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**Understanding the Role of Job Quality in the Association of Employees' Career  
Change to Self-employment and Job Satisfaction**

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# **Understanding the Role of Job Quality in the Association of Employees' Career Change to Self-employment and Job Satisfaction**

## **Abstract**

### **Purpose**

While researchers have discussed the association between career change to self-employment and job satisfaction, few have considered how the association is achieved. Therefore, in this study, we aim to explain this relationship from the perspective of job quality. We build on job design theory to propose and empirically test how fluctuations in job satisfaction as associated with the transition to self-employment can be explained by changes in job quality.

### **Design/methodology/approach**

We tested our propositions using a longitudinal, nationally representative database from Australia for the 2005–2019 period. The final sample included 108,384 observations from 18,755 employees.

### **Findings**

In line with the literature, we found that job incumbents experienced low job satisfaction in the years prior to their career change to self-employment and that their job satisfaction improved after the transition. More importantly, we found the same change pattern for job quality—measured as job autonomy and skill variety—and our statistical results demonstrated that job quality was the key determinant of job satisfaction during the process.

### **Practical implications**

This study advocates the importance of job quality in managing employee wellbeing and facilitating retention.

### **Originality**

We contribute to the literature by uncovering how job quality, represented by skill variety and job autonomy, can explain fluctuations in job satisfaction during individuals' career change

from paid employment to self-employment.

Key words: career change; job design; job satisfaction; job quality; self-employment; job autonomy; skill variety

## Introduction

Self-employment, as a particular type of career choice, has attracted broad research attention over the past decades. Although research has traditionally focused on the economic value—for both society and individuals—of self-employment (e.g., Mohapatra *et al.*, 2007; Thurik *et al.*, 2008), emerging evidence has also pointed to its positive impact on individuals' wellbeing. Studies have shown that self-employed people are more satisfied with their jobs, experience less job strain, and tend to have better life satisfaction and mental and physical health in general, than those in paid employment (for reviews, see Stephan, 2018). Therefore, improved job satisfaction and wellbeing have been regarded as favorable aspects for self-employment (e.g., Bradley and Roberts, 2004; Lange, 2012; Millán *et al.*, 2013). Moreover, studies have suggested that individuals may transit to self-employment to enhance their job satisfaction and wellbeing (e.g., Baron, 2010; Nikolaev *et al.*, 2020). In sum, it seems that salaried employees make a career change to self-employment for nonpecuniary benefits, such as gaining better satisfaction, and they tend to enjoy enhanced satisfaction once self-employed.

However, less research has considered how the association between job satisfaction and self-employment transition is achieved. In this study, we build on the job design theory (Humphrey *et al.*, 2007; Parker, 2014) to fill this gap and to understand how job quality can be the missing link. First, job quality acts as the channel through which job incumbents apply their talents, develop capacity, achieve career progression, and gain a sense of meaningfulness, fulfilment, and long-term contentment (Parker, 2014). Job design theory, in particular, highlights that a high-quality job enables individuals to cope with exhaustion, stress, and negative emotions at work, and achieve positive wellbeing (Demerouti *et al.*, 2001; Humphrey *et al.*, 2007). Second, self-employment, as a career choice, differs significantly from other choices with respect to the organizational context, and one such

difference could be its superiority in job quality (Bradley and Roberts, 2004; Hundley, 2001). The self-employed own, or at least partly own, their business and thus are less likely to be constrained by contextual factors and can have more flexibility in crafting their jobs based on their personal preferences. Hence, job quality may be the missing link between self-employment transition and job satisfaction, in that individuals obtain improved job quality alongside the transition journey, which leads to enhanced job satisfaction.

We adopt two job characteristics to represent job quality, job autonomy and skill variety, which can be meaningful attributes for several reasons. First, the literature has suggested that these two factors, as important elements in job characteristic models (Hackman and Oldham, 1975; Morgeson and Humphrey, 2006), represent good job quality and have important implications for individuals' wellbeing (Grotto and Lyness, 2010; Wu *et al.*, 2015). Second, the literature has highlighted the vital role of job autonomy and skill variety in providing high job quality in the self-employment context. For instance, compared with employees in large organizations, the self-employed have a majority control over their business and thus have greater decision-making authority and can make decisions directed by their personal goals (Patterson and Mavin, 2009). In a similar vein, the self-employed oversee multiple activities in their business and therefore experience high skill variety at work, gaining a sense of fulfilment as a result (Baron, 2010; Chen and Thompson, 2016). Therefore, we propose that job autonomy and skill variety act as meaningful mediators in translating the association between career change to self-employment and job satisfaction.

This study contributes to the literature in three ways. First, we extend the career change literature with respect to the role of job quality in explicating how career change can enhance the job satisfaction level. Although some studies have shown that individuals who change careers often experience a boost in job satisfaction (e.g., Boswell *et al.*, 2005; Georgellis and Yusuf; 2016; Zhou *et al.*, 2017), none has examined how this association is

achieved. By unpacking job quality as the key mechanism, we provide a nuanced understanding about its critical role in the career change process. Second, using a nationally representative dataset collected over 15 years, we further advance previous cross-sectional studies (e.g., Bradley and Roberts, 2004; Hundley, 2001; Millán *et al.*, 2013) by analyzing how individuals' transition to self-employment influences their subsequent wellbeing development. Hence, our study provides a better understanding regarding the trajectory of job satisfaction and the two job characteristics throughout the transition journey. Third, by revealing job quality as the central source of satisfaction through the career transition journey, our study also provides important practical implications to help organizations manage employees' wellbeing and retention more effectively, such as by enhancing their job autonomy and skill variety.

