Good Moves:
Gender Differences in Academic Mobility in the Sciences and Social Sciences:

Shulamit Kahn, Boston University[1]
Donna K. Ginther, University of Kansas[2]

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[1] Corresponding author. Boston University School of Management, 595 Comm. Ave. Boston MA 02215.
skahn@bu.edu

I. Introduction

Any Dean will tell you that the most successful way for academics to increase their salaries is to obtain outside offers, and further, that those who do get outside offers often accept those offers. Linda Babcock and Sara Laschever (2003) have proven to us what most of us have observed by armchair empiricism, that for psychological/cultural reasons, "women don't ask." In the academic context, "not asking" translates into women being less likely than men to seek outside offers and to move universities for better jobs. While we cannot measure unaccepted offers, we *can* measure whether they move to better jobs.

Of course, there could be other reasons that women don't seek and take outside offers. They may be wedded to their present location because they do not want to uproot a spouse from his job or children from their schools or friends.[3] Or, women may have fewer or less attractive outside opportunities if they have lower productivity or weaker academic networks than men, and therefore lesser reputations. Little evidence exists to untangle these possibilities, or indeed, to document these gender differences. The present research seeks to do just that.

We first address whether academic women *are* actually less likely than men to *choose* to change employers for a better job. This is a different question from whether they actually *do* move less to better jobs, since much of academic mobility across employers is involuntary. Assistant professors in tenure track jobs often move because they do not receive tenure or do not expect to. Faculty in non-tenure track jobs may be on contract for only a year or two. Indeed, there are strikingly different rates of mobility for those not forced to move – those with tenure – compared to those who are untenured (but tenure-track) or non-tenure track as we show below. We therefore concentrate this examination of mobility on tenured academics who are not forced to leave, but instead only leave voluntarily.

In most of our analyses, we measure whether a person has left a job (i.e. an employer) for career advancement by comparing a person's old job to their new one. We construct two different measures of a "better job". Outside of academia and to some extent within it, jobs tend

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[3] We use the term "spouses" or husband/wife to denote any permanent relationship between a man and a woman. Many of the issues discussed here apply to gay couples as well, especially if the partners have unequal incomes.

to be valued by their salary. Therefore, one measure of advancement that we use is a higher salary in the new job. However, while many academics are attracted to new jobs by higher salary, many others are attracted to jobs because of the prestige of the institution to which they are moving or because the move involves a promotion in academic ranks, e.g. from associate to full professor. Our second measure of a better job combines institutional prestige and the person's academic rank into a single "*academic job quality*" measure.

Below, we first summarize some of the literature on academic mobilty. We then use both descriptive and more rigorous econometric models to measure which sex is more likely to move for advancement and whether classic explanations for gender differences in academic mobility – whether family-based or psychologically-based – are substantiated.

What we found was surprising to us. Tenured women are more likely than tenured men to move to better jobs, particularly those with higher ranks rather than higher salaries. Children hurt men's mobility to better jobs but actually may help women's. Marriage does not affect either tenured men's or women's mobility. Finally, of those who move to higher paying jobs, there is no evidence that "women don't ask," except at the very highest levels.

To preview the layout of this paper, Section II reviews some of the literature on academic mobility to clarify the issues discussed here. Section III describes descriptive statistics about the data. Section IV adds multivariate analysis on the likelihood of changing jobs, and more importantly, the likelihood of changing to a better v. worse job. Section V interprets these results.

II. Literature on gender differences in academic mobility and its effects.

Several authors have documented the dual facts that academic women are more likely to leave jobs[4] and that women in academia on average have had a larger number of jobs[5]. The latter fact does not necessarily flow from the former, because academic women are also more likely than men to leave academia completely, particularly in science and social science.[6] If mobility is bad for careers and salary, academic women will end up with lower salary and less

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[4]This includes Rosenfeld and Jones (1986) on academic psychologists.
[5]Barbezat and Hughes (2001).
[6]See, for instance, Ginther and Kahn (2004) on economists, Rosenfeld and Jones (1986) on psychologists.

prestigious jobs. On the other hand, if mobility is an advancement strategy, it will increase

salary and prestige.

There have been limited studies of the impact of academic mobility on salaries. Barbezat

and Hughes (2001) find no impact of mobility on salaries until the academic's third job change

(4+ jobs); after this point, impacts are negative. Dividing up their sample, the authors find that

this eventually-negative effect applies only to untenured academics. Dividing up the sample by

gender, however, they find that the first move a female academic makes *does* substantially lower

her salary. Barbezat and Hughes conjecture that lower salaries are caused by tenure denial which

is more prevalent among women than men. (They did not separately study women with tenure,

presumably because their sample was sufficiently small to preclude this kind of segmentation.[7])

On the other hand, Monks and Robinson (2001) indirectly find some positive effects of mobility.

Specifically, they find that people who were tenured at a different institution have higher salaries

than those tenured at their present institution, suggesting a positive return to mobility for tenured

academics.

If mobility hurts salaries, then academics who *do not* change jobs will earn more than

those who do. In other words, there will be positive returns to seniority.   On the other hand, if

mobility helps salaries, academics who do not change jobs will earn less than those who do and

returns to seniority will be negative. Returns to seniority are typically easier to measure than

impacts of mobility because measurement of these returns does not require longitudinal

information across different jobs a person has held. It is therefore not surprising that there is a

much larger body of literature on returns to seniority within academia. Negative returns to

academic seniority have been found by several authors studying the topic, although not by all.[8]

One explanation given for these negative returns is that differential moving costs create

heterogeneous monopsony power. In the context of gender differences, academic women may

have higher mobility costs – either psychic or economic -- than academic men. The second

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[7]Many other articles referred to here have small samples as well. For instance, Bratsberg et al. (2007) has only 100 movers.

[8] Bratsberg et al. (2007), Bratsberg et al. (2003), Price and Razzolini (2003), Barbezat (2001), Brown and Woodbury (1998), McNabb and Wass (1997), Ransom (1993) and Hoffman (1976) find negative returns to seniority for academics. Hallock (1995) find positive returns as do Monks and Robinson (2001) once controls are included for whether the person was hired with tenure. Moore et al. (1998) find that once sufficient controls for productivity are included, the return to seniority for academics is zero.

major explanation given for negative returns to seniority is that the best people are raided and that therefore the negative returns measure heterogeneous quality of leavers v. stayers, rather than returns to seniority itself.

