Leaning in: Is higher confidence the key to women's career advancement?

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Abstract

Women's lack of confidence is commonly regarded as a key reason why women lag behind men's career outcomes. This paper interrogates this claim by examining the empirical link between an individual's confidence and job promotion prospects through a gender lens. We use nationally-representative data for 7533 individuals collected in the Household, Income and Labour Dynamics in Australia (HILDA) Survey in 2013. Confidence is captured by a psychometric survey instrument, Achievement Motivation, which is dually comprised of 'hope for success' and 'fear of failure'. Using Oaxaca-Blinder decomposition, we detect that higher hope for success is linked to a higher likelihood of job promotion, but only amongst men. This finding provides no evidence to support the widespread advice commonly given to women that they need to 'lean in' and show more confidence as the mechanism to close gender gaps in the workplace.

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1. Introduction

Job promotions are an important mechanism by which individuals can advance their occupational standing within their work organisation. A higher hierarchical position generally translates into higher earnings and greater job responsibility, as well as greater decision-making power and authority. As such, any differences in men's and women's job promotion mechanisms are potentially an important driver of gender differentials in earnings, leadership and societal influence (Booth 2009).

Conventionally, labour economists have analysed job promotions as a function of an individual's human capital traits, workplace characteristics and broader labour market conditions. These factors reflect the worker's value to the firm as well as the job promotion opportunities available to them. However, management literature informs us that human resource decisions – who is hired, who gets promoted and who gets a pay rise – are often also tied to more heterogeneous attributes such as a worker's personality traits. These attributes are often incorporated into firms' human resource decisions through the use of psychometric testing (Dattner 2013; Diekmann and König 2015) but are a relatively new addition to the toolkit used by economists to understand labour market outcomes (Almlund, Duckworth, Heckman and Kautz 2011).

Existing literature on gender differentials in personality suggests that, on average, men and women differ in their psychological and behavioural characteristics in ways that matter for labour force outcomes. This includes, for instance, perceived differences in men's and women's willingness to compete, take risks and engage in bargaining behaviour (Bertrand 2010; Croson and Gneezy 2009; Eckel and Grossman 2002; Gneezy, Niederle and Rustichini 2003; Niederle and Vesterlund 2007). These findings build on foundational psychological literature that identifies that men tend to score higher on agentic traits such as assertiveness, while women tend to score higher on communal and expressive traits such as nurturance (Feingold 1994). Such tendencies – which may arise for various reasons including cultural norms and socialisation – may lessen women's likelihood to engage in actions that would otherwise advance their careers, such as initiating wage negotiations or nominating themselves for a leadership role (Babcock and Laschever 2003; Booth 2009; Bowles, Babcock and Lai 2007). The push within contemporary organisational culture urging women to show stronger confidence and assertiveness in the workplace – reflected in the 'lean in' movement initiated by Facebook Executive Sheryl Sandberg and expounded upon in contemporary professional development literature[1] – draws further attention to the potential for gender differences in personality traits to drive gender gaps in career outcomes.

The rationale for the 'lean in' campaign rests on the assumption that women lack the necessary confidence to pursue career-advancing behaviours, and that this deficiency contributes to their lower pay and occupational ranks.[2] However, existing literature also indicates that women are at risk of encountering negative repercussions for displaying ambition and assertiveness in workplace settings (Heilman 2012;

1 See Sandberg (2013) and other examples such as Shipman and Shipman (2014).
2 Sandberg writes: 'In addition to the external barriers erected by society, women are hindered by barriers that exist within ourselves. We hold ourselves back ... by lacking self-confidence, by not raising our hands, and by pulling back when we should be leaning in' (Sandberg, 2013, p.8).

O'Neill and O'Reilly 2011; Rudman and Phelan 2008). Given the resources that are now being invested in the 'lean in' movement, the links between personality traits and labour market outcomes need to be scrutinised as a matter of economic inquiry. In this study, we cast a gender lens on the link between confidence and job promotion, to ascertain whether the advice being offered to women to 'lean in' and act as confidently as men will deliver the payoffs it promises.

Many previous studies examining the impact of confidence and other personality characteristics on workplace outcomes have been based on cohort-specific or firm-specific samples, or produced in experimental settings, resulting in limited sample representation. In a new contribution to this literature, this paper uses real-world job promotion data for over 7500 individuals based a nationally-representative, workforce-wide sample of respondents.

2. Exploring the link between personality and job promotion

2.1 Theoretical rationale

As canvassed in the literature on firm behaviour, there are several reasons why employers may want to promote their workers, including to: retain and reap the returns of their investment in their workers' human capital; incentivise higher productivity; incentivise firm loyalty and reduce staff turnover; expand the firm's workforce; and fulfill staffing needs at higher occupational levels (Baker, Gibbs and Holmstrom 1994; Fairburn and Malcomson 2001; Milgrom and Roberts 1992). In an economics framework, it is assumed these reasons ultimately contribute to the achievement of the firm's own objectives: profit maximisation in the private sector, or the effective provision goods and services according to legal or statutory obligations in the public sector. Consequently, we surmise that an employer's decision to promote a worker depends on their evaluation of a worker's productive value to the firm. This may be observed in objectively measurable ways such as their educational qualifications, cognitive skills, years of experience and job performance, or signalled in less formal ways such as through the demonstration of personal characteristics that matter for workplace productivity.

From the worker's perspective, we can identify possible reasons why an individual might seek a job promotion, again founded on the assumption that these reasons contribute towards the individual's own objective, which in this case is to maximise utility. Since job promotion is usually rewarded by higher remuneration, higher status and greater responsibility within the firm's organisational structure, we assume that the individual will seek job promotion on the basis that they gain personal utility from these rewards. The likelihood that a worker will apply for a job promotion should depend on their valuation of these rewards, as well as their own assessment of their productivity capacity to fulfill the requirements of the job role and chances of success.

Empirically, it is usually only possible to observe whether or not a worker has been promoted, but not observe whether they applied, nor whether the promotion opportunity was available in the first place. The detection of any empirical relationship between job promotion and personality characteristics could reflect might therefore reflect characteristics that make an individual more likely to work in a firm with

greater promotion opportunities in the first place; that predispose an individual to seek out promotions; or that are more valuable to the firm. We encompass these factors in the formulation of our hypotheses.

Our first hypothesis is that firms will value characteristics in their workers that are affiliated with higher productivity and the capacity for organisational leadership. Hence, we anticipate that individuals who possess such personality traits are more likely to be promoted. Our second hypothesis is that individuals are more likely to apply for promotion if they exhibit characteristics that are associated with the confidence to take on a challenge, ambition, self-determination, and an appetite for change and risk. This reasoning also implies that an individual who has the competency to fulfill to the role – but not as much confidence as other candidates who apply for it – may not select into the applicant pool. This poses the potential for personality characteristics to have a distortionary effect on the promotion process that leads to an inefficient, sub-optimal labour market outcome, which is what the 'lean in' advice aims to address.

Analysing how the links between job promotion and personality are patterned by gender provides clearer insights into the extent to which promotion outcomes can be explained by differences in men's and women's personality profiles, or indeed in by differences in how men and women's traits are valued in the workplace. This builds on previous studies of gender discrimination in job promotion processes have considered the factors that could explain firms' preferential treatment of workers on the basis of gender. For example, it has been reasoned that firms could have a strategic incentive to offer job promotions to men over women on an expectation that women are statistically more likely to exit workforce due to family formation roles, which reduces the firms' returns on their investments in their female workers (Rosen and Lazear 1990). The author conclude that this form of statistical discrimination means that women are held to a higher standard of performance than men in their applications for promotion. The detection of any gender bias in our study could signal that this type of preferential treatment is still at play.

2.2 Personality traits under analysis

To capture a person's confidence, we use a psychometric instrument defined in the psychology literature as Achievement Motivation. Attributed to the work of Murray (1938), McClelland, Atkinson, Clark and Lowell (1953), Atkinson (1964), McClelland (1987) and Nicholls (1984), this measure describes an individual's drive to fulfill or surpass their personal standards, their past performances or that of others. The psychological literature posits that this drive can be incentivised by either a 'hope for success', reflecting the degree to which an individual favours situations in which they are challenged and can test their capabilities, or by their 'fear of failure' which reflects their apprehension about fulfilling a given task. Achievement Motivation has been previously used in the context of labour market outcomes by Risse, Farrell and Fry (2018), who found that gender gaps in confidence partly explain gender gaps in pay, albeit only a small fraction. While this present study builds on the work of Risse *et al*. (2018), it will be seen that the role of confidence in explaining gender pay gaps is different to how confidence operates in the context of job promotion, warranting this dedicated analysis.

