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Keith A. Bender and Kristen Roche

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Keith A. Bender
University of Aberdeen

Kristen Roche
Mount Mary University

Abstract

A large literature finds that the self-employed are more satisfied in their jobs. Interestingly, like in the wage and salary sector, *ceteris paribus*, self-employed women are found to have more satisfaction in their jobs than self-employed men, even though the gender wage differential is higher for the self-employed. This paper examines the so-called 'paradox of the contented female worker' for both sectors, focusing on the importance of certain job attributes and whether workers actually experience these attributes. Properly controlling for the gap between desiring and actually obtaining these attributes 'explains' the gender differential in job satisfaction of the self-employed.

JEL: J16, J21, J28, J31

Keywords: job satisfaction; self-employment; gender differences; job attributes

[1] Department of Economics, University of Aberdeen, Aberdeen AB24 3QY, Scotland, UK; kabender@abdnac.uk; 44-(0)1224-273411.

[2] Business Administration Department, Mount Mary University, 2900 North Menomonee River Pkwy, Milwaukee, WI, 53222; rochek@mtmary.edu; (414) 256-1231.

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1. Introduction

Self-employment can provide many non-pecuniary benefits particularly in the face of lower earnings on average in comparison to wage and salary workers. Researchers such as Lange (2012), Edwards and Field (2002), Hamilton (2000), and Connelly (1992) suggest that attributes like greater autonomy, increased job flexibility, and the ability to balance work and family demands are more prevalent in the self-employment sector. Not surprisingly, research confirms that while controlling for numerous demographic and socio-economic variables, the self-employed are more satisfied with their jobs compared to workers in the wage and salary sector (see, for example, Blanchflower 1998 and Benz and Frey 2004; 2008). Furthermore, these benefits may be of particular value to women, who made up nearly 36 percent of self-employed workers in the U.S. in 2012 (Roche 2014).

What is much less researched is whether there is a gender differential in job satisfaction among the self-employed. Among wage and salary workers, there is a substantial literature that indicates that women are more satisfied than men, *ceteris paribus*, although there is a debate about why women are happier in their jobs (Crosby 1982; Clark and Oswald 1996; Sloane and Williams 2000; Sousa-Poza and Sousa-Poza 2000). This finding, alongside the well-documented evidence that women earn less than men, *ceteris paribus*, is a contradiction referred to as the 'the paradox of the contented female worker' (Clark 1997). In the self-employment literature, only a few papers mention gender differentials in job satisfaction and none to our knowledge try to identify the reasons for a differential. Thus, we start by confirming that self-employed females earn less than self-employed males, *ceteris paribus*, in our sample. Next, we question whether women are more satisfied than men in self-employment. If so, this would be analogous to the 'paradox of the contented female worker' found in the wage and salary sector. Secondly, if the gender differential does exist, we

attempt to explain why self-employed women are more satisfied. For instance, following research by Bender, Donohue and Heywood (2005) on wage and salary workers, we investigate the importance of job attributes in explaining the higher job satisfaction of self-employed females.

In addition to being one of the first papers to investigate the reasons for the 'paradox' among self-employed women, understanding the reasons for the paradox is important in its own right, perhaps even more so among the self-employed. Entrepreneurship has long been seen as a driver of economic and employment growth (e.g. Neumark, Wall and Zhang 2011) and understanding what drives self-employment is important for growth. If policy wants to encourage self-employment, particularly among women, it is important to know what job attributes positively influence the job satisfaction of women, when their pay differential is greater than the one experienced by women in the wage and salary sector.

Thus, this paper contributes to the literature by examining the relationship of gender and job satisfaction in both employment sectors. We find evidence of the "contented female" in both sectors. Interestingly, while self-employed women experience a higher gender pay penalty compared to wage and salary women, they also experience a larger female-male differential in job satisfaction. Next, we consider why gender is correlated with job satisfaction, using the current literature on the job satisfaction gender differential in the wage and salary sector as our guide. This literature points to two reasons for more satisfied women – women have lower expectations (Clark 1997), and women value job attributes differently than men and thereby sort themselves into jobs with these attributes (Bender, Donohue and Heywood 2005; Sloane and Williams 2000). Given that both genders likely benefit from desirable job attributes in self-employment, we hypothesize that differences in important attributes and

whether workers can get those attributes should be correlated with the gender difference in self-employment job satisfaction.

Using data on college graduates in the US, our results from our admittedly correlational estimations confirm that in the wage and salary sector, controlling for differences in the importance of job attributes makes the correlation between gender and job satisfaction disappear. However, in self-employment, correlation between gender and job satisfaction is affected not only by the importance of job attributes but also whether the expectations of these job attributes are met or not. That is, self-employed women are happier than their male counterparts because they are getting more of what they want out of self-employment.

The following section presents related literature on gender differentials in job satisfaction, attempts to explain it in the wage and salary sector, and conjectures why it might exist in self-employment. Then we describe the data and methodology used to compare and examine the causes of the gender differentials in job satisfaction, while the next section presents our results. A final section concludes the study.