## **Theoretical Background and Hypothesis Development**

### *Job satisfaction and changing to self-employment*

Job satisfaction is commonly defined as the extent to which people like their job (Millán *et al.*, 2013); in a broad sense, it reflects the general feelings that people have about their jobs (Carless and Arnup, 2011), or the emotional state determined by their appraisal of work experience (Boswell *et al.*, 2005). It is an attitudinal reaction to, and an affective judgment regarding, the nature and conditions of work, which not only represents individuals' work accomplishments but also their career prospects (Boswell *et al.*, 2005; Grube *et al.*, 2008). Researchers have therefore suggested that the level of job satisfaction is an important factor that explains individual professional and organizational decisions (Blau, 2000), such as job change decisions (e.g., Zhou *et al.*, 2017).

The career change and job satisfaction literature has identified a common pattern of lower job satisfaction before a career change, and a rise in the job satisfaction level following the change (e.g., Boswell *et al.*, 2005, 2009; Zhou *et al.*, 2017). These findings indicate that

dissatisfying experiences from the previous job may be the reason for career change. After such a change, a *honeymoon* effect may be present—since it often takes people time to understand the new organizational processes and values, the dissatisfying elements of the new job may be less obvious in the beginning (Boswell *et al.*, 2005, 2009; Zhou *et al.*, 2017). The self-employment literature also lends support to this dynamic transition–satisfaction relationship. For example, Hundley (2001) found that the self-employed generally report higher job satisfaction than do corporate employees. Further, Millán *et al.* (2013) highlighted that the differences in job satisfaction between the self-employed and their counterparts is due to their job type (self-employed versus corporate employees), rather than due to other factors, such as income or working hours. In addition, Georgellis and Yusuf (2016) found more direct support for this relationship—they provided longitudinal evidence on the influence of self-employment transition on job satisfaction and observed increased job satisfaction after transition occurred. These empirical findings consistently suggest that self-employment transition is associated with job satisfaction, in that the self-employed may obtain an increase in job satisfaction following a career change to self-employment from paid employment. Taking the evidence together, we hypothesize the following:

*Hypothesis 1. Employees will experience lower job satisfaction prior to a career change from corporate employment to self-employment, and they will experience an increase in job satisfaction following the change.*

*Role of job quality: job autonomy and skill variety*

We now draw on the job design literature to unpack job characteristics as the potential underlying mechanisms of self-employment transition and job satisfaction. The job design literature has suggested that high-quality jobs are significant predictors of job satisfaction and that job characteristics represent critical job quality factors (Agarwal and Gupta, 2018; Parker, 2014). The job demands–resources model, in particular, highlights the role of positive



job characteristics in providing critical resources to offset job demands, so that employees can achieve positive wellbeing at work (Demerouti *et al.*, 2001).

Among various job characteristics, job autonomy and skill variety are the most relevant to employees' satisfaction at work and change decisions (Hundley, 2001). Job autonomy refers to the freedom one has regarding the time frame, method, or sequence for finishing tasks (Hackman and Oldham, 1975). High levels of job autonomy can facilitate employees' active participation in work-related activities and strengthen their confidence about their ability, thus lifting their experience of self-actualization and their general feelings toward the job (Douglas and Shepherd, 2000). Job autonomy also enables employees to exercise control when facing uncertainty and provides them with the scope to solve problems independently, thus improving their job experience (Malik and Dhar, 2017). In addition, job autonomy plays a vital role in improving work–family balance because it allows employees to alter their schedules to cope with urgent needs and avoid role conflict in the work and family domains, which leads to higher job satisfaction levels (Kotey and Sharma, 2019).

Skill variety denotes the range of knowledge or skills that employees need to use at work to complete their tasks (Hackman and Oldham, 1975). Skill variety has been suggested as critical for job enrichment because it enriches the scope and challenges of work (Hundley, 2001), which provides job incumbents with opportunities for personal learning and growth, fosters their confidence and sense of mastery, and consequently boosts their satisfaction at work (Parker, 2014). For these reasons, skill variety has been strongly linked with employees' long-term enthusiasm and contentment (Humphrey *et al.*, 2007). Conversely, the lack of skill variety indicates task repetitiveness and can cause boredom, mental strain, and motivation loss, thus negatively affecting job satisfaction (Häusser *et al.*, 2014).

These two characteristics have been discussed frequently in job characteristic models (Hackman and Oldham, 1975; Morgeson and Humphrey, 2006) and have been used as

proxies for job quality for their impact on wellbeing (Barling *et al.*, 2003; Wu *et al.*, 2015). For example, Wu *et al.* (2015) theorized that job quality is represented by job autonomy and skill variety and suggested that both characteristics influence employees' job satisfaction. Similarly, Fagerlind *et al.* (2013) and Grotto and Lyness (2010) pointed out that job autonomy and skill variety are the key elements in ensuring work-related flow and reducing job exhaustion. This is because these two elements enable employees to control their work appropriately and apply a range of skills and abilities (e.g., problem-solving skills, time-scheduling skills, and ability to balance commitments), which allows them to be self-determined, thus strengthening their intrinsic motivation and wellbeing. In addition, these two characteristics have been found to be relevant to the self-employment context (Benz and Frey, 2008; Chen and Thompson, 2016). Evidence of how these two characteristics matter for the self-employed was also highlighted by Hundley (2001), who empirically found that job autonomy and skill variety explained 50% of the differences in job satisfaction between self-employed and corporate employees. Overall, these two factors appear to be the most critical job characteristics representing job quality. In the following section, we discuss these two job characteristics in the entrepreneurial context and propose how they can mediate the relationship between the career change to self-employment and job satisfaction.