In addition to confidence, in this paper we examine whether gender differentials might also be apparent in the way that other personality traits are linked to job promotion prospects. This allows us to investigate whether any gender differences in the returns to confidence reflect broader gender-patterned biases and stereotypical norms within workplace culture. For this, we include in our analysis two other dimensions of personality that are commonly examined in labour market studies – the Big Five personality traits and Locus of Control (LOC).

Defined in the psychology literature by Costa and McCrae (1985, 1992), the Big Five are five broad dimensions which collectively provide a holistic picture of an individual's temperaments in everyday situations. The five traits comprise *agreeableness* (the tendency to act in a way that is cooperative, tolerant, forgiving, trusting, altruistic, compromising and unselfish); *conscientiousness* (the tendency to be organised, dependable, responsible, hard-working and efficient); *emotional stability* (the degree to which an individual's emotional reactions are consistent and predictable, demonstrated by calmness and even-temperedness[3]); *extraversion* (the orientation of an individual's interests towards the outer world of people and things, characterised by being active, sociable and talkative); and *openness to experience* (the tendency to be open to new intellectual, cultural or aesthetic experiences, characterised by being creative, curious, imaginative and broad-minded).

LOC has been defined in the psychological literature by Rotter (1954, 1966) as the extent to which an individual believes that their life outcomes are within their realm of personal control, and determined by their own efforts rather than by fate, luck or other external forces. As such, LOC can be measured according to an internal locus (the degree to which an individual believes that their life outcomes depend on their own actions) and an external locus (the degree to which an individual believes that outcomes depend on factors that are outside of their control).

The HILDA Survey data that we use for our analysis shows that men and women differ, on average, in these personality variables (reported in more detail in Table 1 in the Data section). Men show a higher level of hope for success than women, while women show a higher fear of failure. Women generally show a higher level of agreeableness, conscientiousness and extraversion than men, while men have a higher tendency to be open to new experiences. Men display a higher level of internal net LOC than women, although the gender differential for LOC is narrower and less statistically significant than the differentials observed for the other personality traits. No significant gender differential is detected for emotional stability. These gender-based differentials for our sample of the Australian population generally accord with patterns reported by previous studies (Shekhar and Devi 2012; Steinmayr and Spinath 2008) and among other cultures and nationalities (Costa, Terracciano and McCrae 2001; Lee and Ohtake 2016). The questionnaire items that were used to construct these variables are detailed in the Data section of this paper.

3 Emotional stability can also be defined inversely as neuroticism, characterised by volatility in emotional levels and states.

2.3 Sensitivity and stability of personality characteristics

A solid stream of literature asserts that an individual's personality is largely shaped throughout childhood and adolescence, stabilising by the time an individual reaches adulthood (Almlund, Duckworth, Heckman and Kautz 2011; Cervone and Pervin 2008; Costa and McCrae 1988; Costa, Herbst, McCrae and Siegler 2000; Cobb-Clark and Schurer 2012; Pervin 2003; Roberts and DelVecchio 2000; Wooden 2012). More recently, the availability of longitudinal panel data has facilitated the detection of ongoing age-based trends in personality traits throughout adulthood, attributed to the maturation process (Borghans, Duckworth, Heckman and ter Weel 2008; Pervin 2003; Roberts and Mroczek 2008). These changes these tend to occur during an individual's early adulthood and most elderly years. The inclusion of age variables in our regression, and concentration on the working-age population, helps us to control for these age-variant effects.

Even if an individual's personality traits are relatively stable throughout adulthood, this does not preclude the possibility that can be influenced by changes in the external environment, including an individual's work situation, predisposing the model to endogeneity. Previous longitudinal analyses of LOC and the Big Five traits, conducted at the level of the individual, have generally concluded that these traits show no or only weak responsiveness to external shocks such as major life events or changes in an individual's job or income (Cobb-Clark and Schurer 2012, 2013). Other studies that have detected intra-individual fluctuations have interpreted such fluctuations to be a transient response to an unexpected life event, allowing for the possibility that these traits will return to pre-shock levels in the long-term (Boyce, Wood, Daly and Sedikides 2015; Specht, Egloff and Schumukle 2011).

These past studies, however, largely pertain the Big Five traits and LOC. The fact that Achievement Motivation is only available in one year of our dataset precludes us from directly testing its intra-individual stability or responsiveness to our outcome variable of interest. As discussed in Risse *et al.* (2018), the psychological literature underpinning Achievement Motivation purports that an individual's motivation to take action entails both an incentivising motive, which is regarded as fairly stable, as well as an expectancy that a certain action will result in the desired outcome, which may be influenced by past experiences (Hill *et al.* 1983, in reference to Atkinson 1964). We acknowledge these limitations and run robustness checks to look for possible signs of endogeneity as far as our data permits.

2.4 Previous studies

Within the psychology and management literature, several previous studies have examined the relationship between personality characteristics and promotion or leadership within the workplace. Many of these studies rely on measures of correlation, including Boudreau and Boswell (2001), Seibert and Kraimer (2001), Judge, Bono, Ilies and Gerhardt (2002) and Ng, Eby, Sorensen and Feldman (2005). Where significance was detected among these studies, promotion or leadership was found to be positively correlated with conscientiousness, emotional stability, extraversion and openness to experience, negatively correlated with agreeableness, and unrelated to LOC. The rigour of these analyses, however, is limited by the absence of control variables including gender.

Econometric regressions that control for firm and worker's characteristics provide more reliable indications of the characteristics associated with promotion. Using multivariate analysis to model the likelihood of an individual being in an executive position, and including controls for gender, Fietze, Holst and Tobsch (2011) detected a positive association with conscientiousness, emotional stability, extraversion, openness to experience and willingness to take risks, and a negative association with agreeableness. Gender was not found to be significant. Gelissen and de Graf (2006) found upward job mobility to be positively associated with extraversion, negatively associated with conscientiousness but only among women, and unrelated to all other Big Five traits. Gender was found to be significant in favour of men. Also concluding that gender is a significant factor, Johnston and Lee (2012) found that the inclusion of the Big Five personality traits could not explain away the significance of gender, though without detailing the coefficients of the Big Five traits. Lee and Ohtake (2014) detected that extraversion is positively related to promotion into management positions among males, though not among females, though make no conclusions about the significance of gender per se.

Another stream of studies concentrates on gender differences in promotion probabilities, though without including personality characteristics. Some have found that gender is not a significant determinant, attributing the gender gap to other factors such as a tendency for women to be more weakly attached to the workforce (Booth and Francesconi 2000; Booth, Francesconi and Frank 2003) or to select into jobs that offer fewer promotion opportunities (Groot and van den Brink 1996). Other studies of promotion probabilities conclude that gender itself is significant in explaining promotion prospects (Addison, Ozturk and Wang 2014; Blau and DeVaro 2007; Cassidy, DeVaro and Kauhanen 2016; Cobb-Clark 2001; Pema and Mehay 2010), for various reasons including the interruptive effect of family on women's career trajectories. To our knowledge, no previous empirical studies in the economics and related literature have explicitly examined the role of an individual's level of confidence in explaining gender differentials in job promotion outcomes, making this paper's analysis a new contribution to the literature.

3. Econometric model

3.1 Measuring the likelihood of job promotion

We define the likelihood that an individual receives a job promotion as y_i^* and express the latent probability of promotion as:

$$y_i^* = x_i'\beta_i + \varepsilon_i \tag{1}$$

where x_i our explanatory variables including personality characteristics, β_i denotes the respective coefficients, i refers the individual, and ε_i denotes the random error term distributed as $\varepsilon_i \sim N(0, \sigma_\varepsilon^2)$. While the true probability function cannot be observed, we can observe whether or not the individual is promoted, assigning a value of $y_i = 1$ if the individual is promoted or $y_i = 0$ if not. Given this binary definition, we adopt a discrete choice probit specification where our observed variable is assumed to align to the latent probability function as follows:

$$y_i = \begin{cases} 1 \text{ if } y_i^* > 0 \\ 0 \text{ if } y_i^* \leq 0 \end{cases} \tag{2}$$

3.2 Adjusting for sample selection

Since promotion outcomes can be observed only amongst individuals who are employed, we apply a two-stage model to control for non-random differences in the characteristics of those who are employed and those who are not, analogous to Heckman's (1979) two-step model used in linear wage regressions (Neuman and Oaxaca 2004). Adjusting for sample selection can avert biased and inconsistent estimates (Greene 2003, 2006; van de Ven and van Praag 1981) and improve asymptotic properties of the estimates through preserving the sample size (Ramanathan 1998). As our selection equation, the likelihood of the individual being employed in the labour force is founded on a latent probability function:

$$z_i^* = w_i'\delta + u_i \tag{3}$$

where z_i^* refers to the likelihood of employment, w_i denotes the explanatory variables that determine the likelihood of employment, δ denotes the respective coefficients, and u_i is the error term distributed as $u_i \sim N(0, \sigma_u^2)$. The latent probability cannot be observed but is estimated according to our observation of whether or not the individual is employed, defined as a binary variable z_i:

$$z_i = \begin{cases} 1 \text{ if } z_i^* > 0 \\ 0 \text{ if } z_i^* \leq 0 \end{cases} \tag{4}$$

The application of a discrete choice specification for both the selection and outcome equations generates a specification referred to as a Heckprobit model (Pastore, 2005), named in reference to the adaptation of Heckman's selection technique to a probit equation.