2. Literature Review

The 'paradox of the contented female worker' among wage and salary workers is a well-established finding in the literature in which women have higher job satisfaction than men, *ceteris paribus*, despite the fact that women have lower earnings and are otherwise less successful in terms of objective measures of career success (Crosby 1982; Clark and Oswald 1996; Clark 1997; Sloane and Williams 2000; Sousa-Poza and Sousa-Poza 2000). Economists mainly offer two explanations to this puzzle. First, the paradox may exist because women have lower job expectations and they are therefore more easily pleased with

their labor market outcomes (Clark 1997). Men may be simply voicing dissatisfaction to motivate their future achievements, analogous to Bryson, Cappellari, and Lucifora (2010)'s findings on the dissatisfaction of union workers. A related argument is that deep-rooted norms based on traditional gender roles pretext women's acceptance of lower pay (Lalive and Stutzer 2010). Second, the paradox may be explained by the theory that women value job attributes, e.g., job flexibility or a relatively high concentration of female workers, differently than men and thus sort themselves into occupations that have these desirable job attributes (Bender, Donohue and Heywood 2005; Sloane and Williams 2000).

While economists agree on the presence of the contented female worker in the wage and salary sector, there is little research that examines whether the paradox exists in self-employment.[1] Of the papers that research job satisfaction in self-employment, few measure the effect of gender in a multivariate framework. While Lange (2012) finds evidence of the contented female worker in self-employment, it does not focus on why the paradox exists. Millan *et al*. (2013) finds evidence that self-employed women are happier than self-employed men when job satisfaction is measured in terms of job security; however, there is no gender difference when job satisfaction is measured in terms of type of work. Powell and Eddleston (2008) is a related paper outside of the economics literature, which finds evidence in support of the contented female business owner using survey data from 201 business owners.[2] Their research finds that gender does not predict any differences in the owner's satisfaction with

[1] The majority of the literature in this area investigates the reasonably consistent finding that individuals are happier in self-employment compared to wage and salary work (see for example, Bradley and Roberts 2004, and Kawaguchi 2008, for the U.S.; Fuchs-Schundeln, 2009 for Germany; Andersson 2008, for Sweden; and Blanchflower 1998, and Benz and Frey 2004, for multiple-country studies).

[2] We note that while some of the research (Crosby 1982; Powell and Eddleston 2008) defines the "paradox of the contented female worker" as equal job satisfaction for males and females despite the female earnings penalty, this paper follows the line of literature (Clark 1997) that defines the paradox as higher job satisfaction for females, despite the female earnings penalty.

their business' success, even though male business owners are relatively more successful than female business owners in terms of business performance.

Why might women be more or less satisfied than their male counterparts in self-employment? First, we consider the case in which women might be more satisfied. Of course, the reasons may parallel the research on the contented female in the wage and salary sector, implying that like wage and salary-earning women, self-employed women have lower expectations and/or value job attributes differently than self-employed men. Self-employment can offer more flexibility for individuals with children which can generate higher job satisfaction, particularly for women as Bender, Donohue, and Heywood (2005) show for wage and salary workers. Powell and Eddleston (2008) support the job attribute theory by concluding that the contented female business owner can be explained by the evidence that self-employed women place less value on objective business outcomes compared to self-employed men, who are driven by achieving business success.

Beyond these reasons, the self-employment literature offers some additional insights. To start, self-employed women are more likely to work part-time, and if they are full-time, they work fewer hours per week on average compared to self-employed men (Boden 1996; Parker 2009; Roche 2014). Given the negative correlation between number of working hours and job satisfaction in the wage and salary sector, (e.g. Clark 1997; Sousa-Poza and Sousa-Poza 2000), we might suspect that women are happier.[3] A related hypothesis is that women more often use self-employment as a means to benefit from joint production – earning income while engaging in household production activities, such as taking care of children (Edwards

[3] Powell and Eddleston (2008) refute this hypothesis. They find that the gender effect in job satisfaction cannot be explained by differential inputs whereby women invest less time in their businesses and as a result perceive their subpar success as equitable. Furthermore, Millán *et al*. (2013) only find this negative relationship between working hours and job satisfaction in the wage and salary sector and conjecture that because self-employed workers can choose their number of working hours, they are more likely to be satisfied in their work.

and Field 2002; Carr 1996; Connelly 1992). An additional theory is that self-employed women are happier relative to men because they are more likely to have overcome gender barriers and discrimination in their path to self-employment (Koellinger, Minniti, Schade 2013), and because for all individuals, but especially women, self-employment is a better alternative to wage and salary work (Cooper and Artz 1995).

Alternatively, it is possible that women may be less satisfied relative to men in self-employment. The obvious reason stems from the origin of why we refer to the contented female as a paradox – women earn less. Not only has research found that women earn less in self-employment, but the earnings gap is even larger in self-employment compared to the wage and salary sector (Hundley 2000; Parker 2009; Roche 2014).[4] Another reason may be that self-employed women have the most education by gender and sector, and education and job satisfaction have been found to be negatively correlated (Clark and Oswald 1996), although research such as Millan *et al*. (2013) and Congregado *et al.* (2016) find a positive relationship between education and job satisfaction. Not only are self-employed women highly educated, but many of them experience lower returns to education compared to self-employed men (Roche 2013).[5] They are also the most likely to be educationally mismatched by gender and sector in the US as found by Bender and Roche (2013),[6] and given the correlation between mismatch and lower job satisfaction (Baker *et al*. 2010; Bender and Heywood 2006), we would expect self-employed women to be even less satisfied.

[4] Using 2003 Current Population Survey (CPS) data, Roche (2014) estimates a 61% earnings gap between male and female median annual earnings, and a 70% earnings gap between male and female median hourly earnings among the self-employed.
[5] This finding is only evident with women in blue collar jobs. These women have relatively flat returns to education across the earnings distribution.
[6] Research in Europe by Congregado *et al*. (2016), however, suggests that the incidence of mismatch is lower for women, even among the self-employed. Why there is this difference is not quite clear though it may have something to do with differences in the nature of self-employment across countries.