#### *Mediating role of job autonomy in the association between self-employment transition and job satisfaction*

We first discuss the potential mediating role of job autonomy. Individuals choose occupational paths based on their personal preferences and career needs (Boswell *et al.*, 2009; Rudolph *et al.*, 2017; Savickas, 2009). The need for higher decision authority is associated with individuals' intention to become self-employed, because activities in self-employment involve self-directed decisions and great freedom is often available in making these decisions (Douglas and Shepherd, 2000). For instance, Patterson and Mavin (2009)

found through an interview study that many employees changed to self-employment because they felt that autonomy in the corporate environment had ceilings and it was difficult for their voices to be heard, which they recognized as the source of their frustration. Hence, job autonomy can be relevant to employees' decision to transit to self-employment.

Further, a career change to self-employment likely enhances job autonomy, given that studies that compared the self-employed to corporate employees have revealed higher levels of job autonomy for the self-employed (Hessels *et al.*, 2017; Hundley, 2001). Several reasons may account for this increase. First, a significant distinction exists between self-owned businesses and large corporate organizations in terms of decision-making procedures (Hundley, 2001). That is, large, hierarchical organizations have centralized decision authority, with great division of labor, and detailed, regulated working processes stipulated for employees (Benz and Frey, 2008). This corporate structure subjects individual employees to others' commands and requires them to follow their supervisor's designated orders (Hundley, 2001), thus restricting their job autonomy. In contrast, the self-employed have great control of their businesses because they make self-directed plans, determine their work content, and decide how to perform these tasks (Millán *et al.*, 2013). Second, those in self-employment have more freedom in adjusting their work conditions, which can be regarded as another source of job autonomy. For instance, they can shape their work environment and choose where they want to work based on personal preferences (Hessels *et al.*, 2017). Moreover, being less constrained by physical space, the self-employed can distribute their resources, such as time, energy, and attention, more wisely; this helps them to balance their commitments in their family roles and their work roles more effectively and to reduce work–family interference (Bradley and Roberts, 2004), thus contributing to improved wellbeing.

These arguments suggest that employees may perceive low job autonomy before they transit to self-employment and high job autonomy after transition occurs. Because job

autonomy is an important predictor of job satisfaction, as discussed earlier, we propose that the relationship between a career change to self-employment and improved job satisfaction takes place via enhanced job autonomy.

*Hypothesis 2. The relationship between a career change to self-employment and job satisfaction is mediated by job autonomy.*

*Mediating role of skill variety in the association between self-employment transition and job satisfaction*

We expect skill variety to have a similar mediating role. Skill variety has also been suggested as an essential ingredient in self-employment decisions (Chen and Thompson, 2016). There are several reasons for this. First, like all other people, the self-employed have a basic psychological need to feel competent and expect to fully utilize their skills at work (Chen and Thompson, 2016). Second, modern jobs often involve cognitive challenges that require job incumbents to continuously develop and update their skills (Grotto and Lyness, 2010). Applying various skills in dealing with these challenges is thus important in career development. In contrast, a job with a low level of skill variety means a lack of career progress, thus resulting in a job change (Savickas, 2009; Zhou *et al.*, 2017). Self-employment can be a viable career choice in this regard because it can provide higher levels of skill variety.

The self-employed are normally considered “jacks-of-all-trades” and have great skill variety (Lazear, 2004). In self-employment, individuals are not confined to specific or repetitive tasks, as they often are in corporate jobs, and can instead utilize and develop a range of capacities, skills, and talents (Lazear, 2004). Skill variety is recognized as a part of human capital that plays a critical role in the competitiveness of self-owned businesses, because the self-employed need a wide variety of skills to ensure business sustainability and to survive in a competitive market (Chen and Thompson, 2016). Typical activities for self-

employment include observing the market, pursuing opportunities based on the current economic or politic condition, developing business plans, distributing tasks to employees, communicating with customers and partners, and tackling problems that arise concerning services or products. In performing these tasks, a wide range of skills are called upon, such as creative problem-solving, budget planning, opportunity exploiting, and strategic marketing (Douglas and Shepherd, 2000). This scenario offers a distinct contrast to the situation for employees in corporate organizations, in which hierarchical controls often create simplified jobs as a result of clearly delineated role definitions, which narrows the scope of the skills performed and utilized in employees' day-to-day jobs (Benz and Frey, 2008). Hence, skill variety may be related to self-employment transition.

Therefore, we propose that a low level of skill variety underpins employees' dissatisfaction before their transition to self-employment, and such transition will lead to the fulfilment of their skill variety, which therefore improves their job satisfaction. We thus propose skill variety as another important mediator for the career change – job satisfaction relationship.

