, i.e., a respondent takes a position in government because he or she wanted to work in government without detailing the underlying attractive attributes of government employment. Results from the current study analyze the distributions of the personal job preference measurements, which described a respondent's preferences immediately on receiving their highest degree (*Init. Rank*) and current sector preferences (*Prefer*) as academic, government, or other. The distribution of *Init. Rank* was significantly different between current academic and government employees ($p < 0.0001$; Table 2). The disparity in *Init. Rank* distribution—academics overwhelmingly preferring academic positions and government professionals' responses more evenly distributed—was possibly the result of the makeup of the sample: mostly PhD graduates who may have more academic than government opportunities. Academia employed proportionally more PhD graduates than government (*PhD*; $p < 0.0001$). Conversely, more MS graduates were observed in government settings than in academic. As previously stated, few current academic professionals had been professionally employed outside of academia. This suggests that most academic respondents received PhD degrees and immediately began a career in academia.

However, preferences can change over time and employees can change jobs to match their preferences. Analysis of the variable *Prefer* indicated that respondents were generally employed in their preferred employment sectors currently (Table 2), because the distributions of academic and government responses to *Prefer* were significantly different ($p < 0.0001$). These results suggest that professionals have coordinated their preferences and positions over time by either modifying preferences or changing positions.

Job Attribute Preference Variables

Breaking down preferences into specific attributes instead of only examining sector preferences can uncover reasons behind sector choice and desirable employer characteristics. Most previous studies did not attempt to elicit differences between subgroups of respondents, except for Hine and Cheney (2000), which gave special emphasis to describing characteristics

Table 2. Initial and Current Job Preferences of Academic and Government Professionals

	Current Academic Professionals		Current Government Professionals		p Value[a]	
Preference (%)	Initial	Current	Initial	Current	Initial	Current
Government	4.3	1.0	47.6	72.9		
Academic	79.3	84.7	33.3	9.4	<0.0001	<0.0001
Other	16.3	14.3	19.1	17.7		
Missing observations	8	6	8	6		

Note: Percent columns may not sum to 100% due to rounding.

[a] The chi-squared statistic tests the hypothesis of identical distributions between academic and government professionals.

of women and minorities, and Abdula (2008), which explored the relationship between gender and salary. Identifying differences in job attribute preferences between the subgroups in this study is necessary to provide further evidence on the relationship between gender and job attribute preferences.

The respondents ranked job attribute preferences influencing their current employment choice from 1 = "not important" to 5 = "very important." The distributions of overall responses are presented in Table 3. Table 4 ranks and compares the top five factors (highest percentage of "4" and "5" responses) for each subgroup. The following attributes topped the list as most important factors: desirable job responsibilities (*Job Resp.*), a positive work environment (*Work Env.*), and a good salary (*Good Sal.*). Some dissimilarities were evident in the fourth and fifth ranked factors. Agreement among the overall rankings, men's rankings, and academic rankings (Table 4) was likely the result of the composition of the sample: 75.8% men and 78.1% academic employees. To identify dissimilar job attribute preferences between the subgroups, job attribute preference variables (Table 1) were subjected to chi-squared tests of independence between men and women and academics vs. government employees.

Of the 17 job attribute preference variables, chi-squared tests revealed six significant differences in the importance of factors related to job choice between women and men (Figure 1): desirable location (*Location*; $p = 0.0475$), good health benefits (*Hlth. Ben.*; $p = 0.0136$), supportive colleagues (*Supp. Coll.*; $p = 0.0101$), employer nondiscrimination (*Nondisc.*; $p < 0.0001$), time for child care (*Chd. Time*; $p = 0.0442$), and partner's employment opportunities (*Part. Opp.*; $p < 0.0001$). These six attributes were further analyzed by testing for equal proportions of men and women who valued it as "very important" on the Likert scale. Men and women exhibited four significant differences (Figure 1): *Supp. Coll.* ($p = 0.0389$), *Chd. Time* ($p = 0.0093$), *Part. Opp.* ($p < 0.0001$), and *Nondisc.* ($p < 0.0001$). In all cases, proportionally more women reported an attribute as "very important" than men. Based on this information, more women may be attracted to positions located in the vicinity of stable or expanding economies that would provide more career opportunities for their

Table 3. Distribution of Responses to Factors Influencing Current Employment Choice