There is a profound problem with calculating a single average impact of job changes on salaries -- or its converse, a single return to academic seniority: there are many different kinds of job changes. As mentioned earlier, on the one hand, mobility can be involuntary. Tenure track academics can be denied tenure or expect to be denied it; non-tenure track academics can see their contracts not renewed. Clearly, involuntary mobility is likely to have negative impacts. To the extent that women are more likely to be denied tenure or to hold non-tenure track jobs, they will more often experience negative impact of job changes. In our analysis, the method we use to exclude involuntary mobility is by studying only tenured faculty.

Yet even voluntary mobility can have opposite impacts that are obscured by calculating an average "impact."   On the one hand, a voluntary job change can be "good" mobility motivated by career advancement. On the other hand, it can be "bad" mobility motivated by non-career-related reasons. Many expect women to have more voluntary bad mobility because they are more likely to trail their spouse to new locations or more likely to leave the labor force for childbearing.[9]

Parallel to this, there are two different kinds of job stability, good stability when people stay at good jobs, or bad stability when people stay at bad jobs because they cannot uproot their spouse or children. The reluctance to uproot spouses is expected to be greater for women, either because of cultural expectations within marriages or other relationships, or because husbands are likely to have higher salaries that must be protected.

Good stability v. bad stability implies that there will be bi-modal impacts of staying in the job, and good mobility v. bad mobility implies that there will be bi-modal impacts of moving. Therefore, even if we can isolate voluntary mobility, averaging its effects is likely to be uninformative and even misleading.

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[9] To quote Rosenfeld and Jones (1986), "…because there are more constraints on women's mobility, we also expect their career performance is less able to predict their mobility and that their mobility is less likely to lead to career rewards. Married women often follow their husband's career…." p.213.

These different types of mobility have been mentioned by some of the authors who have written about academic mobility. However, most are not in a position to isolate each type because of data limitations.[10] While some isolate involuntary mobility by concentrating on untenured academics, others do not or cannot. Moreover, previous researchers have not successfully separated voluntary mobility for advancement from other voluntary mobility.[11]

In the analysis that follows, we use the NSF's Survey of Doctorate Recipients (SDR), a data set that allows us to follow academics across jobs and to construct measures of whether their move has advanced their careers. The SDR follows a large number of Ph.D. recipients in the natural and social sciences. The SDR collects detailed information on doctorate recipients including demographic characteristics, educational background, employer characteristics, academic rank, government support, primary work activity, productivity, and salary.

III. What are gender differences in job mobility and particularly mobility to better jobs?

Who leaves more, female or male academics? To measure this, we use longitudinal data from the 1973-2003 waves of the Survey of Doctorate Recipients (SDR), specifically the universe of doctorate recipients in the natural and social sciences who received their Ph.D. between the years of 1972 and 2001 and who at some point held a tenure-track academic job at a four-year college or a university in at least one survey.   (Individuals are excluded if they are not observed more than once.) The SDR survey is repeated every two years and allows us to identify whether a person changed employers during the two years since the previous survey. Job mobility is imputed by observing changes in the institution code of academic employers.[12]

Table 1 gives some descriptive statistics. Including all faculty in universities or four-year colleges in the fields of science, engineering and social science, women move significantly more than men – 18.7% compared to 16.1% change jobs in the two years between surveys. (Table 1).

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[10] Speaking about mobility out of the entire science sector, Anne Preston(2004) emphasized two kinds of voluntary job changes which she labels job changes "for advancement" v. "for amenities."

[11] Looking at tenure-track academic economists, Bratsberg et al. (2007) proxy involuntary mobility by whether the academic leaves sometime between four to seven years after arriving at a university. They proxy moving for advancement by seeing if the person's new institution is more highly ranked in the person's field than their original department. They authors have no information on either the person's academic rank or salaries at the new jobs, greatly decreasing the accuracy of their definition of advancement..

[12] The SDR asks specific questions about job mobility between surveys in the 1995 – 2003 waves only.

Dividing this population into four broadly fields – physical sciences/math, life sciences, engineering and social sciences – the same remains true. Within fields, women academics move more than men, with the differences largest in the physical sciences.

Dividing the population by the quality of the academic institution (based on the metric discussed below), women leave academic jobs more than men in the best, the lowest, and the in-between quality educational institutions. The smallest gender difference is in the lowest quality institutions, but the scale is similar in all.

However, this general gender difference in mobility may be due to the gender composition of academe by tenure status. The percentage of female faculty in non-tenure track jobs is higher than that of men – 13.91% compared to 11.16% – although this difference is not as high as in some humanities fields such as modern languages. The percentage of females in untenured tenure track jobs is also higher than the percentage of males, 43.67% compared to 36.31% of men. Instead, the males are much more likely to be observed in tenured jobs, with 52.53% of men in these jobs compared to 42.42% of women. These gender differences are caused by a variety of factors: the lower likelihood of women in some fields to be awarded tenure track jobs compared to men (Ginther and Kahn 2006) and the smaller proportion female among the PhD recipients in the sciences during the fifties, sixties, and seventies as compared to more recently, in addition to any more-predominantly-female preference for part-time jobs and less onerous hours than th hours required by tenure track jobs.

To investigate whether academic tenure status is responsible for gender differences in academic mobility, in Table 1 we have also divided the population by tenure status. We do observe smaller gender differences in mobility within these groups than in academia overall. While the gender difference in mobility across the entire population was 2.6 percentage points representing 16% of men's likelihood of changing employers, the gender differences within non-tenure track faculty and within untenured tenure track faculty was 1.8 and 0.97 percentage points respectively, in each case representing only 5% of men's likelihood of changing employers. What might be more surprising to those expecting that much of women's mobility is forced on them by tenure denial or contract non-renewal, the gender difference in mobility among tenured faculty is in between the other two groups in percentage points (1.2) and larger as a percent of males' mobility rate (12%).

As discussed earlier, even voluntary mobility can mean two very different things: good mobility for advancement v. bad mobility for non-career reasons, or the flipside, bad stability retarding advancement v. good stability keeping good jobs.   In our research, better jobs are characterized along two dimensions. The first combines *institution quality* and tenure track status and will be denoted below as *academic job quality*. We measure institution quality based on rankings from the Carnegie Foundation for the Advancement of Teaching and of Comprehensive and Liberal Arts Institutions. The Carnegie rankings divide all institutions of higher education into 10 categories, with the top tier being Research I Universities and the bottom two tiers being two-year colleges and "other".   While the Carnegie categories are generally ranked according to academic quality, analysis using quality of institution of faculty dictated some changes in the ordering (for instance, ranking top tier liberal arts colleges above lower tier "comprehensive" universities.)   Further analysis allowed us to rank the different tenure track statuses at the different quality institutions, for instance putting tenure track untenured jobs at the best universities ahead of tenured jobs at two-year colleges. The methodology used is explained in Appendix A. Note that the institutional quality categories are quite broad. Exact field-specific rankings of educational institutions would be preferable, and we are attempting to get these linked to the SDR.