*Hypothesis 3. The relationship between the career change to self-employment and job satisfaction is mediated by skill variety.*

## **Methods**

### *Sample*

We used the Household, Income and Labor Dynamics in Australia Survey, which has been collected annually since 2001 and has data available on job satisfaction, job autonomy, skill variety, and employment status. We used data collected during 2005–2019 because the surveys from earlier years had fewer items on the job autonomy measure, which represents a less complete coverage on the construct (Wu, 2016). For the 15-year period, 235,927 observations are available in the survey. We then engaged in a series of processes to screen

out observations to derive a cleaner dataset. First, following Hessels *et al.* (2017), we deleted observations that were not in “paid jobs” (110,681 observations); whose employment status could not be identified (1,628 observations) or who were working for their family (124 observations); or who had negative or zero income (1,175 observations).<sup>1</sup> Then, we screened out observations that were not aged 16–60 years (9,164 observations) to focus on working adults. Last, to derive a complete dataset, we removed observations that had missing data on the control variables and our key study variables. The final sample included 108,384 observations from 18,755 individuals, which formed the basis of our analysis.

### *Measures*

*Job Satisfaction* was measured by two items: “The work itself satisfaction” and “Overall job satisfaction.” This measurement, established by Wu *et al.* (2015), focuses on the intrinsic elements rather than the extrinsic elements, such as pay or security, of the job. An 11-point scale ranging from 0 to 10 (0 = not satisfied at all, 10 = completely satisfied) was used and Cronbach’s alpha is 0.80.

*Job Autonomy* was measured by six items, in line with Wu (2016). A sample item was “I have a lot of freedom to decide how I do my own work.” A 7-point Likert scale (1 = strongly disagree, 7 = strongly agree) was used and Cronbach’s alpha is 0.88.

*Skill Variety* was measured by four items, capturing the concept of skill variety in established research on job design (Morgeson and Humphrey, 2006). A sample item was “I use many of my skills and abilities in my current job.” A 7-point Likert scale (1 = strongly disagree, 7 = strongly agree) was used and Cronbach’s alpha is 0.71.

*Control Variables* were included to partial out the confounding effect from

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<sup>1</sup> To alleviate the concern that participants with zero or below income were excluded, we conducted a supplementary analysis by adding back the participants with negative or zero income. Including these participants (total  $N = 109,225$  observations) did not alter the trend between self-employment transition and job characteristics and job satisfaction.

demographic variables. The control variables were age, annual income, education background, number of children, working hours, region, health conditions, marital status (i.e., married, divorced, and widowed), job type, and hierarchical level. We controlled for these variables because they may affect individuals' self-employment decision or wellbeing (e.g., Georgellis and Yusuf, 2016; Hessel *et al.*, 2017; Nikolaev *et al.*, 2020; Zhou *et al.*, 2017).

### *Analytical approach*

We adopted an analytical approach that enabled us to examine the time effect comprehensively by including four years prior to transition to four years after the transition, in order to observe the change patterns of job satisfaction for corporate employees who entered into self-employment during the 15-year study period. This approach is in line with that used in prior research (Clark and Georgellis, 2013).

In our analysis, we adopted a series of dummies as independent variables and job satisfaction as the dependent variable by using a fixed effect model. Fixed effect models have been widely used in prior studies (e.g., Zhou *et al.*, 2017) to control for unobserved individual characteristics that are time invariant and may affect the outcome. We estimated the regression of the following form:

$$JS_{it} = \alpha_i + \beta' X_{it} + \theta_{-4}E_{-4,it} + \theta_{-3}E_{-3,it} + \theta_{-2}E_{-2,it} + \theta_{-1}E_{-1,it} + \theta_0E_{0,it} + \theta_1E_{1,it} + \theta_2E_{2,it} + \theta_3E_{3,it} + \theta_4E_{4,it} + \varepsilon_{i,t} \quad (1)$$

Here,  $JS_{it}$  refers to the job satisfaction of individual  $i$  at time  $t$ ;  $\alpha_i$  denotes the fixed individual effects that are time invariant; and  $X_{it}$  is the vector of the selected controls. As shown in Equation (1), a series of E dummies is the independent variable in this study, which was identified by the self-employment status of individual-year observations. In more detail, for example,  $E_{0,it}$  equals 1 if individual  $i$  was an ordinary employee at time  $t - 1$ , and transited to self-employment at time  $t$ . Similarly,  $E_{-1,it}$  takes the value 1 if the individual

made this transition within the following year. To observe the change in job satisfaction over the years before the transition, we denoted  $E_{-2,it}$ ,  $E_{-3,it}$ ,  $E_{-4,it}$ , which respectively represent the occurrence of transition in the subsequent two, three, and four years. We also included four dummy variables to test the post-transition effects. For instance,  $E_{1,it} = 1$  stands for the self-employment status in the first year after the transition. Similarly, we used  $E_{2,it}$ ,  $E_{3,it}$ , and  $E_{4,it}$  to represent the status in the second, third, and fourth years after the transition. If someone had not transitioned to self-employment during the study period, then all the E dummies would be equal to 0.

To test Hypothesis 2 and Hypothesis 3, we performed mediation analyses to identify whether the transition effect on increasing job satisfaction is caused by an increase in job autonomy and skill variety. Following the recommended strategy for mediation analysis (Baron and Kenny, 1986), we first examined whether a career change to self-employment is an influential factor for job autonomy and skill variety, and then attempted to establish the association between job satisfaction and these two potential mediators. We added them to Equation (1) to identify whether the coefficients of the E-series dummies would reduce on including the mediators. We performed the mediation analysis in three steps. First, we separately tested the two job characteristics to gauge their unique effect as mediators. Second, we added both to the model and analyzed the mediation effects of job quality. Last, we performed the Sobel test (Preacher and Hayes, 2004; Sobel, 1982) to confirm the mediation effect.