Thus, while there is some literature attempting to explain contented female wage and salary workers, there is little in the way of research on the interrelationship of gender and job satisfaction for the self-employed. Given the relatively robust evidence of contented females in the wage and salary sector, it would be logical to assume that a similar pattern would exist among the self-employed. However, given that the arguments above could suggest either contented or discontented self-employed women, it is really an empirical question about which set of effects dominate. The next section, therefore, details the data that we use to examine the relationship and offer some suggestions as to why the relationship occurs.

3. Data and Methodology

In order to investigate these issues more fully, we examine data from the public use version of the 2003 National Survey of College Graduates (NSCG) collected by the US National Science Foundation. This survey comprises of workers who have at least a bachelor's degree in the (social or hard) sciences, technology, engineering, or mathematics (STEM) and/or are currently working in a STEM-related field. We use the 2003 wave since it is the only public use version of the data that identifies the self-employed.

In addition to a large variety of data on socio-demographic characteristics, the 2003 NSCG has several other key pieces of data that are central to this study. First in terms of our dependent variable, workers are asked, 'How would you rate your overall satisfaction with the job you held during the (reference) week?' with possible responses (after reordering) of 'very dissatisfied', 'somewhat dissatisfied', 'somewhat satisfied', and 'very satisfied'. The top panel of Table 1 has the percentage breakdowns by gender and employment sector. In general most workers are at least somewhat satisfied, with a higher percentage of the self-employed of both genders being very satisfied than wage and salary workers as found in the

studies mentioned above. In these raw figures, however, the higher satisfaction for female workers is found only for wage and salary workers where they are slightly more likely to be satisfied than men. Among the self-employed, males seem to have a slight edge in job satisfaction.

The next set of key data comes from a series of questions asked about the importance of different job attributes – covering the job's opportunities for advancement, benefits, intellectual challenge, degree of independence, location, level of responsibility, salary, security and contribution to society. Each worker was asked to evaluate each of these attributes as 'very important', 'somewhat important', 'somewhat unimportant', or 'not important at all'.[7] The middle panel of Table 1 has the percentages of workers' evaluations of whether these attributes are 'very important', again, by gender and employment sector. Male workers in the wage and salary sector most frequently identified benefits, intellectual challenge, and job security as very important, while wage and salary women identified these, as well as independence, being very important job attributes. For the self-employed, unsurprisingly, independence comes out as the most important for both genders with intellectual challenge also being identified as very important for both genders and location being important for females. In addition to differences by employment sector, Table 1 depicts gender differences in the importance of attributes regardless of employment sector. For example, advancement opportunities and salary are relatively less important for females compared to males, however, location and contribution to society are considerably more important.

[7] The survey question is "When thinking about a job, how important is each of the following factors to you? (salary, benefits, etc.)."

Finally, workers are asked about their satisfaction with these same attributes for their current job on the same scale as overall job satisfaction.[8] Important for what follows, we identify when there is a difference between the desire for a particular attribute and its actual provision in the job. We do this by focusing on two groups – those who state that a particular attribute is 'very important' and that they are 'very satisfied' with the provision of that attribute (we call this the 'No Gap' group) and those who state that a particular attribute is 'very important' but are dissatisfied with the provision of that attribute (we call this the 'Big Gap' group).[9] These last two sets of questions are central to our research question and therefore warrant our use of the NSCG data set. Although it does not provide a representative sample, it does allow us to compare respondents' desire and provision of the same nine attributes using the same scale. To the authors' knowledge, no other data set provides similar measures. Furthermore, by focusing on a more homogenous sample of workers with at least a bachelor's degree, the analysis mitigates the number of blue collar and necessity entrepreneurs (individuals who involuntarily self-employ after a long period of unemployment or underemployment), who are likely different from educated entrepreneurs in many ways, not to mention job satisfaction.[10]

Table 2 reports the percentage frequency of these gaps for the overall sample and by gender and employment sector. Looking first at the overall sample, some attributes are generally well provided. For example, intellectual challenge, independence, location, responsibility,

[8] The survey question is "Thinking about your principal job…, please rate your satisfaction with that job's… (salary, benefits, etc.)."

[9] 'Dissatisfied' is defined here at workers responding that they are either 'somewhat dissatisfied' or 'not at all satisfied' with the provision of the attribute. Robustness checks using just the latter answer generates qualitatively similar results in the regressions below and are available from the authors upon request. In addition, we combine into one big group all those who identify the attribute as not 'very important' regardless of their satisfaction with the attribute.

[10] While focusing on a homogeneous group is useful in our analysis, we acknowledge that the findings may not extrapolate to explain the behaviour of all individuals in self-employment. It is worth noting, however, that this sub-set of self-employed workers is an important group in the macroeconomy. Van Praag and van Stel (2013) find that educated entrepreneurs create more jobs and own larger firms relative to business owners without a college degree.

and contribution to society all have relatively large percentages (>30%) where there is 'No Gap' and relatively small percentages (<9%) of those expressing a 'Big Gap'. For other attributes (e.g. advancement, benefits and salary), there is less good matching of desired and actual attributes where the 'No Gap' is relatively low and the 'Big Gap' is relatively high. Job Security is the one example where there is both a relatively high percentage of people (32%) who have 'No Gap' as well as a relatively high percentage stating a 'Big Gap' (10%).