Factor	Response[a] (%)					Missing Observations
	1	2	3	4	5	
Job Responsibilities	10.55	10.81	60.72	37.47	52.45	5
Location	20.06	70.73	18.30	34.02	37.89	4
Advancement Opportunities	50.67	50.41	20.10	32.22	36.60	4
Work Environment	30.61	40.38	15.46	41.24	35.31	4
Good Salary	10.55	30.87	18.81	47.68	28.09	4
Employer's Perception	50.67	50.67	19.07	43.56	26.03	4
Family Time	18.86	80.27	21.71	26.36	24.81	5
Adequate Resources	30.87	40.12	21.91	46.13	23.97	4
Health Benefits	40.39	80.01	24.55	40.05	23.00	5
Child Time	30.31	90.59	18.39	20.98	20.73	6
Partner's Opportunities	31.96	13.40	18.04	16.24	20.36	4
Nondiscrimination	17.97	12.24	29.43	20.05	20.31	8
Supportive Colleagues	90.09	11.69	27.79	32.99	18.44	7
Professional Isolation	11.14	11.92	28.50	32.64	15.80	6
Role Model	24.42	22.08	26.23	17.66	90.61	7
Social Isolation	15.98	19.85	27.84	28.35	70.99	4
Elder Time	59.42	14.14	16.23	60.54	30.66	10

[a] Where 1 = "not important" to 5 = "very important."

Table 4. Ranking of Most Important Factors in Current Employment Choice

	Groups				
Factor	All	Female	Male	Academic	Government
Job Responsibilities	1[a]	1	1	1	1
Work Environment	2	2	2	2	3
Good Salary	3	3	3	3	2
Location	4		4	4	5
Adequate Resources	5		5	5	
Employer's Perception		5			
Advancement Opportunities		4			
Health Benefits					4

[a] Calculated from the percent of respondents who answered "somewhat important" or "very important."

partners. Furthermore, employers seeking to attract more female employees may want to focus on fostering a supportive and nondiscriminatory workplace environment.

Fewer significant differences were found when comparing academic and government professionals' job attribute preferences. Chi-squared tests uncovered four differences (Figure 2): desirable location (*Location*; $p = 0.0433$), employer's perception of your potential (*Empl. Perc.*; $p = 0.0417$), advancement opportunities (*Adv. Opp.*; $p = 0.0025$), and good health benefits (*Hlth. Ben.*; $p = 0.0461$). Further analysis on these attributes by testing for equal proportions of those who valued it "very important" on the Likert scale showed three significant differences (Figure 1): *Location* ($p = 0.0125$), *Empl. Perc.* ($p = 0.0462$), and *Adv. Opp.* ($p = 0.0027$). In all cases, proportionally more academic professionals reported an attribute as "very important" than government professionals. Professionals who choose academic positions may do so for perceived advancement opportunities or because they value