## **Results**

Table 1 summarizes the descriptive results that represent the change patterns of job satisfaction, job autonomy, and skill variety from up to four years before the transition to self-employment, to the following four years after the transition. Considering that the dynamics of the first transition could be different from those of serial transitions (Sørensen, 2007), we



followed earlier studies (e.g., Georgellis and Yusuf, 2016; Sørensen, 2007) in focusing only on the first observable transitions from paid employment to self-employment. A total of 952 employees made their initial career change to self-employment during the entire study period. Among them, 434 were self-employed for at least one year after the transition (denoted as Post-transition 1 year in the table) and 258 stayed self-employed for two years (denoted as Post-transition 2 years). With respect to their employment status before the transition, we had 609 individuals in the two years prior to the transition and 419 individuals three years before the transition (denoted as Pre-transition 2 years and Pre-transition 3 years).

The means for job satisfaction, job autonomy, and skill variety are also presented in Table 1. We observed that the average value of job satisfaction decreased from the Pre-transition 2 years and bottomed in the one year prior to the transition (from 7.574 to 7.339). The decreasing trend ended in the transition year (participants had made a transition in that year), when the mean of job satisfaction surged to 7.940, and stayed at a similarly high level afterwards. In terms of job autonomy, for the two years and one year prior to the transition, we observed an average value of 4.352 and 4.463, respectively. After the transition was made, the mean score increased significantly in the transition year (to 5.395) and continued increasing in the following years. In terms of skill variety, the mean value was 4.555 and 4.482 two years and one year before the transition, respectively. In the transition year, it increased to 4.705, and the increasing pattern continued.

**[Insert Table 1]**

To test Hypothesis 1 regarding the effect of career change to self-employment on job satisfaction, we conducted a regression model following Equation (1) by fixing the individual effects. We conducted two models, one with and one without control variables, to ensure that the inclusion of control variables would not alter the proposed relationship. Results for Equation (1) are presented in Model 1 of Table 2, with control variables added. The results

show that individuals were less satisfied with their job in the year before the career change ( $\beta = -0.358$ ;  $p < 0.001$ ). A boost in job satisfaction was observed in the year of the change ( $\beta = 0.210$ ;  $p < 0.001$ ), and this positive effect persisted, which confirmed Hypothesis 1. Overall, the trajectory of the coefficients of job satisfaction, as shown in Figure 1, demonstrates that job satisfaction bottomed in the year before the change to self-employment and surged in the year of the change, and the effect held for several years following the change.

**[Insert Figure 1]**

The effects of career change to self-employment on job autonomy and skill variety are shown in Table 2. As the Model 2 results show, individuals experienced low job autonomy in the two years prior to the career change ( $\beta = -0.225, -0.128$ ;  $p < 0.001$ ). A boost in job autonomy occurred in the year of the change ( $\beta = 0.794$ ;  $p < 0.001$ ). This positive effect persisted for years. As regards skill variety (Model 3), it bottomed during the year prior to the change ( $\beta = -0.083$ ;  $p < 0.01$ ) but increased significantly after the initial change ( $\beta = 0.100$ ;  $p < 0.001$ ), and such increase persisted ( $\beta = 0.162$ ;  $p < 0.001$ ). The trajectories of the coefficients of the job autonomy and skill variety are presented in Figure 1.

**[Insert Table 2]**

To test Hypotheses 2 and 3 on the mediating role of job autonomy and skill variety in the association between the career change to self-employment and job satisfaction, we conducted mediation analyses. Following Baron and Kenny's (1986) recommendations, we examined whether career change affected the proposed mediator, and whether the mediator influenced the outcome; we also examined whether entering the mediator into the model would reduce the effect from the predictor on the outcome.

By adding job autonomy and skill variety into the model separately, we obtained the results as presented in Models 4 and 5 of Table 2. First, we observed that both job autonomy

and skill variety had a significant positive effect on job satisfaction ( $\beta = 0.303$  and  $0.480$  respectively;  $p < 0.001$ ). Further, we found that the significant association between career change and job satisfaction disappeared after job autonomy was entered into the model, which implies that job autonomy can to a large extent explain the increase in job satisfaction after the change. With respect to skill variety, it seems to have partly reduced the effect from the change on job satisfaction during the transition year. After entering both job autonomy and skill variety together, we found both characteristics still had a significant impact on job satisfaction ( $\beta = 0.229$  and  $0.422$  respectively;  $p < 0.001$ ), which implies that each characteristic has a unique influence on satisfaction, and the link is not weakened after adding the other into the model. The results of the Sobel test indicated that job satisfaction in the change year was mediated by job autonomy and skill variety (shown in Table 3). Similarly, significant mediation effects could be found in the years before and after the career change to self-employment. In sum, our hypotheses were supported in that both job autonomy and skill variety acted as meaningful mediators in the association between the career change to self-employment and job satisfaction.