The likelihood that an individual is promoted is conditional on whether or not y_i is observed $(z_i = 1)$. Adjusting for this condition, the expected probability of promotion is expressed as:

$$E[y_i^*|x_i, z_i{=}1] = (x_i'\beta_i) + E[\varepsilon_i|x_i', z_i{=}1]$$
$$= (x_i'\beta_i) + E[\varepsilon_i|u_i > -w_i'\delta] \quad (5)$$

The correlation between the error terms of the outcome and selection equations is assumed to follow a bivariate normal distribution:

$$(\varepsilon_i, u_i) \sim BVN(0,0,\sigma_\varepsilon^2, \sigma_u^2, \rho) \quad (6)$$

With reference to the correlation coefficient ρ, and normalising $\sigma^2 = 1$, the expected value of the latent probability function is now expresed as:

$$E[y_i^*|x_i, z_i{=}1] = (x_i'\beta_i) + \rho\phi(-w_i'\delta)/[1 - \Phi(-w_i'\delta)]$$
$$= (x_i'\beta_i) + \theta\lambda_i \quad (7)$$

where ϕ and Φ represent the density and cumulative functions of the standard normal distribution, λ_i represents the inverse Mills ratio equal to $\lambda_i = \phi(-w_i'\delta)/\Phi(-w_i'\delta)$, and θ is shorthand for $\rho\sigma_\varepsilon$.[4] The significance of the correlation coefficient ρ determines whether sample selectivity exists.

3.3 Oaxaca-Blinder decomposition

To identify gender differences in the factors that explain job promotions, we adopt the Oaxaca-Blinder decomposition technique (Blinder 1973; Oaxaca 1973). This approach disaggregates sources of gender differences in promotion outcomes into two components: endowment effects which account for differences in the types of characteristics that men and women possess,[5] and coefficient effects which account for any differences in the way that men and women are rewarded or penalised for the same characteristic.[6] As per Mavromaras and Helmut (1997), the decomposition equation is expressed as:

$$y_m^* - y_f^* = \beta_p(\bar{x}_m - \bar{x}_f) + (\beta_m - \beta_p)\bar{x}_m + (\beta_p - \beta_f)\bar{x}_f + \theta_p(\lambda_m - \lambda_f) + (\theta_m - \theta_p)\lambda_m + (\theta_p - \theta_f)\lambda_f \quad (8)$$

4 The log-likelihood function with the inclusion of selection effects is defined as: $lnL = \sum_{y_i=1,z_i=1} ln[\Phi_2(x_i'\beta_i, z_i'\delta, \rho)] + \sum_{y_i=0,z_i=1} ln[\Phi_2(-x_i'\beta_i, z_i'\delta, -\rho)] + \sum_{z_i=0} ln[1 - \Phi_2(z_i'\delta)]$ where Φ_1 refers to the univariate cumulative distribution function and Φ_2 refers to the bivariate cumulative distribution function (Montmarquette, Mahseredjian and Houle 2001; van de Ven and van Praag 1981, 1983).

5 The term 'endowment' does not necessarily imply 'natural' endowment, but simply characteristics that the individual is observed to display at this point of their life.

6 As per Risse *et al.* (2018), we adopt the terms 'endowment effects' and 'coefficient effects' in place of 'explained effects' and 'unexplained effects' traditionally used in Oaxaca-Blinder decomposition, to avoid potential misinterpretation of the unexplained effect as a residual.

where y_m^* and y_f^* denote the underlying likelihood of promotion and $\bar{x}_m$ and $\bar{x}_f$ denote the average level of characteristics, and β_m and β_f are coefficients to be estimated, for males (*m*) and females (*f*) respectively. We adopt the Neumark approach in estimating a coefficient based on a pooled sample (denoted by subscript *p*) as the reference point against which the gender-specific coefficients can be compared (Neumark 1988; Oaxaca and Ransom 1984).

4. Data

4.1 Dataset

The Household, Income and Labour Dynamics in Australia (HILDA) Survey is a nationally represented dataset that allow us to map an individual's personality characteristics against their job promotion outcomes, controlling for comprehensive range of demographic and workplace variables. Although the HILDA Survey has been collected annually since 2001, information on participants' personality is not collected every year. Given that Achievement Motivation is collected only once (in 2012), to avert reverse causality, we use data on job promotions in the year that follows (2013).

Our outcome variable of interest – whether or not an individual experienced a job promotion – is sourced from the life events section of the HILDA Survey which directly asks respondents whether or not they were promoted at work during the past year.[7] The raw data indicate that, within the course of a year, around 9 per cent of all employed workers experienced a job promotion, fractionally higher among men.

4.2 Construction of personality variables in the HILDA Survey

The personality indicators used in this analysis have been validated in the field of psychology and are increasingly being applied in the fields of economics and organisational management. To derive the Achievement Motivation variables, respondents were asked to rate how strongly they related to a set of statements that reflect their readiness to test their capabilities and place themselves in a challenging situation, detailed in Table 1. These items were derived from the Revised Achievement Motives Scale that was designed and validated by Lang and Fries (2006). Responses could take a value from 1 to 7, with a higher value representing a strong level of agreement with the statement. For each individual, we take the average value of their responses to the four survey items for hope for success to generate an overall measure of their hope for success. Similarly, we take the average of their responses to the five items for the fear of failure to compute their overall measure of fear of failure.

7 The survey asks for this information with the following questionnaire item: "*We now would like you to think about major events that have happened in your life over the past 12 months. For each statement cross either the YES box or the NO box to indicate whether each event happened during the past 12 months. If you answer "YES", then also cross one box to indicate how long ago the event happened or started*". The list of major life event includes "Promoted at work". The questionnaire does not ask the individual to specify anything further about the nature of the promotion. The list of major life events also includes "Changed employer" and there is little overlap in the occurrence of job promotions and changes in employer (analysis available on request). This supports the assumption that individuals' job promotion responses largely refer to promotions with their current employer and within their existing organisation.

Principal factor analysis indicated that the survey items load onto these two dimensions as expected. The survey items fulfil internal reliability criteria with a Cronbach's alpha score of 0.759 for hope for success and 0.838 for fear of failure.

To derive the Big Five personality trait variables in the HILDA Survey, respondents were presented with an inventory of 36 adjectives and asked to rate how strongly they believed that each adjective described them. Responses could take a value from 1 to 7, with a higher value denoting a stronger attachment to that adjective. The inventory of adjectives aligns to the underlying five-factor structure defined by Costa and McCrae (1985, 1992), and previously applied by Goldberg (1992) and Saucier (1994).[8] Table 1 presents the adjectives that were ultimately used to construct the Big 5 personality characteristics in the HILDA Survey data. Through this process, a numerical measurement is attained for each individual for each of the Big Five traits. While achievement-related characteristics, such as challenge-orientation, have also been previously used in analyses of individuals' labour market outcomes (for example, Dunifon and Duncan 1998; O'Connell and Sheikh 2007), we know of no previous studies that have used Achievement Motivation, or any other metric for confidence, in a gender-based analysis of job promotion outcomes.

To derive the LOC variables, respondents were asked to rate how strongly they identified with a list of statements reflecting the degree to which they felt that they have control over their outcomes and experiences in life, reported in Table 1. On a scale from 1 to 7, a higher value signifies stronger agreement with the statement. It is common practice to combine the internal and external measures into a 'net' measure (Cobb-Clark and Schurer 2013) especially when there are a low number of survey items available, as is the case with our internal LOC measure. We adopt this practice and arrive at a single numerical measurement of net internal LOC, for each individual, indicative of the overall degree to which they feel that outcomes are within their control. The survey items fulfil the internal reliability criteria with a Cronbach's alpha score of 0.840.