The second dimension we use to categorize better jobs is higher salary. The *academic job quality* dimension of a better job applies only to those changing to another academic job, representing 73-75% of all males/females leaving an academic job (respectively) and 80.5% of both female and male tenured job changers. (See Table 2.) The salary measure, on the other hand, allows us to include the 20%-25% moving to non-academic jobs.

For those moving to other academic jobs, there is actually relatively little correlation between the two measures. 28.9% did not change *academic job quality*. Given the broad nature of these categories, these job changers may actually have moved up or done better in terms of institutional prestige. Excluding those who didn't change job quality, 27.9% of job changers within academia were better on both dimensions, 17.3% worse on both dimensions, and the remaining 54.8% were better on one dimension but worse on the other, with four times as many better in terms of money but worse in terms of *academic job quality* than vice versa.

To see whether the new jobs of job changers are indeed better, Table 3 gives averages for whether the new jobs are better or worse. Women are more likely to move to better jobs than men, but also more likely to move to worse or similar jobs, whichever the measure of a better jobs is used.

We also separate out tenured faculty in Table 3. This allows us to isolate ***voluntary mobility***. Again, along all dimensions, women are more likely than men both to move to a better job *and* to move to a worse job, because they are simply more likely to move overall. However, the gender differences are somewhat larger for moving to better jobs than for moving to worse, particularly along the salary dimension. In other words, there is definitely more voluntary good mobility for advancement among women than among men, and somewhat more voluntary bad mobility among women than among men.

Table 4 breaks down gender-specific mobility by marital status and presence of children for the entire faculty population and for those tenured. On average, both for men and women, those who are married and those with children are significantly less likely to move. We expected this tendency to be much greater for women, particularly with respect to marriage because of the widely-discussed problem of women trailing their male spouses. Surprisingly, we found that the marriage/non-marriage difference is actually larger for men than for women. The same is true of the effect of children on job mobility.

The rest of the table breaks gives similar statistics for tenured faculty. It seems that some of the difference seen in the overall patterns *is* compositional. There are two reasons for compositional impacts. First, tenured faculty are least likely to move (Table 1) perhaps simply because they have no involuntary mobility forced upon them, and second, older tenured faculty are more likely to have children and be married (Table 4).

Concentrating again on those tenured in Table 4, those not married are more likely to move, but not significantly so for either gender. However, the point estimate of the marriage effect is considerably larger for men than for women. Presence of children has perhaps an even more unexpected effect. For tenured women, not only do children *not* significantly affect turnover, but the point estimate suggests that tenured women with children are more rather than less likely to move than those without children. For men, in contrast, children significantly lower the likelihood that tenured men move.

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From 1994 and on, the SDR survey asked those who left a job why they did so. Table 5 lists the different reasons given and the distribution of answers to these reasons. Unfortunately, the sample of changes during these years only is relatively small (932 at all ranks, 337 for tenured only) and divided into 9 reasons and two genders, very few are in each cell. The largest category, however, is quite striking. 39%/46% (female/male) of the entire sample changed jobs for pay/promotion opportunities. However among tenured professors only, the proportion who change for pay/promotion opportunities is 52%/49% (female/male) respectively. In other words, once again, slightly more women than men changed for better jobs, i.e. for pay or promotion, the two options that we studied as "better jobs." Of the other reasons for leaving, more women than men changed for working conditions and more men than women changed because their career interests had changed.[13]

Finally, the percentage of women and men leaving one four-year academic job for another is virtually identical (80.5%). For those who do leave academia, men are more likely to enter for-profit jobs while women are more likely to enter non-for-profit jobs.

We postpone trying to explain our unexpected results until we present the multivariate analysis. We now turn to that analysis.

III. Multivariate analysis of gender differences in voluntary mobility by tenured faculty: who moves and why?

In this section, we model the likelihood of *voluntarily* changing jobs by concentrating on tenured faculty only. Table 6 gives results of probit estimation of the likelihood that a tenured academic changes jobs within a two year period, based on their education, demographic characteristics, field, experience, quality of their institution, and some measures of productivity/quality: primary work activity, government funding, and limited publication information[14]. The data is cross-section/time-series and we can expect each person's

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[13] A surprising number said that their jobs were terminated despite having tenure. We plan to look into this in more depth.

[14] Measures of academic productivity are largely missing from the SDR data, but the SDR does ask questions about publications in the 1983, 1995, 2001, and 2003 surveys. The 1983 question refers to publications between 1980 and 1983 whereas the 1995, 2001, and 2003 questions refer to numbers of publications in the previous five years. We use these data to create rough measures of cumulative papers presented and publications per year past Ph.D.

observations to have a common error component. We account for this by clustering the standard errors on the individual.

The first specification in Table 6 models the probability of changing employers in the previous two years as a function of the full set of independent variables except gender interaction terms; the second specification includes interaction terms between the female dummy and marriage status and presence of children.

Tenured women faculty are perhaps slightly more likely than tenured men to change jobs, although the gender difference in the likelihood of changing jobs over a two year period is less than 1% and is not significant at conventional levels (P=.112).

In the second specification of Table 6, we have added female interactions with the presence of children and with marital status. Mobility is lower for men with children in the household (<18) while for women the impact of children is statistically zero, with a positive rather than negative point estimate. (Specifically, i.e. the coefficient on child + female*child has a p=0.70.) Being married does not affect the mobility of either men or women.

These probit equations reported in Table 6 combine "good" voluntary mobility for advancement and "bad" voluntary mobility for non-career reasons and is therefore not particularly useful in helping us understand mobility choices. We can guess whether these or any other coefficients in Table 6 increase good or bad mobility, but we would be expressing opinions only.