**[Insert Table 3]**

## **Discussion**

The overarching goal of the current study was to understand how the career change to self-employment influences job satisfaction and how this relationship can be explained by job quality. We found that, first, employees' career change from paid employment to self-employment was associated with a surge in their job satisfaction and this significant increase persisted for several years. This finding is consistent with those of earlier cross-sectional, comparative studies, which have suggested that the self-employed have better job satisfaction than corporate employees do (e.g., Bradley and Roberts, 2004; Hundley, 2001; Millán *et al.*, 2013), and of a longitudinal study from another country that job satisfaction increases

alongside the transition to self-employment (Georgellis and Yusuf, 2016). Our study also revealed a comparable effect size to those uncovered in prior studies that have investigated career transitions using an analytical approach similar to ours. For instance, the coefficient of self-employment transition on job satisfaction in the year prior to event occurrence is  $-0.358$  ( $p < 0.001$ ), and in the year of event occurrence is  $0.21$  ( $p < 0.001$ ) in our study. These effect sizes are comparable to those Zhou *et al.* (2017) found for job change and job satisfaction, which is  $-0.37$  ( $p < 0.01$ ) in the year prior to event occurrence and  $0.16$  ( $p < 0.01$ ) in the year of event occurrence, and to Georgellis and Yusuf (2016)'s finding on self-employment transition and job satisfaction in the British context, which is  $-0.277$  ( $p < 0.01$ ) in the year prior to event occurrence and  $0.287$  ( $p < 0.01$ ) in the year of event occurrence. Our longitudinal analysis based on a nationally representative survey for Australia provides further evidence on the association between the career change to self-employment and wellbeing.

Drawing on the job design literature (e.g., Humphrey *et al.*, 2007; Parker, 2014), we propose job quality as the important missing link between career change and job satisfaction. Although existing research has consistently suggested that career change could bring about increased wellbeing, it has revealed little about how this effect is achieved. Job quality plays a crucial role in employee's wellbeing (e.g., Parker, 2014), performance (e.g., Uppal, 2017), and entrepreneurial behaviors (e.g., de Jong *et al.*, 2015). However, scant research has highlighted the critical role of job quality in the career change processes. By purposefully exploring job design as the underlying mechanism, we are able to fill this critical gap by developing a nuanced understanding of the effect of job quality on wellbeing alongside individuals' career transition processes. In addition, by utilizing a nationally representative dataset collected over 15 years, we advance prior cross-sectional studies (Hundley, 2001; Lange, 2012) by providing convincing, concrete longitudinal evidence that captures the

impact of job quality on wellbeing before and after a career change. This advancement is meaningful and important because it allows us to observe the change pattern of the job quality experienced by individuals during the pre- and post-change periods, which helps to underscore the important role of job quality in determining a career change decision (e.g., Baron, 2010), and the intrinsic, motivating nature of job quality in enabling them to achieve better wellbeing after the change.

More specifically, we unpacked job autonomy and skill variety as the two critical job characteristics that underpin the self-employment transition – job satisfaction relationship. These two characteristics represent key factors in job design models (e.g., Hackman and Oldham, 1975; Morgeson and Humphrey, 2006), and have often been regarded as proxies of job quality since both help to overcome task challenges and reduce physical and mental challenges (e.g., Barling *et al.*, 2003; Fagerlind *et al.*, 2013; Grotto and Lyness, 2010; Wu *et al.*, 2015). In concurrence with this view, we observed that the trajectory of both job satisfaction and of these two characteristics share substantial similarity throughout the transition journey. Our empirical results also suggest that changes in job satisfaction can be explained by the fluctuation in job autonomy and skill variety during the transition process. This finding is also in line with those of the entrepreneurship literature, which assigns great importance to the role of job autonomy and skill variety in self-employment (e.g., Baron, 2010) and suggests that these two factors can explain 50% of the differences in job satisfaction between the self-employed and corporate employees (Hundley, 2001).

Although the empirical results confirmed our hypotheses, it seems that job autonomy and skill variety had somewhat different strengths in terms of their mediation effects. In particular, we found that the significant effect of the career change to self-employment on job satisfaction was fully mediated by the improvement in job autonomy, whereas the effect from skill variety appeared somewhat limited. There are a few possible explanations for this

variation. First, job autonomy may be more important than skill variety. As shown in our data, although skill variety increased as a result of career change, this increase was much less substantial than the increase in job autonomy. It is possible that organizations constrain job autonomy to a greater extent; for instance, employers may have clearly delineated guidelines on when and how work should be completed, and thus, their employees may find it difficult to achieve autonomy (Benz and Frey, 2008). In contrast, skill variety may be more within employees' own control because they may have some discretion on how they apply different skills and may sometimes even be able to craft their job to be more in line with their needs (Bindl *et al.*, 2019). Therefore, by changing to self-employment, employees achieve more gains on job autonomy than on skill variety, and such a gain in autonomy may thus have a larger effect on their wellbeing. Second, job autonomy may encompass skill variety to some extent, thus representing a broader concept. This is because autonomy at work provides employees with more opportunities to use their knowledge and acquire new skills (van Ruysseveldt and van Dijke, 2011), and thus, skill variety may be a product of job autonomy and its effect may have been encompassed within job autonomy.