To isolate the explanatory contribution of each aspect the individual's personality, we regress four models: the first is a baseline that excludes any personality variables; the second includes Achievement Motivation; the third includes the Big Five traits; and the fourth includes LOC.[9]

In terms of how we predict these particular personality characteristics to align with our hypotheses, we firstly expect a positive relationship between job promotion and characteristics that are valuable to the firm, such as productive capacity and organisational leadership. Accordingly, we anticipate a positive link with conscientiousness, indicative of an individual's diligence, proficiency, and organisational skills. This aligns with previous research that identifies a link between conscientiousness and job performance

8 Further information on the construction of these variables is available in Losoncz (2009) and Melbourne Institute of Applied Economic and Social Research (2013).

9 We refrain from estimating a 'kitchen sink model' that simultaneously contains all personality three categories, as factor analysis reveals cross-loading between Achievement Motivation and LOC, as analysed in Risse *et al*. (2018) and consistent with the argument that confidence in one's capacity to take on a challenge requires a belief that one's life outcomes are dependent on one's own actions (Cobb-Clark 2015).

(Barrick and Mount 1991; Cubel, Nuevo-Chiquero, Sanchez-Pages and Vidal-Fernandez 2016). We also expect firms to positively value extraversion given that an ability to effectively manage and interact with people is a requirement of many high-ranked jobs (Barrick and Mount 1991). We speculate that a cooperative temperament and a capacity to remain calm under pressure will be valued by the firm, manifested by a positive return to agreeableness and emotional stability. Although it is conceivable that confidence equates to higher productivity, the existing literature does not offer any evidence to substantiate this link. If anything, the literature across various domains suggests that high levels of confidence – or overconfidence – can act as a cognitive bias that detracts from an individual's performance and rational decision-making (Barber and Odean 2000, 2001; Invernizzi, Menozzi, Passarani, Patton and Viglia 2016; Malmendier and Tate 2005; Simon, Kim, Houghton and Deng 2011). Hence we do not speculate any link between confidence and job promotion to be supported by reasons relating to productivity and performance.

As our second hypothesis, we anticipate a positive relationship between job promotion and characteristics that make an individual more likely to put themselves forward for promotion in the first place. This is where we expect confidence to play an explanatory role in predicting promotion rates, captured by hope for success and (inversely) fear of failure. Characteristics that denote self-determination, such as internal LOC, or an appetite for new opportunities, such as openness to new experience, also align with this hypothesis.

4.3 Other explanatory and control variables

We include personal characteristics to reflect an individual's productivity, effort and commitment to the firm. These variables include age, cognitive ability[10], and a dummy variable denoting whether the individual has undertaken on-the-job training in the preceding year, as a way to capture human capital. Number of years of employment with their employer[11] and a dummy variable to denote whether the individual usually worked overtime hours in the preceding year are used to proxy the individual's effort and commitment to the firm, following Landers *et al.* (1996). Educational qualifications are not included directly but are captured by our proxy measure of promotion opportunities described next.[12]

To capture the promotion opportunities available to the worker, we construct a set of variables using job vacancies data as a proxy for promotion opportunities. Information on job vacancies in the Australian labour market is available on the basis of industry and geographical state or territory, and the educational qualification sought

10 We use the average of three cognitive tests scores that are administered in the HILDA Survey: the Backward Digit Span test (a test of memory), the Symbol Digits Modalities test (a test of attention, visual scanning and motor speed) and the National Adult Reading test (a word pronunciation test regarded as a measure of intelligence) (see Wooden 2013). We computed the average of each individual's score across all three tests. We use observations collected in 2012 as these tests were not administered in 2013.

11 Tenure in occupation can be included as a measure of accumulated experience, but this variable is highly correlated with tenure with employer, which is already included.

12 Educational qualifications are found to be significant in determining the likelihood of employment and hence included at selection stage.

of the applicant. We take the number of job vacancies advertised in each industry, state or territory, and qualification level, and scale relative to the existing composition the workforce.[13] Vacancies data according to industry and geography were sourced from the Australian Bureau of Statistics' Job Vacancies catalogue[14] and vacancies data according to skill level were sourced from the Australian Government Department of Jobs and Small Business's Internet Vacancy Index (IVI).[15]

We include additional workplace characteristics that further control for the promotion opportunities available to the worker. These include dummy variables to denote whether they work in the public or private sector, or in casual or permanent employment, and categorical dummies for firm size. All variables for employment characteristic variables refer the individual's job characteristics after the potential promotion has taken place (that is, in 2013). A limitation of our data is that we cannot source any further demand-side factors that might also influence job promotion outcomes, such as more specific characteristics about the worker's employer or the availability of promotion opportunities within their specific firm. The analysis is confined to employees only, and omits individuals who are either self-employed, an employee of their own business or an unpaid worker in a family business, for whom any incidence of a job promotion would not be informative to our study.

As per previous studies, we do not include earnings as an explanatory variable, as many of the determinants of promotion are also direct determinants of earnings. Furthermore we have no theoretical foundation to hypothesise that higher-earning workers are more or less likely to be promoted than lower-earning workers in the absence of the comprehensive set of variables that we already include to capture their productive capabilities and promotion opportunities.

In the selection equation, we include demographic characteristics that predict labour force participation: whether or not the individual is currently studying, their highest educational qualification, English proficiency, relationship status, whether or not they recently had a baby, their number of children according to age, whether or not they have carer responsibilities, and whether the individual has a disability or health condition. The factors that are empirically not significant in predicting job promotion outcomes therefore serve as exclusion restrictions.

Our total sample is restricted to individuals of core working-age (18 to 64 years inclusive). A description of all variables is provided in Table 1 and summary statistics are presented in Table 2.

13 For example, an industry which makes up 10 per cent of total employment, yet contributes to 15 per cent of all advertised job vacancies, would be assigned a relative measure of 15/10=1.5, indicative of relatively strong promotion opportunities.

14 Australian Bureau of Statistics (ABS) *Job Vacancies*. Cat. no. 6354.0.

15 *Internet Vacancy Index* (IVI), Labour Market Information Portal. Department of Jobs and Small Business Australia Government Accessible at <http://lmip.gov.au/default.aspx?LMIP/GainInsights/VacancyReport>

Table 1: Description of variables

Variable	*Description*
Outcome variable	
Promoted	Promoted at work in the past year (0=No; 1=Yes)
Personal characteristics	
Female	Gender (0=Male; 1=Female)
Age 18-29 (base)	Age category of individual in years (0=No; 1=Yes)
Age 30-39	Age category of individual in years (0=No; 1=Yes)
Age 40-49	Age category of individual in years (0=No; 1=Yes)
Age 50-64	Age category of individual in years (0=No; 1=Yes)
Cognitive test scores	Average score on cognitive test scores, scaled from 0 (lowest possible score) to 1 (highest possible score)
Tenure with employer	Number of years of employment with current employer
Overtime hours	Usual weekly hours equalled or exceeded 50 hours in preceding year (0=No; 1=Yes)
On-the-job training	Undertaken on-the-job training in preceding year (0=No; 1=Yes)
Employment characteristics	
Public sector	Sector of employment (0=Private; 1=Public)
Casual	Type of employment contract (0=Permanent; 1=Casual)
Firm size 2-19 (base)	Works in a firm which employs 2 to 19 workers (0=No; 1=Yes)
Firm size 20-49	Works in a firm which employs 20 to 49 workers (0=No; 1=Yes)
Firm size 50-99	Works in a firm which employs 50 to 99 workers (0=No; 1=Yes)
Firm size 100-499	Works in a firm which employs 100 to 499 workers (0=No; 1=Yes)
Firm size 500+	Works in a firm which employs 500 or more workers (0=No; 1=Yes)
Job opportunities by industry	Relative job demand according to individual's industry, measured as a ratio of the industry's share of job vacancies relative to its share of the total current workforce
Job opportunities by qualification	Relative job demand according to individual's qualification level, measured by the ratio of each qualification level's share of job vacancies to its share of the total current workforce
Job opportunities by state/ territory	Relative job demand according to individual's state/territory, measured by the ratio of the state/territory's share of job vacancies to its share of the total current workforce
Personality characteristics#	
Big Five	Averaged response to: 'How well do the following words describe you?' on a scale from 1 (does not describe me at all) to 7 (describes me very well):
Agreeableness	cooperative; kind; sympathetic; warm
Conscientiousness	disorganised^; efficient; inefficient^; orderly; sloppy^; systematic
Emotional stability	envious^ fretful^ jealous^ moody^ temperamental^ touchy^
Extraversion	bashful^; extraverted; lively; talkative; quiet^; shy^
Openness to experience	complex; creative; deep; imaginative; intellectual; philosophical
Achievement Motivation	Averaged response to: 'How much you agree or disagree with each of the following statements?' on a scale from 1 (strongly disagree) to 7 (strongly agree):