Disaggregating by gender and sector on the right hand side of Table 2 shows bigger differences between sectors than genders. For example, there are higher percentages of 'No Gap' wage and salary workers for benefits while the percentages are higher for the self-employed for advancement, intellectual challenge, independence (unsurprisingly), location (particularly for females) and responsibility, with salary, job security and contribution to society being relatively the same. Relatively large 'Big Gaps' exist in both sectors for advancement and benefits (again in both sectors).

4. Results

In order to focus on the relationship between job satisfaction, gender, employment sector and job attributes, we estimate a series of ordered probit regressions using overall job satisfaction as the dependent variable controlling for a set of standard covariates including educational mismatch, supervisory status, citizenship, disability, earnings, hours worked per week, years in job, full time status, educational degree, age (and its square), marital status, race/ethnicity, region of residence, and broad field of occupation. (Descriptive statistics for these variables by gender and employment sector are given in Appendix Table 1.) We start with documenting the existence of the 'Paradox' in both the wage and salary and self-employment sectors. Then we examine the role of job attributes and the 'Gap' between

desired and actual provision of these attributes on the correlation between satisfaction and gender across sectors.

4.1 Baseline Results: Are Self-Employed Women Happier While Earning Less?

To establish that the 'Paradox' occurs in both sectors, first we have to examine whether women earn less, *ceteris paribus*, than men in each sector. Table 3 reports standard earnings regressions for each sector. While the other covariates have expected signs, we want to focus on the partial correlation between gender and salary by sector. Unsurprisingly, female workers earn less than male workers – about 18 percent less among wage and salary workers and over 25 percent less for the self-employed. That the gender difference among the self-employed is larger is consistent with other studies in the literature (e.g. Hundley 2000; Parker 2009; Roche 2014).

Next we examine a baseline job satisfaction regression (that is, without the job attributes). In order to identify the role of attribute gaps in the job satisfaction of women and men, we start by presenting results from a baseline job satisfaction regression, using the standard set of covariates outlined above. Table 4 has the results from these regressions by sector.[11] Generally, the job satisfaction correlates are similar in sign across the two sectors if not close in the marginal effect. Increasing educational mismatch[12] is correlated with lower job satisfaction compared to being matched, particularly for wage and salary workers (see also Bender and Roche, 2013). Being a supervisor, a U.S. citizen, healthy, and white are all correlated with higher satisfaction. In addition, we find that increased earnings and years in

[11] The regressions used here are ordered probits, given the ordinal nature of the satisfaction equations. Collapsing the job satisfaction variable into a binary variable (for very satisfied or not) and estimating the regressions using probit maximum likelihood techniques gives qualitatively similar results and are available upon request.

[12] This variable comes from a question in the NSCG asking how closely related a worker's job and education in their last degree is. Possible answers are: 'closely related', 'somewhat related', and 'not at all related' which we refer to as 'matched', 'moderately mismatched' and 'severely mismatched' respectively.

job also are positively correlated with satisfaction. Both sets of workers exhibit the often found U-shaped age profile in satisfaction (Clark, Oswald, and Warr, 1996). The biggest difference in the covariates across the two sectors is those with high work hours having lower satisfaction for wage and salary workers, but is not significantly correlated with satisfaction for the self-employed. In addition, the pattern of education and satisfaction appears to be different. Unlike the literature on satisfaction which generally finds lower satisfaction, *ceteris paribus*, for higher levels of education, wage and salary workers with a doctorate have higher satisfaction than those with a bachelor's degree. On the other hand, self-employed workers who have a professional degree have lower satisfaction, *ceteris paribus*.[13]

Key for this paper is the first row of results which has the correlation between being female and job satisfaction, holding constant all the other variables. We find that women are more satisfied than men in both employment sectors. This partial correlation is about 50% larger for self-employed workers, although the marginal effects of being in the 'very satisfied' group are relatively small – about 3.2 and 4.8 percent for the wage and salary and self-employed workers, respectively, compared to about 45 percent of wage and salary workers being very satisfied and 54 percent of self-employed workers. Although the effects are small, this intersectoral difference is statistically significant (as determined by an interacted model), suggesting that self-employed women are even more 'contented' than female wage and salary workers. This is in spite of substantially lower earnings for self-employed women, *ceteris paribus*, as shown in the previous table.

4.2 Job Attributes and Job Satisfaction

[13] It should be noted, however, that this is a different educational sample than most others in the literature, as everyone in this sample has at least a bachelor's degree and that the marginal effects are fairly small.

Table 5 reports two sets of regressions for the job satisfaction regressions including the job attributes discussed above. All attributes have a statistically significant correlation with job satisfaction for at least some category of importance in one sector or the other, although there are some that are different across sectors. For example, the importance of independence and location are seemingly more influential on wage and salary job satisfaction than for the job satisfaction of the self-employed. In addition, some of the results are could be considered counterintuitive. For example, when workers rate advancement, benefits, or salary 'very important', there is lower job satisfaction for both sectors. Of course, it may be more difficult for a particular job to meet these expectations, particularly for benefits and salary, so without controlling explicitly for any gap between these expectations and reality, it may be that these negative relationships are actually picking up on that gap between job attributes that are considered very important and whether jobs actually provide these characteristics. We address this issue explicitly below.

Importantly, the results suggest that for the self-employed, those who identify responsibility and a contribution to society as being very important have the highest probability of being satisfied, while the importance of salary and benefits generates lower job satisfaction. Thus while traditionally noneconomic factors are important for job satisfaction among the self-employed, there is a dissatisfaction with salary (which is generally lower for the self-employed, *ceteris paribus*) and with benefits (which are typically provided by employers in the US) for those who hold these job attributes as very important. Again, policy to improve rates of self-employment would want to focus on such attributes given their importance in the satisfaction of the self-employed.