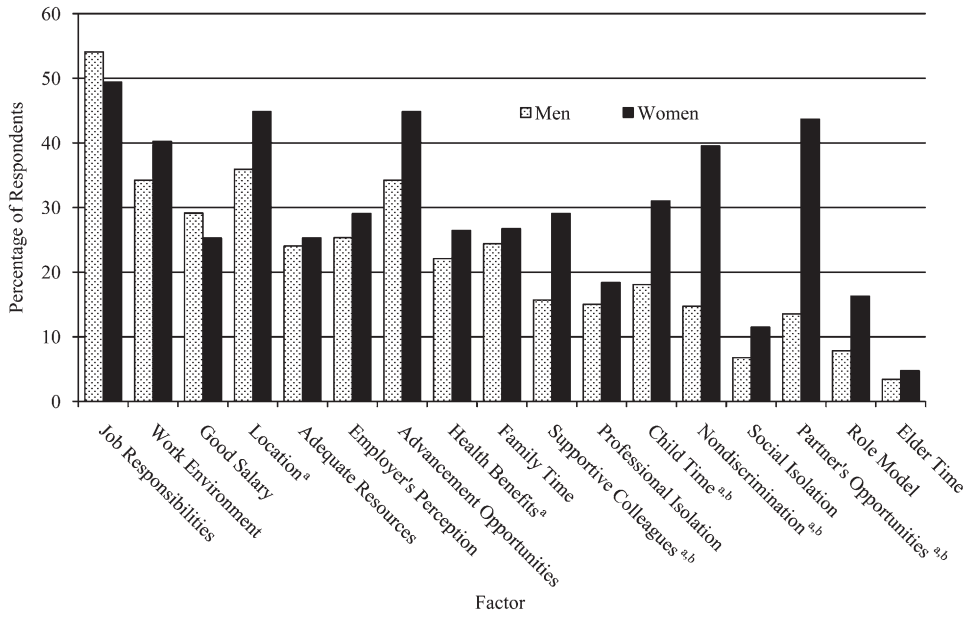

Figure 1. Percent of "Very" Important Responses for Job Attribute Preferences in Current Job Choice: Men vs. Women ([a]Significant Chi-Squared Test Result; [b]Significant equal proportions test result for "very important" responses)

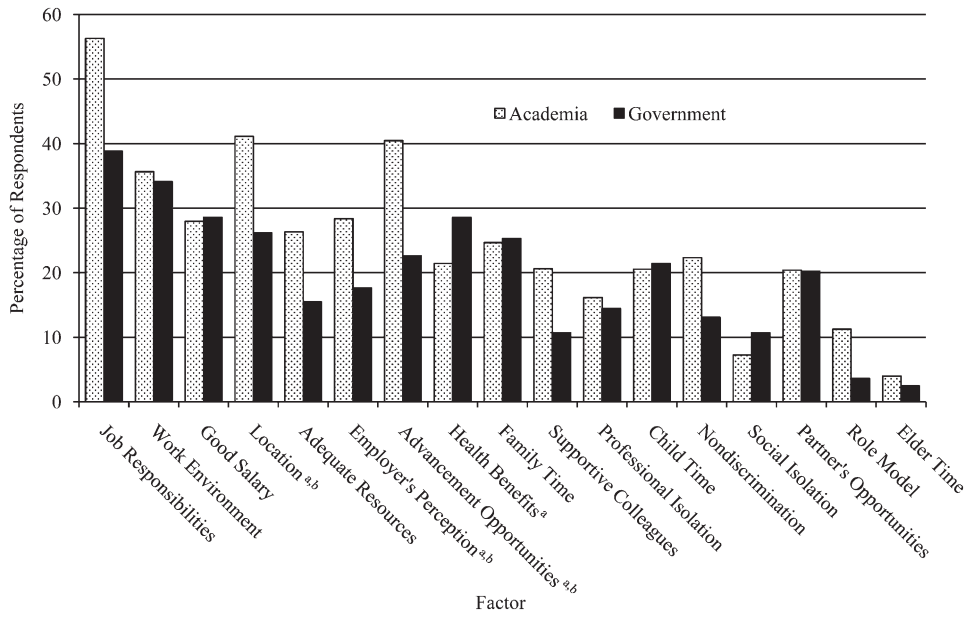

Figure 2. Percent of "Very" Important Responses for Job Attribute Preferences in Current Job Choice: Academia vs. Government ([a]Significant chi-squared Test Result; [b]Significant equal proportions test result for "very important" responses)

living in locations other than the Washington, DC, metro area, which is the location of most federal government positions. Because academics valued advancement opportunities more so than government professionals, it follows that academics were also more concerned about their employers' perceptions, a possible marker of career advancement.

Job Choice Probit Model

To predict job choice between academic and government sectors, a binomial probit job choice model was estimated. Initially there were 12 candidate variables for inclusion into the job choice model (Eq. 2). For the final probit model (Eq. 3), job attribute preference variables' categories were collapsed into two categories, like the prior tests for equal proportions: "very important" and "not very important." Concerns about the number of respondents for each level of Likert responses and initial insignificance of most levels led to this decision. Wald chi-squared tests, the value of the likelihood ratio statistic, model predictive accuracy, and coefficient p values were also used to reduce the number of variables in the final model to six; 95.4% of all observations (374) were included in the sample (Eq. 3). Four included variables had significant Wald chi-squared statistics ($\alpha = 0.02$), and two were insignificant. Two insignificant factors remain in the final model to document the dissimilarity of our results from those in previous studies. In the model *Employment* = 1 indicated academic employment and *Employment* = 0 indicated government employment. Coefficient estimates and marginal effects are presented in Table 5.

$$\text{Prob}[\textit{Employment} = 1] = \text{f}(\textit{Prefer}, \textit{NonPos.}, \textit{Adv. Opp.}, \textit{Good Sal.}, \textit{Location}, \textit{Work Env.}). \quad (3)$$

The model predicted academic observations more successfully than government observations (99.0% vs. 76.5%) with overall predictive accuracy of 94.1%.[2] Contrary to expectations, the variables importance of a good salary

[2] The prediction threshold was 0.5000. Adjusting this threshold to reflect that 78.3% of observations were academic and 21.7% were government did not noticeably affect the model's predictive power.