Our finding highlights the importance of job design in explaining the change of wellbeing during the self-employment transition, providing implications of job design for managers and for self-employed individuals to protect individuals' wellbeing before and after the transition. To protect employee wellbeing retention, managers can pay particular attention to employees' job quality, such as designing jobs with greater level of autonomy and skill variety, to enhance employees' job satisfaction, prevent brain drain, and reduce employee turnover. While acknowledging both job autonomy and skill variety play important role in enhancing employees' wellbeing and hence retaining employees, our finding suggests job autonomy had larger effect than skill variety on wellbeing, which suggests that job autonomy may be a priority. However, it does not mean skill variety is not important. It would be

desirable for organizations to give more autonomy and in the meantime, continuously provide employees with opportunities to utilize and develop various skills to carry out their tasks, which can ultimately bring long-term impact on wellbeing and employee retention. For self-employed individuals, our finding reveals that job design can be key to wellbeing during self-employment. While self-employed individuals tend to focus on success and performance of their business, our study highlights that how they do their jobs on a daily basis can shape their wellbeing. Self-employed individuals will thus need to have knowledge about job design and understand how to design and arrange their tasks to make their working life more enjoyable.

This study has some limitations for future research to address. First, we focused on the relationship between job perceptions and career change to self-employment, yet there is a broad array of factors, such as safety training (Barling *et al.*, 2003) and organizational support (Grotto and Lyness, 2010), that may influence this relationship. Although we controlled for several variables to alleviate this issue, the reliance on archival data means that we were unable to include all relevant variables. We suggest that future studies should explore other factors that may affect the self-employment transition – job satisfaction relationship. Second, although we used a large, nationally representative dataset collected over 15 years, the sample size was limited, especially in examining the leading and lagging effect with a long-time span. The limited sample size restricted us from testing the entire *honeymoon – hangover* effects. It would be useful to validate our results in future studies with a larger sample, possibly using nationally representative data collected in other countries. Third, a career change is not only limited to transitions between paid job to self-employment, but can also include transition from one occupational sector to another. Because individuals' perception varies in different major life events (Clark and Georgellis, 2013), future longitudinal research, especially those using large samples, may explore the fluctuation pattern of job perceptions in different career change events. Fourth, we focused on two

specific job characteristics (i.e., job autonomy and skill variety) in the current study, future research can investigate whether other job characteristics, such as task variety and job complexity, play a similar role in the association between career transition and job satisfaction.

## **Conclusion**

This study examines the role of job quality on the association between career change to self-employment and job satisfaction. Using a representative longitudinal database, we found that employees experienced low job satisfaction before transition to self-employment and experienced improved job satisfaction after the transition. We also found that job quality was the key determinant of job satisfaction during individuals' self-employment transition process, and therefore improving job quality can be regarded as a crucial strategy in managing employee wellbeing and retention.



## References

- Agarwal, U.A., and Gupta, V. (2018), "Relationships between job characteristics, work engagement, conscientiousness and managers' turnover intentions: a moderated-mediation analysis", *Personnel Review*, Vol.47 No. 2, pp. 353-377.
- Barling, J., Kelloway, E.K., and Iverson, R.D. (2003), "High-quality work, job satisfaction, and occupational injuries", *Journal of Applied Psychology*, Vol. 88 No. 2, pp. 276-283.
- Baron, R.A. (2010), "Job design and entrepreneurship: why closer connections = mutual gains", *Journal of Organizational Behaviour*, Vol. 31 No. 2-3, pp. 370-378.
- Baron, R.M., and Kenny, D.A. (1986), "The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations", *Journal of Personality and Social Psychology*, Vol. 51 No. 6, pp. 1173-1182.
- Benz, M., and Frey, B.S. (2008), "Being independent is a great thing: subjective evaluations of self-employment and hierarchy", *Economica*, Vol. 75 No. 298, pp. 362-383.
- Bindl, U.K., Unsworth, K.L., Gibson, C.B., and Stride, C.B. (2019), "Job crafting revisited: implications of an extended framework for active changes at work", *Journal of Applied Psychology*, Vol. 104 No. 5, pp. 605-628.
- Blau, G. (2000), "Job, organizational, and professional context antecedents as predictors of intent for interrole work transitions", *Journal of Vocational Behaviour*, Vol. 56 No. 3, pp. 330-345.
- Boswell, W. R., Boudreau, J. W., and Tichy, J. (2005), "The relationship between employee job change and job satisfaction: The honeymoon-hangover effect", *Journal of Applied Psychology*, Vol. 90 No. 5, pp. 882-892.

- Boswell, W. R., Shipp, A. J., Payne, S. C., and Culbertson, S. S. (2009), "Changes in newcomer job satisfaction over time: examining the pattern of honeymoons and hangovers", *Journal of Applied Psychology*, Vol. 94 No. 4, pp. 844-858.
- Bradley, D.E., and Roberts, J.A. (2004), "Self-employment and job satisfaction: investigating the role of self-efficacy, depression, and seniority", *Journal of Small Business Management*, Vol. 42 No. 1, pp. 37-58.
- Carless, S. A., & Arnup, J. L. (2011), "A longitudinal study of the determinants and outcomes of career change", *Journal of Vocational Behavior*, Vol. 78 No. 1, pp. 80-91.
- Chen, L. W., and Thompson, P. (2016), "Skill balance and entrepreneurship evidence from online career histories. *Entrepreneurship Theory and Practice*, Vol. 40 No. 2, pp. 289-305.
- Clark, A. E., and Georgellis, Y. (2013), "Back to baseline in Britain: adaptation in the British household panel survey", *Economica*, Vol. 80 No. 319, pp. 496-512.
- De Jong, J. P., Parker, S. K., Wennekers, S., and Wu, C.H. (2015), "Entrepreneurial behavior in organizations: Does job design matter?", *Entrepreneurship Theory and Practice*, Vol. 39 No. 4, pp. 981-995.
- Demerouti, E., Bakker, A.B., Nachreiner, F., and Schaufeli, W.B. (2001), "The job demands-resources model of burnout", *Journal of Applied Psychology*, Vol. 86 No. 3, pp. 499-512.
- Douglas, E.J., and Shepherd, D.A. (2000), "Entrepreneurship as a utility maximizing response", *Journal of Business Venturing*, Vol. 15 No. 3, pp. 231-251.
- Fagerlind, A.C., Gustavsson, M., Johansson, G., and Ekberg, K. (2013), "Experience of work-related flow: does high decision latitude enhance benefits gained from job resources?", *Journal of Vocational Behaviour*, Vol. 83 No. 2, pp. 161-170.
- Georgellis, Y., and Yusuf, A. (2016), "Is becoming self-employed a panacea for job