In the first row, we report the coefficient on the female indicator. For the wage and salary sample, females no longer show statistically significant differences from males, although the point estimate is still slightly positive. Thus, similar to Bender, Donohue and Heywood (2005), we find that controlling for job attributes play a large role in explaining the higher job satisfaction of women. On the other hand, while the female marginal effect has declined from 4.8 percent to 2.3 percent for the self-employment sector, it is still positive and statistically different from zero at the five percent level. Thus, the inclusion of these importance variables does not seem to explain all of the higher satisfaction of self-employed women.

4.3 Job Attribute Expectation Gaps

As mentioned above, the results for the relationship between some of the job attributes and job satisfaction are counterintuitive, which may be generated by the fact that there could be a gap between what workers think is important in a job and how important these factors actually are. While we do not have the actual importance, as discussed in the data section, the NSCG does ask how satisfied workers are with the particular job attribute.[14] Thus, we include a set of variables that identify instances when there is likely no difference between desired and actual job attributes and instances when that gap is large. These variables are included as controls in the baseline regression to investigate whether these play a role in the higher reported satisfaction of, particularly self-employed, female workers.

[14] Having subjective well-being measures on both the right and left-hand side of the regression can generate biases since in cross sections there may be unobservable traits (e.g. overall happy nature) that may affect both sets of variables (see Hamermesh, 2004). While this would bias the estimated coefficients of the 'Gap' variables here, it should not bias the coefficient on the key variable of interest – the female indicator, unless there is a correlation between gender and the unobservable trait (e.g. women being 'naturally' happier than men) which we do not think is the case.

Selected results from these regressions are given in Table 6. With respect to the job attributes, the results here are much more intuitive. In each case, having 'No Gap' between actual and desired attributes significantly correlates with higher job satisfaction compared to an admittedly heterogeneous mixture of individuals who generally do not think that the attribute is very important (the excluded group). On the other hand, having a 'Big Gap' (meaning that a worker thinks that the attribute is very important and is not satisfied with that attribute in his or her job) is significantly correlated with lower job satisfaction. The largest negative marginal effects are for intellectual challenge and salary (particularly for the self-employed), although having a gap in desired and actual attributes is negatively correlated with satisfaction. Again, with respect to policies aimed at promoting self-employment, focusing on policies that particularly narrow the gap between actual and desired intellectual challenge and salary may help promote job satisfaction among these workers, although policies that focus on narrowing the gap for such job attributes as independence and job security would also help increase job satisfaction.

Importantly, the female coefficient in the self-employment sector decreases substantially and, while positive, is now statistically insignificant when we control for gaps in expectations. These results suggest that in self-employment, it is not just the importance of job attributes that is correlated with women expressing more satisfaction (which is the case for wage and salary workers), but also whether their expectations with those job attributes are being met or not. Once these differences between desired and actual attributes are controlled for, there is no statistical correlation between gender and job satisfaction, *ceteris paribus*.

Table 7 suggests the relative importance of the various gaps on the gender differential in job satisfaction by sector. With no job attribute expectation gaps, the gender difference shows

that women are 3.2 percentage points more likely to be in the highest job satisfaction category among wage and salary workers and 4.8 percentage points more likely for the self-employed (simply the results in Table 4). The subsequent rows add the expectation gaps one by one to get to the full specification in the bottom row (the result given in Table 6). As can be seen, the gender differential actually increases when the advancement gap is included for workers in both sectors. While there are no big differences in the advancement gap by gender (as seen in Table 2), the value that women place on this gap is lower given the downward bias on gender differential. For the wage and salary sector, adding in the salary expectation gap also is correlated with an increase in the gender differential, although it falls for the self-employed. Subsequent additions of the other gaps continue to reduce the size of the differential until it is statistically insignificant. Interestingly there is no one gap that seems to drive the results – adding each reduces the estimated marginal correlation by between 0.3 and one percentage point. This suggests that it is the wide variety of job attributes that are important without any dominant one.

Finally, it is interesting to note that the female coefficient for the wage and salary sample is now negative and almost statistically significant. That is, when the expectation gaps are included, female wage and salary workers express less satisfied than similar males, *ceteris paribus*. While not often something that is empirically found in the literature, it is more in line with the intuitive expectation of female job satisfaction which may be reflective of factors that we cannot control for such as discrimination. Unfortunately, we can only speculate about this as we have no additional information to test why wage and salary women would be less satisfied in their work.

5. Conclusion

This paper examines the role that actual and desired job attributes have on the relationship between gender and job satisfaction among self-employed and wage and salary workers. The findings suggest, in line with previous research, that the higher job satisfaction of wage and salary female workers is strongly correlated with the actual attributes of the job – particularly with job responsibility, job security and contribution to society. Including these in the job satisfaction regressions causes the correlation between being female and increased job satisfaction to be statistically insignificant.

For self-employed women, the story is somewhat more complex. Job attributes do not explain all the correlation by themselves, but rather it is the difference between these actual attributes and the desired level of the attributes that explain the positive correlation. In particular, it is the gap between desiring and actually obtaining job traits like salary and intellectual challenge that generate the biggest negative impacts on job satisfaction.