Hope for success	'When confronted by a difficult problem, I prefer to start working on it straight away'; 'I like situations where I can find out how capable I am'; 'I enjoy situations that make use of my abilities'; 'I am attracted to tasks that allow me to test my abilities'
Fear of failure	'I start feeling anxious if I do not understand a problem immediately'; 'Even when nobody is watching, I feel anxious in new situations'; 'In difficult situations where a lot depends on me, I am afraid of failing'; 'I am afraid of tasks that I cannot work out or solve'; 'I feel uneasy about undertaking a task if I am unsure of succeeding'
Locus of Control (LOC)	Averaged response to: 'How much you agree or disagree with each of the following statements?' on a scale from 1 (strongly disagree) to 7 (strongly agree):
Net internal LOC	'What happens to me in the future mostly depends on me'; 'I can do just about anything I really set my mind to do' (internal loci) 'I have little control over the things that happen to me'; 'There is really no way I can solve some of the problems I have'; 'There is little I can do to change many of the important things in my life'; 'I often feel helpless in dealing with the problems of life'; 'Sometimes I feel that I'm being pushed around in life' (external loci)

Notes: **Industry:** ANZSIC refers to the Australian and New Zealand Standard Industry Classifications, Australian Bureau of Statistics (ABS) Cat. no. 1292.0. The 1-digit ANZSIC categories were: Mining; Manufacturing; Electricity, gas, water and waste services; Construction; Wholesale trade; Retail trade; Accommodation and food services; Transport, postal and warehousing; Information media and telecommunications; Financial and insurance services; Rental, hiring and real estate services; Professional, scientific and technical services; Administrative and support service; Public administration and safety; Education and training; Health care and social assistance; Arts and recreation services; Other services. The Agriculture, forestry and fishing industry was omitted due to low sample representation. **Qualifications**: Qualifications were categorised in commensuration with skill level according to the Australian Qualifications Framework (AQF), defined by the Australian Qualifications Framework Council as follows: 1 equates to Bachelor degree or higher; 2 equates to Advanced Diploma or Diploma; 3 equates to Certificate III or IV; and 4 equates to Year 12 or Certificate I or II. **Geographic location:** ASGS refers to the Australian Statistical Geography Standard, Australian Bureau of Statistics (ABS) Cat. no. 1270.0.55.005. **Achievement Motivation:** Questionnaire items were sourced from Melbourne Institute of Applied Economic and Social Research (2012). **Big Five**: Questionnaire items were sourced from Melbourne Institute of Applied Economic and Social Research (2013). Losoncz (2009) provides further detail on which adjectives were used to construct the final version Big Five traits accounting for factor loading. Note that numerical values for adjectives denoted by ^ were reversed for the computation of the relevant trait. **LOC:** The items for the internal and external loci of control were combined to create a single measure which equates to net internal LOC, using the method described by Cobb-Clark and Schurer (2013). Questionnaire items were sourced from Melbourne Institute of Applied Economic and Social Research (2011). For numerical interpretability, personality characteristics were standardised to take a mean value of 0 and a standard deviation of 1 in the estimation of computing marginal effects. Descriptions for the variables used the selection equation are not reported for brevity but are available from the author.

Table 2: Summary statistics

	Pooled		*Men*		*Women*		*Gender differential*
	Mean	*Std. dev*	*Mean*	*Std. dev*	*Mean*	*Std. dev*	
Outcome variable							
Promoted	0.094	0.292	0.101	0.301	0.088	0.283	
Personal characteristics							
Female	0.554	0.497	0.000	0.000	1.000	0.000	
Age 18-29 (*base*)	0.277	0.448	0.286	0.452	0.270	0.444	
Age 30-39	0.200	0.400	0.205	0.404	0.197	0.398	
Age 40-49	0.221	0.415	0.218	0.413	0.223	0.417	
Age 50-64	0.301	0.459	0.291	0.454	0.309	0.462	
Cognitive test scores	0.551	0.122	0.545	0.126	0.555	0.119	***
Tenure with employer	6.600	7.727	6.911	8.132	6.308	7.317	***
Overtime hours	0.326	0.469	0.329	0.470	0.323	0.468	
On-the-job training	0.369	0.483	0.355	0.479	0.382	0.486	
Employment characteristics							
Public sector	0.278	0.448	0.231	0.421	0.324	0.468	***
Casual	0.180	0.384	0.152	0.359	0.207	0.405	***
Firm size 2-19 (*base*)	0.317	0.466	0.328	0.470	0.307	0.461	
Firm size 20-49	0.189	0.391	0.175	0.380	0.202	0.402	*
Firm size 50-99	0.130	0.337	0.129	0.335	0.132	0.338	
Firm size 100-499	0.213	0.410	0.221	0.415	0.205	0.404	
Firm size 500+	0.150	0.357	0.146	0.353	0.154	0.361	
Job opportunities by industry	0.942	0.602	0.991	0.538	0.896	0.654	***
Job opportunities by qualification	1.008	0.279	0.973	0.297	1.035	0.260	***
Job opportunities by state/territory	0.991	0.313	0.991	0.307	0.991	0.317	
Personality characteristics							
Achievement Motivation							
Hope for success	5.298	1.013	5.376	1.002	5.235	1.018	***
Fear of failure	3.662	1.348	3.399	1.293	3.871	1.355	***
Big Five							
Agreeableness	5.452	0.895	5.179	0.895	5.673	0.833	***
Conscientiousness	5.125	1.014	5.003	0.997	5.223	1.016	***
Emotional stability	5.100	1.069	5.093	1.054	5.107	1.081	
Extraversion	4.426	1.111	4.292	1.043	4.534	1.151	***
Openness to experience	4.299	1.042	4.365	1.010	4.247	1.064	***
Locus of Control							
Net internal LOC	5.496	1.097	5.533	1.070	5.466	1.118	*
Number of observations							
Employed individuals only	5765		2822		2943		
Total observations	8044		3589		4455		

Note: Summary statistics are based on the sample used in baseline specification (Model #1). Summary statistics for the variables used the selection equation are not reported for brevity but are available from the author. For numerical interpretability, personality characteristics were standardised to take a mean value of 0 and a standard deviation of 1 in the estimation of computing marginal effects. Gender differentials denote whether the difference between men's and women's mean values is significant at the ***1%; **5%; *10% critical level. *Source:* Author's analysis using the HILDA Survey.

5. Empirical results

5.1 Predictors of job promotion

Reported in Table 3, the baseline model (Model #1) indicates that job promotion is inversely related to a worker's age and tenure[16], and positively related with undertaking overtime hours and on-the-job training in the prior year. This is consistent with our expectation that a worker's commitment to the firm enhances their value. Possibly this also signals that firms allocate training to workers who are already identified as candidates for promotion. Workers employed in large firms, or in industries with relatively strong job opportunities, experience higher promotion prospects, while those on casual contracts experience weaker prospects. Promotion opportunities tend to diminish the longer that a worker has been employed in their firm, which is a likely reflection of them nearing the upper tiers of the promotion ladder.

With the inclusion of Achievement Motivation (Model #2 in Table 3), we find that hope for success is positively related to the probability of job promotion, as anticipated, while fear of failure is unrelated. The inclusion of the Big Five traits (Model #3 in Table 3) reveals that workers who are relatively more extraverted, open to experience and conscientious are more likely to be promoted, consistent with our hypotheses. Workers with a higher net internal LOC experience higher promotion prospects (Model #4 in Table 3). All of these empirical links are consistent with our hypotheses.

16 The squared value of tenure was initially included as an explanatory variable to test for diminishing marginal returns, but omitted due to non-significance.