Instead, to analyze who moves to better/worse jobs we rely on multinomial logit analysis.[15] In this analysis, there are three possible outcomes: the base outcome is that the tenured faculty member does not change jobs. The other two possibilities are that the tenured faculty member moves to a better job or that the tenured faculty member moves to a worse or similar job. The different panels of Table 7 present this analysis for the two dimensions of better jobs: jobs with higher *academic job quality* and jobs with higher salaries.[16]

In the specifications in Table 7 without interaction terms, we see that women are more likely than men to change for a better job along both dimensions of "better". On average, marital

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[15]The independence of irrelevant opportunities assumed by multinomial logit does not seem like an unreasonable assumption. It seems far preferable to ordered logit or probit since the choice to move to a worse job is a very different choice dominated by very different motivations than the choice to move to a better job.

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status does not affect mobility to a better job along either dimension of a better job. Children had an overall deterrence effect on overall job mobility in Table 6. In Table 7, dividing mobility into good v. bad job changes, we see that children make it less likely to move to a lower *paying* job.

Marriage and children affect men and women differently, however, as is clear when interaction terms are added. Single childless men and women do not have different mobility patterns. However, comparing married men with children to married women with children, the women have considerably more good mobility both in terms of *academic job quality* and in terms of salary (P=0.002). Children account for this difference. Women with children have significantly more mobility to better jobs in terms of *academic job quality* than men with children. In fact, for men, having children is very significantly correlated with less good mobility along the dimension of *academic job quality.*

Comparing women with children to women without children, the impact is less clear although in the same direction. The point estimate of the net impact of children on women is large and positive, but does not achieve conventional significance levels. (p=.256 for academic job quality, p=.222 for salary).

There are also gender differences in the impact of children on bad mobility. Along both *academic job quality* and money dimensions, men with children have less bad mobility than other men. The impact is twice as large for salary as for *academic job quality*. Children's impact on women's bad mobility (compared to women without children) is not significants and has conflicting signs. Finally, comparing instead women with children to men with children, women have significantly more bad mobility (at the 10% level) in terms of *academic job quality* than men (but not significant at standard levels in terms of salary.)

We summarize these results in the following section. Although not the focus of this paper, some of the other coefficients in Table 7 are very interesting.

- Older people (farther from their PhD) move less both because they do not go to lower quality jobs and because they are less likely to go to higher paying jobs.
- More-recent (tenured) cohorts change jobs less, even controlling for experience, with less movement to both better and worse jobs.

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[16] There are no people who move to a job with exactly the same sages.

- People whose primary activity is teaching are less mobile and specifically are less likely to move to better jobs.
- More productive tenured faculty in terms of publications are more likely to move to better jobs along both dimensions. (Papers lead to more high-paying jobs but anomalously to more worse quality jobs.)
- More productive tenured scientists in terms of ever having government funding are more likely to move to better jobs along both dimensions (and equally likely to move to worse jobs). Surprisingly, social scientists with government funding are *less* likely to move to jobs with higher *academic job quality*.
- Those working at better institutions move less to better jobs with respect to *academic job quality* – perhaps because, given the broad quality categories, many of them are already at the top. A more-specific ranking system very well may erase this difference. Moneywise, however, those starting at higher quality universities move less both to better and to worse jobs.
- Those in private institutions are less likely to move to better jobs.
- Blacks are more likely to move to better paying but worse quality jobs. Considering that they are more likely to come from lower income families, this is interesting but not surprising.
- Finally, with respect to fields, to some extent those fields with more opportunities outside academia such as computer science and economics have more mobility both to better *academic quality* jobs and to higher paying jobs.

IV. What have we learned?

This paper has shown that tenured academics' exclusively-voluntary job mobility contradicts many of the commonly held beliefs about job mobility. We expected that women would move more than men, and this is borne out. However, we expected more specifically that women would be less likely to change to better jobs and more likely to move to worse jobs. Instead we find that tenured women are *more* likely than men to change for a better job along both *academic job quality* (prestige) and monetary dimensions. Women are *not* significantly more likely to move to worse jobs.

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In terms of family impacts, once again the results were surprisingly. We expected that marriage would lower women's likelihood of moving to better jobs and raise their likelihood of moving to worse jobs. Instead, we found that the only impact that marriage had on either sex was to make women significantly less likely to move to worse jobs, i.e. that it lowered bad mobility rather than increasing it.

We expected that children would lower women's good mobility more than men's. Children lowered *men's* good mobility along the dimension of *academic job quality* but not in monetary terms. Children also lowered men's *bad* mobility significantly, and this was particularly true for salary. Men with children seem to be motivated more by pay than by *academic job qualit*y, avoiding any cuts in pay even though it might mean losing out on greater *academic job quality*.

The most surprising result, however, relates to women with children. Children do ***not*** impede women's good job mobility. Instead, the point estimate of the net impact of children on women is large and positive, but does not achieve conventional significance levels. (p=.256 for academic job quality, p=.222 for salary.)

Overall then, combining children's impacts on men and women, women with children have significantly more mobility to better jobs in terms of *academic job quality* than men with children.

We offer two competing explanations of our findings.

The first involves selection. Tenured women in academia are not run-of-the-mill working women. Women who take tenure track jobs have signalled a commitment to succeed in academia and a high level of the ability useful in academia. The commitment must be particularly high in the hard sciences where long postdocs discourage many from academic careers. Women who not only take tenure track jobs but succeed in obtaining tenure -- not a mean feat for either sex but, in some fields like economics, particularly hard for women – are a particularly select group. These select women tend to only move when it helps them. For these women, marriage allows them to avoid bad jobs in terms of academic prestige – probably because they are more likely than married men to be in two-earner families with spouses earning a decent salary. They are also probably women who have, as Rebecca Blank advised at a recent

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CSWEP[17] meeting, "married well" in terms of marrying men willing to accommodate their career goals. Although they have children, the children have not slowed their progress. Finally, to the extent that children actually increase their probability of moving to a better job, this suggests that tenured women with children are the most committed, and the most able.

The same selection arguments need not be true for men, who may have had an easier time achieving their success. Moreover, male academics have children later in life. Therefore, not only was it easier for them to get through the tenure process without worrying about children, but after receiving tenure they have children and may be less able to combine a family with an academic career, compared to the more select group of tenured women with older children.

The second possible explanation for tenured women being more likely to move to better jobs is that they started out in worse ones. Consider, for instance, the case where statistical discrimination forces women to start out in lesser jobs that pay smaller amounts because of the inability of employers to ascertain their job match quality with academia. Indeed, previous research that we (Ginther and Kahn 2004) and others have done show that women's academic promotion to tenured positions depends more on measurable success such as publications than men's promotion does. When other universities see women being successful and getting tenure and publications, they are more likely to offer a better job to these women.