Thus, two main findings come out of this research. First, job attributes are very important in both sectors, and controlling for these attributes (both desired and actual levels) are essential in understanding job satisfaction. Second, proper controls for these attributes can help shed light on the 'paradox of the contented female worker' in both the wage and salary and self-employment sectors. Understanding the role of these attributes can help guide policy makers and educators in identifying the factors that can generate higher job satisfaction for workers in both sectors, leading to more job stability of workers in these sectors.

The findings here suggest further areas of inquiry. First, while it is based on a large sample, it is a selected one where all workers have at least a bachelor's degree, and it would be interesting to see if the results here are generalizable to a wider sample of workers. Second,

this research focuses very narrowly on the factors that correlate with the 'paradox' mentioned above. A fuller understanding of the gender differences in job satisfaction across sectors would be a logical next step in the research. For example, one can examine how the desire for the job attributes examined here differ across men and women and what factors (such as age, marriage, education, etc.) might affect the relative importance of certain job attributes. Understanding the process of desired job attributes would give policy makers and human resource managers a better understanding of what attributes might be promoted to generate increased job satisfaction and the attendant benefits that go along with increased satisfaction. Finally, while the results above suggest strong correlations, we cannot claim that they are causal, so the use of panel data or appropriate instruments could help identify the causal routes to explain job satisfaction across genders and sectors.

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Table 1. Descriptive statistics by gender and sector

	Wage and Salary		Self-Employed	
	Males	Females	Males	Females
Sample size	39,742	29,338	8,897	4,595
Overall job satisfaction				
Not satisfied	2%	2%	2%	2%
Somewhat not satisfied	8%	7%	6%	8%
Somewhat satisfied	46%	45%	38%	38%
Very satisfied	44%	46%	54%	53%
% Very important				
Advancement	43%	40%	45%	39%
Benefits	64%	69%	53%	51%
Intellectual Challenge	63%	69%	64%	68%
Independence	59%	66%	72%	74%
Location	48%	57%	55%	63%
Responsibility	44%	48%	52%	52%
Salary	57%	56%	58%	53%
Job Security	62%	68%	56%	56%
Contribution to Society	43%	60%	45%	55%

Data source: Data are for 82,572 workers from the 2003 NSCG.

Table 2. Differences in desired and actual job attributes

	Expectations		Wage and Salary		Self-Employed	
Attribute	Difference	Overall	Males	Females	Males	Females
Advancement	No Gap	15%	13%	11%	24%	18%
	Big Gap	13%	13%	13%	9%	10%
Benefits	No Gap	28%	29%	30%	20%	18%
	Big Gap	11%	9%	11%	14%	16%
Intellectual Challenge	No Gap	38%	35%	38%	43%	43%
	Big Gap	8%	8%	8%	5%	8%
Independence	No Gap	47%	42%	46%	60%	62%
	Big Gap	4%	4%	4%	2%	2%
Location	No Gap	38%	33%	40%	41%	49%
	Big Gap	4%	5%	5%	4%	4%
Responsibility	No Gap	31%	26%	30%	41%	39%
	Big Gap	4%	4%	4%	2%	3%
Salary	No Gap	19%	19%	16%	24%	20%
	Big Gap	11%	9%	13%	9%	9%
Job Security	No Gap	32%	30%	35%	31%	29%
	Big Gap	10%	11%	10%	9%	9%
Contribution to Society	No Gap	38%	30%	45%	34%	41%
	Big Gap	3%	3%	3%	3%	5%

Data source: Data are for 82,572 workers from the 2003 NSCG.
Notes: 'No Gap' is defined as workers who identify an attribute as 'very important' in a job and are 'very satisfied' with the attribute in their current job. 'Big Gap' is defined as workers who identify an attribute as 'very important' in a job, but are dissatisfied (either 'somewhat dissatisfied' or 'not at all satisfied') with the attribute in their current job.

Table 3. Earnings regressions by sector

	Wage and Salary		Self-Employed	
	Coeff.	t-stat	Coeff.	t-stat
Female	-0.179***	-33.34	-0.252***	-12.49
Moderately mismatched	0.005	0.76	-0.043*	-1.83
Severely mismatched	-0.185***	-24.27	-0.318***	-12.68
Supervisor	0.205***	40.01	0.303***	16.34
Citizen	0.062***	6.13	0.078**	2.08
Has a disability	-0.077***	-12.28	-0.115***	-5.55
Hours	0.015***	52.39	0.013***	15.48
Years in job	0.009***	27.08	0.011***	10.08
Full-time	0.796***	69.45	0.561***	17.77
Highest degree: Masters	0.065***	11.52	0.083***	3.72
Highest degree: Doctorate	0.165***	17.51	0.176***	4.15
Highest degree: Professional	0.466***	39.54	0.487***	17.01
Age	0.053***	28.49	0.042***	7.02
Age squared	-0.001***	-28.15	0.000***	-7.94
Married	0.072***	12.58	0.109***	5.17
Black	-0.070***	-7.59	-0.098	-2.12
Asian	0.010	1.25	-0.071**	-2.51
Hispanic	-0.101***	-10.45	-0.106***	-2.92
Other race	-0.070***	-4.49	-0.061***	-1.05
Occupation: Computer and math	0.347***	43.92	0.391***	11.77
Occupation: Life sciences	-0.053***	-3.74	0.260***	2.82
Occupation: Physical sciences	0.094***	5.87	0.311***	3.83
Occupation: Social sciences	0.070***	4.56	0.323***	6.34
Occupation: Engineering	0.288***	34.88	0.348***	10.92
Occupation: Other science and eng.	0.129***	17.99	0.283***	11.04
Constant	7.965***	184.66	8.464***	56.90

Data source: Data are for 82,572 workers from the 2003 NSCG.
Notes: Results presented here are selected from a log annual earnings regression. The regressions also control for region. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. The reference groups are: male, job and education match, non-supervisor, not a US citizen, does not have a disability, part time worker, highest degree: undergraduate, not married, white race and occupation field: non-science and engineering.