Table 3: Likelihood of job promotion: Heckprobit coefficient results

	Model #1		*Model #2*		*Model #3*		*Model #4*	
	Baseline		*Achievement Motivation*		*Big Five*		*Locus of Control*	
Outcome equation (Promoted or not)								
Personal characteristics								
Female	0.012 (0.051)		0.019 (0.054)		0.001 (0.056)		0.023 (0.055)	
Age 30-39	-0.124 (0.063)	**	-0.101 (0.066)		-0.112 (0.064)	*	-0.097 (0.068)	
Age 40-49	-0.424 (0.069)	***	-0.390 (0.072)	***	-0.412 (0.070)	***	-0.416 (0.074)	***
Age 50-64	-0.495 (0.080)	***	-0.464 (0.082)	***	-0.503 (0.083)	***	-0.491 (0.084)	***
Cognitive test scores	0.275 (0.231)		0.338 (0.241)		0.272 (0.241)		0.283 (0.248)	
Tenure with employer	-0.018 (0.004)	***	-0.018 (0.004)	***	-0.017 (0.004)	***	-0.022 (0.005)	***
Overtime hours	0.224 (0.062)	***	0.187 (0.066)	***	0.217 (0.063)	***	0.212 (0.068)	***
On-the-job training	0.187 (0.048)	***	0.190 (0.050)	***	0.179 (0.049)	***	0.203 (0.052)	***
Employment characteristics								
Public sector	0.024 (0.061)		0.020 (0.064)		0.028 (0.062)		0.038 (0.065)	
Casual	-0.471 (0.078)	***	-0.477 (0.083)	***	-0.490 (0.080)	***	-0.475 (0.084)	***
Firm size 20-49	0.107 (0.070)		0.117 (0.073)		0.104 (0.071)		0.100 (0.075)	
Firm size 50-99	0.013 (0.082)		0.008 (0.086)		0.008 (0.083)		-0.057 (0.089)	
Firm size 100-499	0.188 (0.067)	***	0.196 (0.071)	***	0.191 (0.068)	***	0.179 (0.072)	**
Firm size 500+	0.160 (0.077)	**	0.169 (0.080)	**	0.165 (0.078)	**	0.156 (0.082)	*
Job opp. by industry	0.141 (0.038)	***	0.149 (0.040)	***	0.141 (0.039)	***	0.140 (0.041)	***
Job opp. by qualification	0.062 (0.088)		0.056 (0.092)		0.040 (0.089)		0.074 (0.095)	
Job opp. by state/territory	0.098 (0.072)		0.129 (0.075)	*	0.088 (0.074)		0.134 (0.077)	*
Personality characteristics								
Achievement Motivation								
Hope for success			0.106 (0.029)	***				

Fear of failure				-0.004	(0.020)							
Big Five												
Agreeableness							-0.028	(0.031)				
Conscientiousness							0.053	(0.028)	*			
Emotional stability							-0.044	(0.025)	*			
Extraversion							0.060	(0.023)	***			
Openness to experience							0.074	(0.027)	***			
Locus of Control												
Net internal LOC										0.053	(0.027)	**
Constant	-1.448	(0.191)	***	-2.139	(0.290)	***	-1.933	(0.299)	***	-1.817	(0.273)	***
Selection equation (Employed or not)#												
Selection model parameter												
ρ	-0.345	(0.104)	***	-0.289	(0.112)	***	-0.298	(0.108)	***	-0.317	(0.118)	***
Model criteria												
Total observations	8044			7533			8033			7203		
Uncensored observations	5765			5435			5760			5204		
Censored observations	2279			2188			2273			1999		
Wald $\chi 2$	185.87	(17 df)		180.41	(19 df)		205.82	(22 df)		179.46	(18 df)	
Prob> $\chi 2$	0.0000			0.0000			0.0000			0.0000		
Log likelihood	-5631.26			-5252.35			-5559.83			-4971.06		

Note: #Full results used the selection equation are not reported for brevity but are available from the author. Significant at: ***1%; **5%; *10% critical level. Standard errors are in parentheses. (df) denotes degrees of freedom. Age is relative to reference category of 18-29 years. Firm size is relative to firms with 2-19 employees. Educational qualification is relative to secondary school or below. Observation count differs slightly across the models due to variation in the number of non-responses for the personality trait variables. *Source:* Author's analysis using the HILDA Survey.

Emotional stability is found to be inversely related to job promotion prospects. While this seems counterintuitive to our initial hypothesis – as neuroticism connotes a tendency to worry under pressure – organisational management literature also suggests that feelings of anxiety can in fact motivate a neurotic employee to work harder (Bendersky and Shah 2013). Furthermore, neuroticism is associated with stronger firm loyalty (Erdheim, Wang and Zickar 2006). Compatible with our findings, a worker's anxiety about leaving their current firm can motivate their commitment, meaning that are more likely to remain in their firm and climb their firm's internal hierarchical ladder, rather than seek out opportunities in other organisations.

Also at odds with our initial hypothesis, agreeableness has no significant link to job promotion prospects. Although agreeableness is conceivably a trait that would be highly valued within organisations, because cooperative individuals might be more likely to foster harmonious and productive working relationships, it is also possible that agreeable individuals are more likely to engage in behaviour that works against their career advancement in current job promotion systems. For example, highly agreeable workers might be more willing to allocate their time away from their own work tasks to help colleagues, and be less likely to engage in self-focused, competitive behaviours that would advance their own career ahead of others, such as singling out their individual contribution in a collaborative project.

Our curiosity lies in whether these links between personality traits and job promotion prospects are consistent across men and women. We therefore disaggregate the estimation into gender-specific samples. We compute the average marginal effects of personality variables, using standardised values so that marginal effects can be quantifiably interpreted as the percentage increase in job promotion prospects associated with a one-standard-deviation increase in the characteristic of interest.

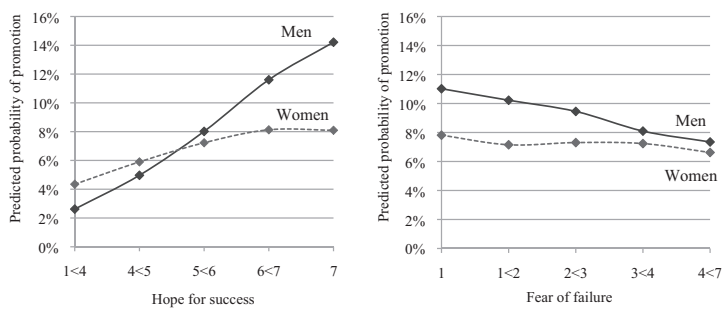
Hope for success is associated with higher promotion prospects on average across the entire sample: a one-standard-deviation increase in hope for success is linked to a 1.9 per cent boost in the likelihood of a job promotion (Table 4). Yet when disaggregated by gender, a stark disparity emerges. Among men, an increase in hope for success lifts the prospect of a job promotion by 3.3 per cent, but this link between confidence and job promotion loses statistical significance among women. Fear of failure remains non-significant as a predictor of job promotion prospects among both men and women. Figure 2 illustrates these gender differences in predicted promotion rates according to Achievement Motivation levels.

Table 4: Likelihood of job promotion: Heckprobit marginal effects of Achievement Motivation model

	Men		*Women*		*Pooled*	
Personality characteristics						
Achievement Motivation						
Hope for success	0.033	(0.008) ***	0.004	(0.007)	0.019	(0.005) ***
Fear of failure	-0.001	(0.007)	0.000	(0.006)	0.000	(0.005)
Model criteria						
Total observations	3354		4199		7533	
Uncensored observations	2644		2791		5435	
Censored observations	710		1408		2118	
Wald $\chi 2$	105.83	(18 df)	96.61	(18 df)	180.70	(19 df)
Prob> $\chi 2$	0.0000		0.0000		0.0000	
Log likelihood	-2169.78		-2907.87		-5307.67	
Predicted promotion rate	8.55%		6.97%		7.55%	

Note: Significant at: ***1%; **5%; *10% critical level. Marginal effects based on Heckprobit specification reported as Model #2 in Table 3. Full coefficient results available from the author. *Source:* Author's analysis using the HILDA Survey. Standard errors are in parentheses. (df) denotes degrees of freedom.

Figure 1: Predicted promotion rate for men and women according to Achievement Motivation



Note: Promotion probabilities are estimated for 2013 using Achievement Motivation responses collected in 2012. Categories at the lower levels of Hope for success and at the higher levels of Fear of failure are grouped due to small sample sizes. *Source:* Author's analysis using the HILDA Survey.

Turning to the Big Five traits (Table 5), a one-standard-deviation increase in conscientiousness, extraversion or openness to experience is linked to an approximate 1 percentage-point increase in job promotion prospects on average across the entire sample. However, again when disaggregated by gender, the significance of this link is only retained among the male workforce. An inverse relationship is detected between emotional stability and job promotion prospects, yet only among women. This finding could indicate that anxiety about separating from an employer has a stronger influence on women's labour force behaviour than men's.