If the good moves of women are reversing previous statistical discrimination, we would observe that women who move have larger salary increases as well as larger status leaps. On the other hand, if "women don't ask" i.e. don't bargain for higher salaries, the salary increases would be more modest. To examine these different possibilities, we looked at the distribution of salary changes for those whose salary was improved when they changed jobs. We found that mean salary changes were practically identical for men and women. On the other hand, we did see some gender difference. Women's distribution of salary increases (for those who changed jobs and received more salary) was less dispersed than men's. The salary hike at the 75th percentile of men with raises was significantly higher than the salary hike at the 75th percentile of women with raises. And at the other end, the salary hike at the 25th percentile of men with raises was lower than the salary hike at the 25th percentile for women. Thus fewer women received huge raises but also fewer received tiny ones. While there might be a few men who are either

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[17] Committee on the Status of Women in the Economics Profession.

exceptional or exceptionally good at bargaining, salary raises neither suggest that women are reversing statistical discrimination nor that they don't bargain. Instead, the tenured women steadily pursue better academic opportunities, undaunted by either children or spouses.

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Table 1
Gender Differences in the Probability of Changing Faculty Jobs
Universities and Four-Year Colleges excluding Medical Schools
Science, Engineering and Social Science,
1973 – 2003 Survey of Doctorate Recipients

	Women	Men	
All	18.70%	16.09%	**
By major field:			
Physical Sciences	20.36%	16.06%	**
Life Sciences	17.66%	15.46%	**
Engineering	16.89%	15.08%	
Social Sciences	18.82%	17.37%	**
By academic rank:			
Non-tenure track	35.58%	33.76%	
Tenure track			
untenured	20.97%	20.00%	*
Tenured	10.82%	9.64%	**
By institution quality			
Best	13.32%	10.49%	**
Medium	13.35%	10.79%	**
Lowest	14.03%	11.91%	**

**Gender difference significant at the 5% level
*Gender difference significant at the 10% level

Table 2

Gender Differences in the Destination of Job Movers
Universities and Four-Year Colleges excluding Medical Schools
Science, Engineering and Social Science,
1995-2001 Survey of Doctorate Recipients

	Women	Men
All tenure/tenure-track levels		
University or four year college	74.92%	73.14%
Two-year college or K-12 education	3.78%	2.52%
Business/industry/self employed for profit	11.80%	15.61%
Non-profit sector	4.76%	3.33%
Federal Government and military	3.29%	3.75%
State/local government	1.44%	1.65%
	99.99%	100.00%
Tenured only		
University or four year college	80.60%	80.49%
Two-year college or K-12 education	3.13%	1.99%
Business/industry/self employed for profit	8.76%	10.49%
Non-profit sector	3.63%	2.81%
Federal Government and military	2.75%	2.87%
State/local government	1.13%	1.35%

Table 3
Gender Differences in the Probability of Moving to A Better Faculty Job
Universities and Four-Year Colleges excluding Medical Schools
Science, Engineering and Social Science, 1973-2003 Survey of Doctorate Recipients

All	**Women**	**Men**
Likelihood of Not Changing Jobs	81.30%	83.91%
Better Institution/Academic Rank		
Likelihood of Moving to a Better Job	8.27%	7.21%
Likelihood of Moving to a Similar Job	3.71%	3.41%
Likelihood of Moving to a Worse Job	6.72%	5.47%
Higher Salary		
Likelihood of Moving to a Better Job	13.70%	12.12%
Likelihood of Moving to a Similar Job	0.01%	0.00%
Likelihood of Moving to a Worse Job	4.99%	3.97%
Tenured Only		
Likelihood of Not Changing Jobs	89.18%	90.36%
Better Institution/Academic Rank		
Likelihood of Moving to a Better Job	3.20%	2.58%
Likelihood of Moving to a Similar Job	3.09%	2.79%
Likelihood of Moving to a Worse Job	4.52%	4.27%
Higher Salary		
Likelihood of Moving to a Better Job	7.42%	6.66%
Likelihood of Moving to a Similar Job	0.00%	0.00%
Likelihood of Moving to a Worse Job	2.68%	2.47%

Table 4
The Impact of Marriage and Children on Mobility
Universities and Four-Year Colleges excluding Medical Schools
Science, Engineering and Social Science
1973-2003 Survey of Doctorate Recipients

	Women		Men	
All tenure/tenure-track levels				
Percentage Married	60.66%		80.40%	
Percentage with Children Present	42.79%		61.27%	
Likelihood of Changing Faculty Jobs				
Married	17.02%	**	14.21%	**
Not Married	19.00%		17.55%	
Children	16.40%	**	13.76%	**
No Children	17.69%		15.61%	
Tenured only				
Percentage Married	61.83%		83.61%	
Percentage with Children Present	44.24%		64.41%	
Likelihood of Changing Faculty Jobs				
Married	8.98%		8.78%	
Not Married	9.26%		15.60%	
Children	8.81%		8.24%	**
No Children	8.68%		9.32%	

** indicates a significant differences by marital status or children's presence at the 5% level
 * indicate a significant differences by marital status or children's presence at the 10% level

Table 5

Gender Differences in the Reasons for Changing Employers
Universities and Four-Year Colleges excluding Medical Schools
Science, Engineering and Social Science
1995-2003 Survey of Doctorate Recipients

	Women	Men
All tenure/tenure-track levels		
Change in career or professional interests	3.59%	5.44%
Working conditions (e.g. hours, eqpmt, working environment)	8.01%	7.37%
Family-related reasons (e.g. children, spouse's job moved)	6.91%	1.75%
Laid off or job terminated (includes company closings, grant or contract ended, etc.)	23.20%	15.96%
Job location	1.38%	2.81%
Pay, promotion opportunities	39.23%	46.14%
Retired	1.93%	2.98%
School-related reasons (e.g. returned to school, completed a degree)	6.63%	7.54%
Other	9.12%	10.00%
Tenured only		
Change in career or professional interests	4.10%	9.30%
Working conditions (e.g. hours, eqpmt, working environment)	10.66%	6.98%
Family-related reasons (e.g. children, spouse's job moved)	5.74%	1.40%
Laid off or job terminated (includes company closings, grant or contract ended, etc.)	9.02%	6.51%
Job location	1.64%	3.26%
Pay, promotion opportunities	51.64%	49.30%
Retired	3.28%	6.05%
School-related reasons (e.g. returned to school, completed a degree)	1.64%	1.40%
Other	12.30%	15.81%