Table 5. Academic and Government Sector Job Choice Probit Parameter Estimates and Marginal Effects

		Coefficient Estimates		Marginal Effects	
Variable	Level	Coefficient	SE	Coefficient	SE
Constant		0.8372***	0.2324		
Current Sector Preference	Academic	1.2448***	0.2688	0.3036***	0.0721
Current Sector Preference	Government	–2.4392***	0.3574	–0.7406***	0.0967
Previous Non-Academic, Non-Government Position	Yes	–0.6926**	0.2720	–0.1714*	0.0811
Advancement Opportunities	Very important	0.7283**	0.3090	0.1232***	0.0465
Good Salary	Very important	–0.4766	0.3039	–0.1018	0.0715
Location	Very important	0.3165	0.2522	0.0570	0.0436
Work Environment	Very important	–0.6527**	0.2671	–0.1386*	0.0619

Note: N = 374; SE = standard error.
* Significant at $\alpha = 0.05$.
** Significant at $\alpha = 0.02$.
*** Significant at $\alpha = 0.01$.

(*Good Sal.*) and importance of a desirable location (*Location*) were insignificant in both their coefficient estimates and marginal effects despite their prominence in other studies (Barkley, Stock, and Sylvius, 1999; Bundy and Norris, 1992; Butler, Sanders, and Whitecotton, 2000; Mahony et al., 2006).

Table 5 displays the parameter estimates. All independent variables were categorical. Marginal effects in Table 5 represent the change in the probability of being employed in the academic sector given a change in a given independent variable. Marginal effects were calculated at the sample means of the independent variables and properly account for the binary nature of the independent variables.[3] Positive (negative) marginal effects for the independent variables indicate an increase in the probability of choosing an academic (government) position. For example, having previously held a position outside of academia and government (*Non Pos.*) increases an individual's probability of being employed in government by 0.1714. Three of the marginal effects were significant at $\alpha = 0.01$, and two were significant at $\alpha = 0.05$ (Table 5).

The coefficient estimates of current sector preference (*Prefer*) were highly significant ($\alpha = 0.01$) and had the first and second largest marginal effects. These findings agree with the chi-squared results and imply that agricultural economics professionals' current preferences were in accord with their current sectors (Table 2). Personal preferences were of highest importance (as shown by the magnitude of the marginal effects) to the choice between government and academic positions, which was previously suggested by Hine and Cheney (2000).

Of the four job attribute variables in the model (advancement opportunities [*Adv. Opp.*], a good salary [*Good Sal.*], a desirable location [*Location*], and a positive work environment [*Work Env.*]), the marginal effect of *Work Env.* had the greatest magnitude (–0.1386), which indicated that those who highly valued a positive workplace atmosphere were more likely to choose a government position. This result may be indicative of a more collaborative atmosphere in a government setting as opposed to the autonomy of many academic positions. The variable *Adv. Opp.* had the second greatest magnitude of the five marginal effects for job attribute preference variables (0.1232) and indicated that placing high value on advancement opportunities significantly increased the probability of being employed in an academic setting.

Conclusions

This study expands the knowledge base of job choice for agricultural economics professionals.

[3] That is, the marginal effect is Prob[$y = 1|x_j = 1$] – Prob[$y = 1|x_j = 0$] with all other x_j at their estimated sample means.

Like with all research based on sampling, nonresponse bias is a concern and the results must be interpreted accordingly. With that caveat in mind, the results suggest several important implications.

Some job attribute preferences were similarly valued regardless of gender or the respondent's job sector—academic or government. Respondents agreed overwhelmingly that job responsibilities (*Job Resp.*) were the most important factor in choosing their current positions. Furthermore, they also agreed that a positive work environment (*Work Env.*), a good salary (*Good Sal.*), time for family care (*Fam. Time*), having adequate resources (*Adeq. Res.*), a lack of professional isolation (*Prof. Iso.*), and a lack of social isolation (*Socl. Iso.*) were important job attributes when choosing their current position. For employers, these preferences suggest that although an employer can influence the attractiveness of a position through the development of job responsibilities, employers could also be mindful of the work–home relationship their policies foster and of the collegial environment in the workplace. For job seekers, these results suggest that evaluation of a potential position's job responsibilities and its impacts on familial and social relationships are important in determining position selection, independent of gender, or sector.