Table 5: Likelihood of job promotion: Heckprobit marginal effects of Big Five model

	Men		*Women*		*Pooled*	
Personality characteristics						
Big Five						
Agreeableness	-0.009	(0.007)	-0.001	(0.007)	-0.003	(0.005)
Conscientiousness	0.018	(0.007) ***	0.000	(0.006)	0.010	(0.005) **
Emotional stability	-0.006	(0.007)	-0.012	(0.006) *	-0.009	(0.005) *
Extraversion	0.017	(0.007) **	0.007	(0.006)	0.012	(0.005) ***
Openness to experience	0.023	(0.008) ***	0.005	(0.007)	0.013	(0.005) **
Model criteria						
Total observations	3583		4450		8033	
Uncensored observations	2819		2941		5760	
Censored observations	764		1509		2273	
Wald $\chi 2$	124.44	(21 df)	102.94	(21 df)	206.13	(22 df)
Prob> $\chi 2$	0.0000		0.0000		0.0000	
Log likelihood	-2304.63		-3061.27		-5652.58	
Predicted promotion rate	8.74%		7.01%		7.63%	

Note: Significant at: ***1%; **5%; *10% critical level. Marginal effects based on Heckprobit specification reported as Model #3 in Table 3. *Source:* Author's analysis using the HILDA Survey. Standard errors are in parentheses. (df) denotes degrees of freedom.

An increase in LOC of one standard deviation corresponds to a higher likelihood of promotion by around 1 percentage point on average (Table 6). This positive association heightens to a 1.8 percentage point gain among men, but diminishes into non-significance among women.

Table 6: Likelihood of job promotion: Heckprobit marginal effects of Locus of Control model

	Men		*Women*		*Pooled*	
Personality characteristics						
Locus of Control						
Net internal LOC	0.018	(0.007) **	0.003	(0.007)	0.010	(0.005) **
Model criteria						
Total observations	3201		4002		7203	
Uncensored observations	2548		2656		5204	
Censored observations	653		1346		1999	
Wald $\chi 2$	101.24	(17 df)	93.67	(17 df)	180.46	(18 df)
Prob> $\chi 2$	0.0000		0.0000		0.0000	
Log likelihood	-2034.12		-2763.67		-5039.75	
Predicted promotion rate	8.49%		6.89%		7.49%	

Note: Significant at: ***1%; **5%; *10% critical level. Marginal effects based on Heckprobit specification reported as Model #4 in Table 3. *Source:* Author's analysis using the HILDA Survey. Standard errors are in parentheses. (df) denotes degrees of freedom.

In sum, being more confident, conscientious, extraverted, open to experiences, or self-determinant is not found to make a statistical difference to women's job promotion prospects – despite these characteristics all being positively associated with higher promotion rates for men.

Among the other explanatory factors, we observe several other gender disparities that display strong statistical significance. Working in a large firm appears to improve men's promotion prospects by at least around 4 percentage points, yet has no statistical link to the job promotions of women. A factor that does appear to boost women's job promotion prospects is overtime work: women who regularly work above a full-time workload are 6 percentage points more likely to be promoted, whereas men's prospects are lifted by only 3 percentage points at best. Women's promotion prospects appear to benefit slightly more than men's from expansions in job opportunities in their state or territory, suggesting that women's job promotion opportunities are more closely tied to the conditions of the labour market. The links between job promotion and age, tenure, on-the-job training, casual employment and industry-based job expansion are largely consistent across genders.

5.2 Oaxaca-Blinder decomposition effects

The endowment and coefficient effects of the Oaxaca-Blinder decomposition model are presented in Table 7, where a positive sign informs us that the effect generates an advantage to men, while a negative sign indicates an advantage to women. Men are advantaged by their higher average levels of hope for success, as well as the higher benefit that they experience for this trait. Men are also advantaged by their higher average levels of openness to experience, whereas women are advantaged by their higher average levels of conscientiousness and extraversion. Men, however, experience a higher return on these latter two traits. While there is not a sizeable enough difference in men's and women's average levels of LOC to generate an endowment effect, men are advantaged by receiving a higher positive return on this trait.

Table 7: Oaxaca-Blinder decomposition of personality characteristics

	Endowment effects			*Coefficient effects*		
Model #2 Achievement Motivation						
Hope for success	0.013	(0.005)	***	0.119	(0.041)	***
Fear of failure	0.002	(0.009)		-0.005	(0.023)	
Model #3 Big Five						
Agreeableness	0.013	(0.014)		-0.044	(0.056)	
Conscientiousness	-0.012	(0.006)	*	0.110	(0.045)	**
Emotional stability	0.000	(0.001)		0.033	(0.042)	
Extraversion	-0.016	(0.006)	**	0.059	(0.033)	*
Openness to experience	0.008	(0.003)	**	0.048	(0.036)	
Model #4 Locus of Control						
Net internal LOC	0.002	(0.002)		0.083	(0.043)	*

Note: Significant at: ***1%; **5%; *10% critical level. Standard errors in parentheses. Oaxaca-Blinder decomposition is based on the Heckprobit specifications presented in Table 3. Number of observations and model criteria align to the results presented in Table 3. As the estimation is based on a probit specification, only the signs, and not the numerical value, of the coefficients can be interpreted. Only the decomposition effects for personality variables are reported, with full results available from the author. *Source:* Author's analysis using the HILDA Survey.

Across all the personality characteristics for which one gender is receiving a more favourable return than the other gender, there are no instances in which women are the ones reaping the advantage. Noting that we applied the gender-neutral pooling methodology proposed by Neumark (1988) which makes no prior assumptions that the returns to a given characteristic necessarily favour either men or women, all of the gender biases that emerge in terms of returns to personality characteristics happen to work in favour of men. Comparing these results to Risse *et al.* (2018), we observe that gender biases in returns to confidence emerge only in the context of job promotion outcomes, not wage outcomes. This implies that job promotion decisions – which are often determined through personal interviews with a panel – are more heavily exposed to subjective biases and influenced by societal norms.

5.3 Disaggregation by industry, occupations and firm size

We disaggregate the sample by industry, occupation and firm size to investigate whether the gender-specific effects of confidence are more prominent within particular segments of the workforce.[17] Selection into the respective workforce industry, occupation and firm size is controlled for using education and English proficiency as exclusion restrictions, given that these variables were found to have no predictive significance in the outcome equation. The advantageous links between confidence and job promotion prospects prevail most strongly in favour of men in mining, transport, postal and warehousing, and the arts and recreation industries, and among trade workers, technicians, labourers, machinery operators and drivers. Also within

17 Tables of results are not reported for brevity but are available on request.

these occupations, women experience a higher penalty than men for displaying fear of failure. These gender biases amplify with firm size.

Among managers, we find that men and women managers are penalised for showing fear of failure, yet men are penalised more – a potential signal of the influence of gender norms when it comes to positions of leadership and authority.

5.4 Robustness checks and limitations

We inspected the data for any empirical indications that an individual's confidence level could have been influenced by previous experiences of job promotions.[18] Firstly, we exploit the fact that the HILDA Survey asks respondents 'how long ago did the job promotion occur?', with responses disaggregated by quarterly year periods. If a job promotion were to affect an individual's confidence level, then we might anticipate that individuals who were promoted more recently would have a higher level of confidence that those who were promoted relatively longer ago. When we inspect the Achievement Motivation levels of workers according to how recently they were promoted – ranging from '0 to 3 months ago' to '22 to 24 months ago' – we observe that workers who were promoted relatively recently do not statistically differ in their average levels of hope for success or fear of failure compared to workers who were promoted longer ago (Appendix A).

Secondly, to account for the potential that an individual's previous experiences of being promoted at work may have lifted their level of confidence, we run a version of the model that excludes all individuals who received job promotion during the three years leading up the year under observation (that is, at any point from 2010 to 2012). The results are robust to this restricted sample. Ideally, we would also seek to examine the data for any signs that an individuals' confidence may have been adversely by any unsuccessful past attempts for a job promotion. An unfortunate limitation to our dataset is that we cannot identify individual who applied for promotion but failed, and therefore cannot explicitly control for this effect.

Thirdly, we take into account the possibility that job promotion opportunities are less likely to be available to workers who have recently commenced their job or who have reached their peak of their career ladder. We exclude workers who were already at manager level in the previous year, since this occupational group is likely to over-represent individuals at the peak of their career progression and are less likely to have the opportunity to be promoted further. Turning to the other end of the spectrum, we exclude individuals whose tenure with their current employer is less than one year, as this sub-sample is likely to over-represent people for whom the opportunity to be promoted might not yet be a feasible possibility. The coefficients for hope for success and fear of failure, and their respective endowment and coefficient effects, are unchanged in levels of significance. Despite these robustness checks, we acknowledge the data limitations of this analysis which mean that potential measurement errors, omitted variable bias and multicollinearity may still exist.