Table 6

Probit Equations of the Likelihood of Changing Jobs
Tenured Faculty Only
Universities and Four-Year Colleges excluding Medical Schools
Science, Engineering and Social Science
1973-2003 Survey of Doctorate Recipients

	(1)	(2)
Female^	0.008	-0.002
	[0.005]	[0.009]
Married^	-0.005	-0.006
	[0.005]	[0.007]
Children^	-0.009**	-0.015***
	[0.005]	[0.006]
Female*married^		0.001
		[0.011]
Female&children^		0.019*
		[0.011]
Time from PhD	-0.007***	-0.007***
	[0.001]	[0.001]
Time from PhD squared/100	0.013**	0.013**
	[0.005]	[0.005]
Year of PhD	-0.002***	-0.002***
	[0.000]	[0.000]
PhD - Research I Univ.^	-0.018	-0.018
	[0.013]	[0.013]
PhD - Research II Univ.^	-0.014	-0.014
	[0.011]	[0.012]
PhD - Doctorate I Univ.^	-0.010	-0.010
	[0.013]	[0.013]
PhD - Doctorate II Univ.^	-0.035***	-0.035***
	[0.012]	[0.012]
Primary Activity: Research^	-0.006	-0.006
	[0.011]	[0.011]
Primary Activity: Teaching^	-0.027**	-0.027**
	[0.012]	[0.012]
Primary Activity: Mgmt^	0.007	0.008
	[0.013]	[0.013]
Primary Activity: Computer^	-0.015	-0.015
	[0.048]	[0.047]
Receiving Govt. Support^	-0.001	-0.001
	[0.005]	[0.005]
Ever received Govt. Support^	0.015**	0.015**
	[0.007]	[0.007]
Ever received Govt. Support^ - Soc.Sci. only	0.000	0.000
	[0.009]	[0.009]

Cumulative Papers/100	0.032**	0.032**
	[0.015]	[0.015]
Cumulative Publications/100	0.035**	0.035**
	[0.017]	[0.017]
School Quality	-0.036***	-0.036***
	[0.011]	[0.011]
School Quality Squared	0.003***	0.003***
	[0.001]	[0.001]
Private Instn.^	-0.013***	-0.013***
	[0.004]	[0.004]
Black^	0.018**	0.017**
	[0.008]	[0.008]
Asian^	0.014	0.014
	[0.009]	[0.009]
Other non-white races^	0.005	0.004
	[0.021]	[0.021]
Foreign born^	-0.008	-0.008
	[0.006]	[0.006]
Fields: Comp/Math^	0.045***	0.044***
	[0.016]	[0.016]
Chemistry/Earth Sci.^	0.022	0.022
	[0.015]	[0.015]
Physics^	0.025	0.025
	[0.017]	[0.017]
Other Phys. Sci.^	0.026	0.026
	[0.028]	[0.028]
Agric./Food^	0.015	0.015
	[0.016]	[0.016]
Biochemistry^	0.049**	0.048*
	[0.025]	[0.025]
Microbiology^	0.042*	0.042*
	[0.025]	[0.025]
Zoology^	-0.001	0.000
	[0.016]	[0.016]
Other Biology^	0.028*	0.028*
	[0.015]	[0.015]
Health^	0.079***	0.079***
	[0.021]	[0.020]
Electrical/Chem Eng.^	0.041**	0.040**
	[0.019]	[0.019]
Aero. Eng.^	0.022	0.023
	[0.037]	[0.037]
Other Eng.^	0.049**	0.049**
	[0.020]	[0.020]
Economics^	0.053**	0.052**
	[0.021]	[0.021]
Clinical Psych.^	0.069**	0.068**
	[0.027]	[0.027]
Other Soc. Sci.^	0.047***	0.046***
	[0.016]	[0.016]
Observations	23236	23236

Coefficients report marginal effects
Robust standard errors in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%
^coefficient reports the discrete change of dummy variable from 0 to 1
Excluded field: mechanical/industrial/civil engineering
Excluded primary activity: other

Table 7

Multinomial Logit Estimation of the Likelihood of Moving to a Better or Worse Job
Tenured Faculty Only
Universities and Four-Year Colleges excluding Medical Schools
Science, Engineering and Social Science. 1973 – 2003 Survey of Doctorate Recipients

	Academic Job Quality				Real Salary			
	(1)		(2)		(3)		(4)	
	Better v. No Change	Worse/Equal v. No Change	Better v. No Change	Worse/Equal v. No Change	Better v. No Change	Worse/Equal v. No Change	Better v. No Change	Worse/Equal v. No Change
Female	0.247*	0.064	-0.087	0.129	0.141*	0.038	0.032	-0.038
	[0.144]	[0.098]	[0.254]	[0.167]	[0.074]	[0.111]	[0.134]	[0.195]
Married	-0.102	-0.119	-0.135	0.050	-0.027	-0.059	-0.028	-0.022
	[0.164]	[0.107]	[0.208]	[0.140]	[0.085]	[0.119]	[0.111]	[0.159]
Children	-0.149	-0.086	-0.375**	-0.227**	0.006	-0.408***	-0.068	-0.513***
	[0.145]	[0.097]	[0.175]	[0.114]	[0.072]	[0.107]	[0.086]	[0.127]
Female*married			0.025	-0.377*			-0.009	-0.1
			[0.316]	[0.217]			[0.170]	[0.235]
Female&children			0.626**	0.384*			0.216	0.337
			[0.279]	[0.198]			[0.149]	[0.219]
Time from PhD	0.038	-0.098***	0.037	-0.097***	-0.091***	0.011	-0.091***	0.011
	[0.045]	[0.033]	[0.045]	[0.033]	[0.023]	[0.038]	[0.023]	[0.038]
Time from PhD squared/10	-0.022	0.011	-0.022	0.010	0.014*	0.001	0.014*	0.001
	[0.015]	[0.011]	[0.015]	[0.012]	[0.008]	[0.012]	[0.008]	[0.012]
Year of PhD	-0.024*	-0.044***	-0.025*	-0.044***	-0.019***	0.004	-0.019***	0.004
	[0.013]	[0.009]	[0.013]	[0.009]	[0.007]	[0.011]	[0.007]	[0.011]
PhD - Research I Univ.	0.298	-0.232	0.298	-0.226	-0.21	-0.121	-0.208	-0.116
	[0.407]	[0.237]	[0.408]	[0.237]	[0.171]	[0.279]	[0.171]	[0.279]
PhD - Research II Univ.	0.297	-0.133	0.309	-0.125	-0.19	-0.017	-0.184	-0.008
	[0.430]	[0.259]	[0.431]	[0.258]	[0.188]	[0.303]	[0.188]	[0.302]
PhD - Doctorate I Univ.	0.296	-0.408	0.303	-0.400	-0.181	0.149	-0.176	0.157
	[0.457]	[0.297]	[0.458]	[0.297]	[0.205]	[0.318]	[0.206]	[0.317]
PhD - Doctorate II Univ.	-0.902	-0.292	-0.935	-0.290	-0.682**	-0.286	-0.687**	-0.288
	[0.659]	[0.374]	[0.661]	[0.373]	[0.271]	[0.419]	[0.271]	[0.418]