Table 4. Ordered probit job satisfaction regressions: Marginal effects of being very satisfied for baseline specification

	Wage and Salary		Self-Employed	
	Marg. Effect	z-stat	Marg. Effect	z-stat
Female	0.032***	8.18	0.048***	5.08
Moderately mismatched	-0.119***	-28.96	-0.119***	-10.94
Severely mismatched	-0.175***	-36.43	-0.139***	-12.03
Supervisor	0.044***	12.00	0.048***	5.45
Citizen	0.036***	5.08	0.035**	2.04
Has a disability	-0.076***	-17.69	-0.071***	-7.29
Earnings	0.011***	23.68	0.011***	15.86
Hours	-5E-04**	-2.27	-1E-04	-0.28
Years in job	0.003***	12.84	0.004***	8.45
Full-time	-0.066***	-7.92	-0.035**	-2.36
Highest degree: Masters	-0.004	-0.97	-0.002	-0.21
Highest degree: Doctorate	0.016**	2.33	0.009	0.42
Highest degree: Professional	-0.001	-0.10	-0.044***	-3.10
Age	-0.018***	-12.90	-0.011***	-3.75
Age squared	2E-04***	14.56	1E-04***	4.99
Married	0.057***	14.30	0.068***	6.95
Black	-0.063***	-9.96	-0.002	-0.07
Asian	-0.076***	-13.50	-0.103***	-7.91
Hispanic	0.006	0.85	-0.007	-0.39
Other race	-0.059***	-5.47	-0.041	-1.52
Occupation: Computer and math	-0.057***	-10.44	-0.044***	-2.87
Occupation: Life sciences	-0.019*	-1.90	-0.032	-0.74
Occupation: Physical sciences	-0.058***	-5.26	-0.096***	-2.60
Occupation: Social sciences	-0.009	-0.77	0.135***	5.54
Occupation: Engineering	-0.081***	-14.37	-0.073***	-4.92
Occupation: Other science and eng.	-0.007	-1.35	-0.010	-0.80

Data source: Data are for 82,572 workers from the 2003 NSCG.
Notes: Predicted marginal effects are the relative change in the probability of being in the highest job satisfaction category, holding all other variables at their mean values. Estimates based on converted coefficient estimates from two regressions – one for wage and salary workers and the other for self-employed workers. The predicted probability for being in the highest job satisfaction category is 0.45 and 0.54 for the wage and salary and self-employment sectors, respectively. The ordered probit regressions also control for region. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. The reference groups are: male, job and education match, non-supervisor, not a US citizen, does not have a disability, part time worker, highest degree: undergraduate, not married, white race and occupation field: non-science and engineering.

Table 5. Ordered probit job satisfaction regression: Selected marginal effects of being very satisfied for base specification including job attributes

		Wage and Salary		Self-Employed	
		Marg. Effect	z-stat	Marg. Effect	z-stat
Female		0.002	0.59	0.023**	2.39
Advancement	Very important	-0.175***	-12.74	-0.133***	-5.73
	Somewhat important	-0.115***	-8.35	-0.133***	-5.87
	Somewhat unimportant	-0.078***	-5.47	-0.119***	-4.83
Benefits	Very important	-0.099***	-4.65	-0.094***	-3.38
	Somewhat important	-0.112***	-5.44	-0.061**	-2.22
	Somewhat unimportant	-0.089***	-3.96	-0.013	-0.43
Intellectual challenge	Very important	0.072***	2.49	0.048	0.94
	Somewhat important	0.029	1.01	0.015	0.29
	Somewhat unimportant	0.004	0.13	0.001	0.02
Independence	Very important	0.127***	4.00	0.103	1.53
	Somewhat important	0.086***	2.63	0.020	0.29
	Somewhat unimportant	0.057*	1.67	-0.033	-0.45
Location	Very important	0.042*	1.89	0.065	1.54
	Somewhat important	0.016	0.69	0.025	0.58
	Somewhat unimportant	-0.009	-0.38	0.013	0.29
Responsibility	Very important	0.125***	5.76	0.114***	2.81
	Somewhat important	0.067***	3.07	0.046	1.14
	Somewhat unimportant	0.013	0.57	-0.023	-0.52
Salary	Very important	-0.179***	-5.66	-0.106**	-1.99
	Somewhat important	-0.145***	-4.65	-0.099*	-1.84
	Somewhat unimportant	-0.096***	-2.96	-0.119**	-2.05
Job security	Very important	0.096***	4.36	-0.026	-0.81
	Somewhat important	0.028	1.24	-0.059*	-1.88
	Somewhat unimportant	-0.008	-0.31	-0.045	-1.31
Contribution to Society	Very important	0.105***	7.45	0.102***	3.41
	Somewhat important	0.025*	1.77	0.026	0.88
	Somewhat unimportant	0.001	0.07	0.010	0.31