18 Tables of results are not reported for brevity but are available on request.

6. Discussion of results

Having detected a positive link between workers' hope for success and job promotion prospects, and having observed that women display lower average levels of confidence than men, it might seem logical to infer that the way to advance women's careers is to increase their confidence: this rationale underpins the 'lean in' movement. However, the gender lens we have incorporated into this analysis points towards the critical caveat that must be applied to our understanding of confidence in the workplace: we do not detect any statistically significant evidence to support the claim that higher confidence translates into stronger job promotion prospects for women in the same way that it appears to lift the job promotions prospects of men. This gender disparity is consistent with the organisational behaviour literature which finds that, relative to men, women can experience a lower return – and even a penalty or backlash – for demonstrating ambition, confidence and assertiveness in the workplace (Bowles, Babcock and Lei 2007; Catalyst 2007; Ibarra, Ely and Kolb 2013; O'Neill and O'Reilly 2011). One reasoning behind this is that the act of women showing ambition and authority contravenes gender-patterned cultural norms and expectations of behaviour (Eagly and Wood 1991; Eagly and Karau 2002) and that such non-conformity evokes repercussions that can include lower job promotion prospects (O'Neill and O'Reilly 2011). Our findings also align with studies of the 'sticky floor' phenomenon which conclude that women's stagnant career advancement has more to do with discrimination on the part of the employer, rather than the attributes or behaviours of female workers themselves (Artz, Goodall and Oswald 2018; Baert, De Pauw and Deschact 2016).

Gender-biased patterns in job promotion can reflect gender-biased norms in relation to competency and leadership that may prevail within an organisation and broader culture (Metz and Kulik 2014). Consistent with a societal stereotype that positions men as the 'template' worker and leader, all of the Big Five and LOC personality characteristics that were found to be associated with job promotion in this analysis were characteristics that empirically typify males more than females. Furthermore, our finding that the link between workers' confidence and job promotion prospects is most prominent within the male-dominated segments of the workforce suggests that the salience of gender-based stereotypes contributes to these gender-patterned promotion outcomes. Our finding that men are penalised more than women for displaying fear of failure, especially at management level, also aligns with stereotypical gendered expectations, namely that men should demonstrate strength, control and fearlessness in authoritative or high-pressured situations. This is a gender norm which not only impedes equitable opportunities for women but can also impose potentially harmful repercussions on men's wellbeing (Whitehead 2014).

In terms of the mechanisms that might perpetuate these gender biases in job promotion outcomes, our results are consistent with the observation that leadership appointments tend to reflect the profiles of those who are already in positions of authority and making the appointment decisions – a behaviour that aligns with affinity bias (Gorman 2005). Specifically, it has been found that men's higher confidence may play a role in driving gender-biased 'imitation effects'. Past research show that, when placed in an evaluator role, confident men tend to project their own self-confidence onto

other men, resulting in them overestimating the performance capabilities of other men while under-estimating the performance capabilities of women (Albrecht, von Essen, Payys and Szech 2013). Women in evaluator roles were not found to act in such a way.

These findings also help to explain why women remain under-represented in senior occupational ranks. A workforce that systematically favours confident men overconfident women in its promotion outcome sends the message that successful leadership equates to a confident male: this signal can explain women's reluctance to 'lean in' in the first place. The perpetual under-representation of any socio-demographic group in the upper tiers of an organisation can also deny the opportunity for under-represented individuals to demonstrate their capacity to perform these roles, eliciting the effects of statistical discrimination and consequently reinforcing leadership stereotypes (Oettinger 1996; Bjerk 2008). There is also evidence that higher levels of confidence can inflate a worker's promotion prospects unduly: studies show that more confidence individuals are perceived, by others, as more competent, regardless of their actual level of competency (Anderson, Brion, Moore and Kennedy 2012).

If these gender biases result in the most capable candidate being overlooked for the job, the repercussions can spill beyond individual-level effects and lead to firm-wide and economy-wide losses in efficiency and performance. Not only is there a lack of evidence that higher confidence equates to higher performance, there is growing awareness of the dangers of relying on a candidate's confidence as a signal of their competency and leadership potential. Organisational management literature cautions us that the characteristics that a candidate may use to persuade others of their superior capability for the job – confidence, charisma and high self-esteem – are the same traits that are likely to make them an incompetent leader and can have the effect of veiling their shortcomings, including potential narcissistic tendencies (Chamorro-Premuzic 2019). Organisations that value merit-based systems of job appointments, and seek the most capable candidate for the job, would be advised to evaluate the processes that guide their appointment decisions and adopt design mechanisms that facilitate the objective evaluation of every candidate (Bohnet 2016). These steps can reduce the risk that candidates' expressed level of confidence distorts the decision-making process.

While the well-intentioned 'lean in' movement may encourage more women to act more confidently and opt into the promotions pool, a growing body of literature suggests that caveats need to be applied to the advice. Firstly, the psychology literature informs us that personality traits are not easily malleable. Secondly, even if personality could be deliberately changed, there is no robust evidence that they will be rewarded for becoming more confident in the workplace. Thirdly, the 'lean in' advice places the onus on women to change, perpetuating the notion that workplaces requires women to conform to the model of behaviour demonstrated largely by men (Wille *et al.* 2018), neglecting and devaluing the potential gains that different dispositions can bring to the workplace. These caveats imply that, instead of urging all workers to converge towards a stereotyped norm that prescribes success as a function of one's confidence, it would be more effective for organisations to focus on the performance gains that could be achieved through the diversity of personal attributes offered by their workforce. This approach is supported by research that identifies the economic gains of organisational diversity especially in relation to decision-making (Hunt *et al.* 2018). Encouraging

organisations to scrutinise the effectiveness of their own structures and systems, rather than placing the responsibility on women to change, also accords with an emerging body of literature that points to the flaws and futility of treating women's attributes as a deficiency (Fox 2017; Orr 2019).

As these findings are based on average effects across the entire workforce, women who are inspired by the 'lean in' advice should not be deterred from putting themselves forward for career advancement. The implication of these findings is that women are advised to assess the signals within their organisation as to whether confidence among females is likely to be rewarded.

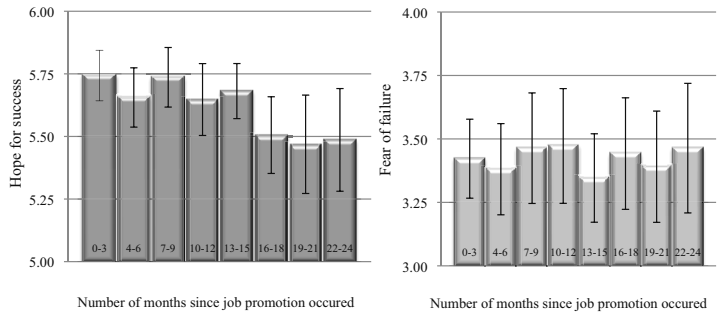
7. Conclusion

This paper presents the first large-scale, nationally representative study of the empirical link between an individual's confidence and job promotion prospects, examined through a gender lens. While promotion rates do not differ significantly between men and women, the characteristics associated with job promotion do. Our finding that hope for success is linked to higher job promotion prospects among men – but not among women – provides no evidence to support the widespread advice that is often given to women to 'lean in' and show more confidence and ambition in the workplace. A meritocratic, gender equitable system of job appointment will be difficult to achieve if organisations continue to reward attributes such as confidence and extraversion in gender-biases ways, and without solid evidence that these attributes matter for job performance and leadership capacity in the first place.

This study's findings suggest that the path toward gender equality should be less about attempting to change women, and more about changing the ways that women are evaluated differently to men. This requires that organisations transparently identify and prioritise the attributes that truly matter for workplace performance and leadership – and refrain from being swayed by the traits that do not.

Appendix A

Figure A1: Hope for success and fear of failure levels of individuals who were promoted during past two years, according to recency of job promotion



Note: Columns indicate mean level and vertical bars indicate the bounds of 95% confidence intervals around the means. Sample sizes, in order from the '0-3 months' to the '22-24 months' categories: 297; 220; 165; 117; 247; 141; 128; 109 (for Hope for success) and 297; 217; 164; 119; 241; 142; 128; 110 (for Fear of failure). *Source:* Author's analysis using the HILDA Survey.

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