Men and women in the sample had many similar characteristics and responses. Their initial and current sector preferences and desirable job attributes were largely homogeneous. However, some distinct preferences between men and women were evident. Proportionally more women than men regarded importance of partner's employment opportunities (*Part. Opp.*), importance of employer nondiscrimination (*Nondisc.*), importance of time for child care (*Chd. Time*), and importance of supportive colleagues (*Supp. Coll.*) as very important attributes influencing their decisions to take their current positions. Employers with good reputations for tolerant and inclusive environments may find it easier to attract female candidates. Although men and women similarly valued family time, female employees with children, more so than men with children, may value employers with greater attentiveness to child care obligations. Furthermore, both job seekers and employers may benefit from the knowledge that positions in locations with fewer employment opportunities for a candidate's partner may be difficult to fill with female agricultural economics professionals.

Although significant differences between men and women were evident, the probit model showed that gender was not a significant determinant of job choice. Job choice was not a significant function of any demographic characteristics but was a function of a professional's previous work experience (*Non Pos.*) and preferences (current sector preference [*Prefer*], importance of advancement opportunities [*Adv. Opp.*], importance of a positive work environment [*Work Env.*], importance of a good salary [*Good Sal.*], and importance of a desirable location [*Location*]). Although men and women may have some dissimilar preferences, these were not differences that ultimately determined job choice between the academic and government sectors. Rather, these differences may explain the choices between individual opportunities within a sector, an interesting hypothesis worthy of future testing.

Agricultural economics professionals in the two sectors had no significant demographic differences but had different training and job experiences before their current position and also showed divergent preferences. The probit model supported these differences with the inclusion of *Non Pos.*, a measurement of previous training and experience, and two of the three job attributes that proportionally more government than academic professionals reported to be more important: advancement opportunities (*Adv. Opp.*) and a desirable location (*Location*). From the probit model, an employee's personal sector preference (*Prefer*) had the largest marginal effect on job sector choice. Precise attribute preferences such as the importance of supportive colleagues may be more helpful to candidates choosing a specific position within a sector.

Results suggest that the professional preparation for government positions differs from preparation for academic positions. A significantly larger percentage of current government professionals had previous professional

experience outside of academia and government. Conversely, many academics began their professional careers directly out of PhD programs, reducing the number of current academic employees surveyed who would have had nonacademic professional experience after obtaining their terminal (PhD) degree. A job-seeking agricultural economics professional, who is currently employed in a sector outside of academia and government (especially a MS graduate) and who has no previous academic or federal government work experience, may find a government position to be a better fit than an academic position.

To better represent the diverse professions of agricultural economics alumni, future research on job choice could aim to include agricultural economics professionals working in nongovernment, nonacademic positions. Research collaborating with appropriate professional societies (Agricultural and Applied Economics Association, regional associations and subdiscipline groups, e.g., agricultural finance and marketing associations) may improve identification of and access to these types of professionals.

In regard to future research, shortening the survey may improve the response rate. First, some job attribute preference variables could be combined to create the following categories: work environment, family obligations, nonpecuniary benefits, location, and salary (see Table 1, footnotes c, d, and e for variables measuring similar aspects of larger categories of job attribute variables). The salary preferences may be beneficial to request with two new measures: importance of starting and of potential salary. Similarly, the importance of location may be better characterized by collecting data on both the proximity to family/friends and the location's cultural or geographical qualities. Second, the collection of continuous data instead of categorical data (e.g., years of experience) might simplify the survey format and aid in analyses of responses.

Broadening the survey sample and/or revising survey questions may allow for more extensive job choice studies. Although the original survey was designed to analyze salary determinants data, the survey has potential to address other topics of interest with a few additions and changes. Job satisfaction is an important topic for employment studies, and future surveys may easily incorporate measures of job satisfaction so appropriate models can be specified and estimated. Furthermore, future studies specifically targeting employers could provide deeper insights into the relationships between employer characteristics and policies and job choice or employee satisfaction.

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