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	Academic Job Quality				Real Salary			
	(1)		(2)		(3)		(4)	
	Better v. No Change	Worse/Equal v. No Change	Better v. No Change	Worse/Equal v. No Change	Better v. No Change	Worse/Equal v. No Change	Better v. No Change	Worse/Equal v. No Change
Primary Activity: Research	0.563	0.254	0.568	0.256	0.008	-0.073	0.007	-0.07
	[0.484]	[0.269]	[0.483]	[0.269]	[0.186]	[0.284]	[0.186]	[0.284]
Primary Activity: Teaching	-0.158	0.179	-0.144	0.182	-0.363**	-0.119	-0.361**	-0.115
	[0.481]	[0.269]	[0.480]	[0.269]	[0.184]	[0.277]	[0.184]	[0.276]
Primary Activity: Mgmt	0.457	0.659**	0.477	0.661**	0.162	0.246	0.167	0.253
	[0.493]	[0.283]	[0.492]	[0.282]	[0.194]	[0.300]	[0.194]	[0.300]
Primary Activity: Computer	-34.477***	0.263	-33.431***	0.272	0.231	-31.089***	0.235	-33.076***
	[0.528]	[1.046]	[0.528]	[1.048]	[0.782]	[0.339]	[0.781]	[0.339]
Receiving Govt. Support	0.106	0.045	0.107	0.045	-0.044	0.073	-0.042	0.073
	[0.174]	[0.106]	[0.174]	[0.106]	[0.083]	[0.125]	[0.083]	[0.125]
Ever received Govt. Support	0.894***	0.057	0.885***	0.052	0.317***	0.068	0.313***	0.063
	[0.217]	[0.146]	[0.217]	[0.146]	[0.112]	[0.161]	[0.112]	[0.161]
Ever received Govt. Support - Soc.Sci. only	-0.628**	0.082	-0.628**	0.086	-0.095	0.076	-0.094	0.079
	[0.280]	[0.179]	[0.281]	[0.179]	[0.143]	[0.212]	[0.143]	[0.212]
Cumulative Papers	0.002	0.007**	0.001	0.007**	0.005**	-0.001	0.005**	-0.001
	.	[0.003]	[0.004]	[0.003]	[0.002]	[0.004]	[0.002]	[0.004]
Cumulative Publications	0.017***	0.004	0.017***	0.004	0.005**	0.006	0.005**	0.006
	[0.004]	[0.003]	[0.004]	[0.003]	[0.002]	[0.004]	[0.002]	[0.004]
School Quality	-0.631**	-0.147	-0.621**	-0.152	-0.469***	-0.581**	-0.470***	-0.580**
	[0.301]	[0.224]	[0.300]	[0.224]	[0.180]	[0.231]	[0.180]	[0.230]
School Quality Squared	-0.039	0.031	-0.041	0.031	0.047**	0.048*	0.047**	0.048*
	[0.036]	[0.026]	[0.035]	[0.026]	[0.021]	[0.027]	[0.021]	[0.027]
Private Instn.	-0.109	-0.189*	-0.112	-0.189*	-0.094	-0.481***	-0.095	-0.483***
	[0.150]	[0.097]	[0.150]	[0.097]	[0.071]	[0.121]	[0.071]	[0.121]
Black	-0.138	0.375***	-0.154	0.371***	0.231**	0.099	0.226**	0.092
	[0.230]	[0.142]	[0.231]	[0.142]	[0.112]	[0.168]	[0.112]	[0.168]
Asian	0.355	0.022	0.365	0.023	0.145	0.126	0.147	0.128
	[0.244]	[0.172]	[0.242]	[0.172]	[0.126]	[0.190]	[0.126]	[0.189]