Data source: Data are for 82,572 workers from the 2003 NSCG.
Notes: Predicted marginal effects are the relative change in the probability of being in the highest job satisfaction category, holding all other variables at their mean values. Estimates based on converted coefficient estimates from two regressions – one for wage and salary workers and the other for self-employed workers. The predicted probability for being in the highest job satisfaction category is 0.45 and 0.54 for the wage and salary and self-employment sectors, respectively. The ordered probit regressions include all covariates in Table 4. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 6. Ordered probit job satisfaction regression: Selected marginal effects of being very satisfied from base specification including all job attribute expectation gaps

		Wage and Salary		Self-Employed	
		Marg. Effect	z-stat	Marg. Effect	z-stat
Female		-0.007	-1.62	0.006	0.56
Advancement	No Gap	0.173***	21.92	0.144***	10.41
	Big Gap	-0.135***	-24.88	-0.133***	-8.34
Benefits	No Gap	0.104***	20.87	0.080***	5.42
	Big Gap	-0.098***	-16.00	-0.085***	-6.39
Intellectual challenge	No Gap	0.221***	44.31	0.199***	17.29
	Big Gap	-0.216***	-36.36	-0.227***	-12.71
Independence	No Gap	0.123***	27.57	0.109***	10.14
	Big Gap	-0.186***	-23.91	-0.185***	-6.82
Location	No Gap	0.059***	13.73	0.053***	5.32
	Big Gap	-0.120***	-15.18	-0.138***	-6.34
Responsibility	No Gap	0.100***	17.56	0.079***	6.52
	Big Gap	-0.112***	-12.51	-0.132***	-4.69
Salary	No Gap	0.221***	36.19	0.253***	20.43
	Big Gap	-0.208***	-40.39	-0.275***	-19.76
Job security	No Gap	0.137***	28.46	0.152***	13.01
	Big Gap	-0.146***	-26.21	-0.179***	-11.73
Contribution to Society	No Gap	0.158***	32.93	0.157***	13.81
	Big Gap	-0.175***	-20.32	-0.137***	-5.98

Data source: Data are for 82,572 workers from the 2003 NSCG.
Notes: Predicted marginal effects are the relative change in the probability of being in the highest job satisfaction category, holding all other variables at their mean values. Estimates based on converted coefficient estimates from two regressions – one for wage and salary workers and the other for self-employed workers. For each job attribute, the excluded group is any other combination of job attribute not being 'very important' or it being 'very important' but only 'somewhat satisfied'. The predicted probability for being in the highest job satisfaction category is 0.43 and 0.56 for the wage and salary and self-employment sectors, respectively. The ordered probit regressions include all covariates in Table 4. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 7. Ordered probit job satisfaction regression: Female marginal effect of being very satisfied from base specification including stepwise job attribute expectation gaps

	Wage and Salary		Self-Employed	
	Marg. Effect	z-stat	Marg. Effect	z-stat
Base specification	0.032***	8.18	0.048***	5.08
Base specification + advancement expectation gap	0.036***	9.04	0.057***	5.83
Above model + salary expectation gap	0.039***	9.73	0.047***	4.73
Above model + independence expectation gap	0.030***	7.34	0.038***	3.79
Above model + security expectation gap	0.023***	5.62	0.033***	3.22
Above model + benefits expectation gap	0.020***	4.90	0.030***	2.90
Above model + responsibility expectation gap	0.015***	3.66	0.023**	2.18
Above model + location expectation gap	0.011***	2.71	0.018*	1.76
Above model + intellectual challenge expectation gap	0.003	0.68	0.013	1.19
Above model + societal contribution expectation gap	-0.007	-1.62	0.006	0.56

Data source: Data are for 82,572 workers from the 2003 NSCG.
Notes: Predicted marginal effects are the relative change in the probability of being in the highest job satisfaction category, holding all other variables at their mean values. Estimates based on marginal effect estimates from two regressions – one for wage and salary workers and the other for self-employed workers. The 'Base specification' includes no job attribute expectation gaps (see Table 4). Remaining models include an additional job attribute expectation gap added to each specification (the final row corresponds to the results reported in Table 6. The ordered probit regressions include all covariates in Table 4. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Appendix Table 1. Descriptive statistics

	Wage and Salary		Self-Employed	
	Males	Females	Males	Females
Moderately mismatched	25%	21%	24%	21%
Severely mismatched	14%	15%	18%	27%
Supervisor	49%	38%	54%	37%
Citizen	91%	95%	94%	94%
Has a disability	20%	19%	25%	21%
Earnings (mean)	$ 77,194	$ 52,532	$ 93,955	$ 53,715
Hours/Week (mean)	45.5	40.9	45.2	35.4
Years in Job (mean)	8.4	7.6	11.0	7.7
Full-Time	96%	86%	89%	66%
Highest Degree				
Bachelors	53%	52%	53%	55%
Masters	30%	36%	21%	25%
Doctorate	12%	7%	6%	5%
Professional	5%	5%	21%	15%
Married	80%	66%	81%	70%
Age (mean)	45	44	49	46
Race				
White	72%	68%	76%	74%
Black	6%	11%	3%	4%
Asian	13%	11%	13%	13%
Hispanic	7%	8%	6%	6%
Other race	2%	3%	2%	3%
Field of occupation				
Computer and math sciences	16%	9%	10%	6%
Life sciences	4%	3%	1%	1%
Physical sciences	3%	2%	1%	1%
Social sciences	2%	3%	2%	6%
Engineering	19%	3%	13%	3%
Other science and engineering	14%	20%	22%	21%
Non-science and engineering	43%	59%	51%	62%

Data source: Data are for 82,572 workers from the 2003 NSCG.