	Academic Job Quality				Real Salary			
	(1)		(2)		(3)		(4)	
	Better v. No Change	Worse/Equal v. No Change	Better v. No Change	Worse/Equal v. No Change	Better v. No Change	Worse/Equal v. No Change	Better v. No Change	Worse/Equal v. No Change
Other non-white races	0.648	0.254	0.607	0.246	0.075	0.196	0.063	0.182
	[0.486]	[0.348]	[0.500]	[0.347]	[0.322]	[0.434]	[0.322]	[0.436]
Foreign born	-0.235	-0.086	-0.239	-0.078	-0.119	-0.141	-0.12	-0.137
	[0.225]	[0.135]	[0.223]	[0.135]	[0.105]	[0.168]	[0.105]	[0.167]
Fields: Comp/Math	1.247**	0.493*	1.224**	0.486*	0.506***	0.641*	0.498***	0.634*
	[0.553]	[0.254]	[0.554]	[0.254]	[0.192]	[0.368]	[0.191]	[0.368]
Chemistry/Earth Sci.	0.540	0.055	0.518	0.052	0.257	0.281	0.252	0.276
	[0.566]	[0.271]	[0.567]	[0.271]	[0.200]	[0.378]	[0.200]	[0.378]
Physics	0.882	-0.018	0.853	-0.024	0.333	0.354	0.327	0.348
	[0.584]	[0.304]	[0.584]	[0.304]	[0.220]	[0.406]	[0.220]	[0.406]
Other Phys. Sci.	-34.008***	-0.100	-32.983***	-0.089	0.415	0.339	0.42	0.342
	[0.310]	[0.525]	[0.309]	[0.525]	[0.321]	[0.606]	[0.322]	[0.606]
Agric./Food	0.922	-0.204	0.905	-0.207	-0.131	0.893**	-0.133	0.891**
	[0.613]	[0.308]	[0.613]	[0.308]	[0.234]	[0.386]	[0.234]	[0.386]
Biochemistry	1.246*	0.255	1.237*	0.256	0.647**	0.445	0.644**	0.444
	[0.658]	[0.367]	[0.658]	[0.367]	[0.261]	[0.464]	[0.261]	[0.464]
Microbiology	-0.178	0.311	-0.178	0.311	0.291	0.75	0.291	0.756*
	[0.891]	[0.374]	[0.891]	[0.373]	[0.297]	[0.457]	[0.296]	[0.456]
Zoology	0.880	-0.534	0.884	-0.539	-0.124	0.226	-0.124	0.228
	[0.627]	[0.384]	[0.629]	[0.384]	[0.281]	[0.447]	[0.281]	[0.447]
Other Biology	0.321	0.043	0.297	0.038	0.318	0.593	0.314	0.589
	[0.570]	[0.272]	[0.570]	[0.272]	[0.196]	[0.363]	[0.196]	[0.363]
Health	1.636***	0.552**	1.626***	0.542**	0.732***	1.037***	0.729***	1.034***
	[0.568]	[0.271]	[0.568]	[0.271]	[0.205]	[0.374]	[0.205]	[0.374]
Electrical/Chem Eng.	1.340**	0.415	1.315**	0.417	0.439**	0.728*	0.432*	0.722*
	[0.629]	[0.299]	[0.630]	[0.299]	[0.223]	[0.420]	[0.223]	[0.421]
Aero. Eng.	2.170**	-0.689	2.231***	-0.667	0.501	-30.092***	0.511	-32.069***
	[0.860]	[1.032]	[0.860]	[1.031]	[0.445]	[0.407]	[0.446]	[0.407]
Other Eng.	0.787	0.072	0.774	0.068	0.470**	0.882**	0.470**	0.883**
	[0.680]	[0.323]	[0.683]	[0.323]	[0.226]	[0.410]	[0.226]	[0.410]
Economics	1.439**	0.599**	1.418**	0.598**	0.710***	0.54	0.705***	0.534
	[0.655]	[0.302]	[0.657]	[0.301]	[0.234]	[0.427]	[0.234]	[0.427]

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	Academic Job Quality				Real Salary			
	(1)		(2)		(3)		(4)	
	Better v. No Change	Worse/Equal v. No Change	Better v. No Change	Worse/Equal v. No Change	Better v. No Change	Worse/Equal v. No Change	Better v. No Change	Worse/Equal v. No Change
Clinical Psych.	1.614**	0.261	1.576**	0.256	0.844***	0.534	0.839***	0.527
	[0.673]	[0.370]	[0.677]	[0.370]	[0.260]	[0.468]	[0.260]	[0.468]
Other Soc. Sci.	1.639***	0.514*	1.612***	0.507*	0.555***	0.811**	0.548***	0.804**
	[0.603]	[0.271]	[0.604]	[0.271]	[0.207]	[0.385]	[0.207]	[0.386]
Constant	-1.678	0.755	-1.430	0.724	0.299	-3.035**	0.376	-2.977**
	[1.528]	[0.990]	[1.545]	[0.997]	[0.769]	[1.221]	[0.775]	[1.224]
Observations	22340	22340	22340	22340	23145	23145	23145	23145

Robust standard errors in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%
Excluded field: mechanical/industrial/civil engineering
Excluded primary activity: other
Columns on salaries include movements out of academia

Appendix 1

Quality of Institution and Academic Job Quality Variables

Quality of Institution

The Quality of Academic Institution variable was created from the Carnegie Ratings. The 10 different Carnegie categories are:
1. Research Universities Tier I
2. Research Universities Tier II
3. Doctorate Granting Universities Tier I
4. Doctorate Granting Universities Tier II
5. Comprehensive Universities Tier I
6. Comprehensive Universities Tier II
7. Liberal Arts Colleges Tier I
8. Liberal Arts Colleges Tier II
9. Two Year Colleges
10. Other

Based on analysis of the quality tier of the faculty as well as real salaries, we ascertained that the ranking from worst to best quality are:

Quality = 1 if Carnegie = 9
Quality = 2 if Carnegie = 6 or 8
Quality = 3 if Carnegie = 4 or 5
Quality = 4 if Carnegie = 3, 7 or 10
Quality = 5 if Carnegie = 2
Quality = 6 if Carnegie = 1

Recognizing that this Quality variable is only ordinal and not cardinal, we used a quadratic term as well as a linear one to allow some kind of nonlinearity.

Academic Job Quality

Again based on analysis of the quality tier of the faculty as well as real salaries, regressions of (log) real salary, we constructed our Academic Job Quality variable that combines Quality of Institution and tenure status as given below. Note that tenure track untenured jobs at the best institutions are rated more highly than tenured jobs at low ranked institutions.

Academic Job Quality = 1 if job in non-tenure track and Carnegie = 8 or 9
Academic Job Quality = 2 if job in non-tenure track and Carnegie = 10
Academic Job Quality = 3 if job in non-tenure track and Carnegie = 4 or 5
Academic Job Quality = 4 if job in non-tenure track and Carnegie = 6
Academic Job Quality = 5 if job in non-tenure track and Carnegie = 2, 3 or 7

Academic Job Quality = 6 if job in non-tenure track and Carnegie = 1
Academic Job Quality = 7 if job in tenure track untenured and Carnegie = 9
Academic Job Quality = 8 if job in tenure track untenured and Carnegie = 6 or 8
Academic Job Quality = 9 if job in tenure track untenured and Carnegie = 4 or 5
Academic Job Quality = 10 if job in tenured and Carnegie = 9
Academic Job Quality = 11 if job in tenured and Carnegie = 6 or 8
Academic Job Quality = 12 if job in tenured and Carnegie = 5
Academic Job Quality = 13 if job in tenure track untenured and Carnegie = 3, 7, or 10
Academic Job Quality = 14 if job in tenure track untenured and Carnegie = 2
Academic Job Quality = 15 if job in tenure track untenured and Carnegie = 1
Academic Job Quality = 16 if job in tenured and Carnegie = 4 or 10
Academic Job Quality = 17 if job in tenured and Carnegie = 3
Academic Job Quality = 18 if job in tenured and Carnegie = 2 or 7
Academic Job Quality = 19 if job in tenured and Carnegie = 1