- satisfaction? longitudinal evidence from work to self-employment transitions”, *Journal of Small Business Management*, Vol. 54 No. S1, pp. 53-76.
- Grotto, A.R., and Lyness, K.S. (2010), “The costs of today’s jobs: job characteristics and organizational supports as antecedents of negative spillover”, *Journal of Vocational Behavior*, Vol. 76 No. 3, pp. 395-405.
- Grube, A., Schroer, J., Hentzschel, C., and Hertel, G. (2008), “The event reconstruction method: An efficient measure of experience-based job satisfaction”, *Journal of Occupational and Organizational Psychology*, Vol. 81 No. 4, pp. 669-689.
- Hackman, J.R., and Oldham, G.R. (1975), “Development of the job diagnostic survey”, *Journal of Applied Psychology*, Vol. 60 No. 2, pp. 159-170.
- Häusser, J.A., Schulz-Hardt, S., Schultze, T., Tomaschek, A., and Mojzisch, A. (2014), “Experimental evidence for the effects of task repetitiveness on mental strain and objective work performance”, *Journal of Organizational Behaviour*, Vol. 35 No. 5, pp. 705-721.
- Hessels, J., Rietveld, C.A., and van der Zwan, P. (2017), “Self-employment and work-related stress: the mediating role of job control and job demand”, *Journal of Business Venturing*, Vol. 32 No. 2, pp. 178-196.
- Humphrey, S.E., Nahrgang, J.D., and Morgeson, F.P. (2007), “Integrating motivational, social, and contextual work design features: a meta-analytic summary and theoretical extension of the work design literature”, *Journal of Applied Psychology*, Vol. 92 No. 5, pp. 1332-1356.
- Hundley, G. (2001), “Why and when are the self-employed more satisfied with their work?”, *Industrial Relations: A Journal of Economy and Society*, Vol. 40 No. 2, pp. 293-316.
- Kotey, B.A. and Sharma, B. (2019), “Pathways from flexible work arrangements to financial

- performance”, *Personnel Review*, Vol. 48 No. 3, pp. 731-747.
- Lange, T. (2012), “Job satisfaction and self-employment: autonomy or personality?”, *Small Business Economics*, Vol. 38, pp. 165-177.
- Lazear, E.P. (2004), “Balanced skills and entrepreneurship”, *American Economic Review*, Vol. 94 No. 2, pp. 208-211.
- Malik, N., and Dhar, R.L. (2017), “Authentic leadership and its impact on extra role behaviour of nurses”, *Personnel Review*, Vol. 46 No. 2, pp. 277-296.
- Millán, J.M., Hessels, J., Thurik, R., and Aguado, R. (2013), “Determinants of job satisfaction: a European comparison of self-employed and paid employees”, *Small Business Economics*, Vol. 40, pp. 651-670.
- Mohapatra, S., Rozelle, S., and Goodhue, R. (2007), “The rise of self-employment in rural China: Development or distress?”, *World Development*, Vol. 35 No. 1, pp. 163-181.
- Morgeson, F.P., and Humphrey, S.E. (2006), “The Work Design Questionnaire (WDQ): developing and validating a comprehensive measure for assessing job design and the nature of work”, *Journal of Applied Psychology*, Vol. 91 No. 6, pp. 1321-1339.
- Nikolaev, B., Shir, N., and Wiklund, J. (2020), “Dispositional positive and negative affect and self-employment transitions: the mediating role of job satisfaction”, *Entrepreneurship Theory and Practice*, Vol. 44 No. 3, pp. 451-474.
- Parker, S.K. (2014), “Beyond motivation: job and work design for development, health, ambidexterity, and more”, *Annual Review of Psychology*, Vol. 65, pp. 661-691.
- Patterson, N., and Mavin, S. (2009), “Women entrepreneurs: jumping the corporate ship and gaining new wings”, *International Small Business Journal*, Vol. 27 No. 2, pp. 173-192.
- Preacher, K.J., and Hayes, A.F. (2004), “SPSS and SAS procedures for estimating indirect effects in simple mediation models”, *Behaviour Research Methods, Instruments, &*

- Computers*, Vol. 36 No. 4, pp. 717-731.
- Rudolph, C., Lavigne, K. N., and Zacher, H. (2017), "Career adaptability: A meta-analysis of relationships with measures of adaptivity, adapting responses, and adaptation results", *Journal of Vocational Behavior*, Vol. 98, pp. 17-34.
- Savickas, M. L., Nota, L., Rossier, J., Dauwalder, J.-P., Duarte, M. E., Guichard, J., Soresi, S., Van Esbroeck, R., and van Vianen, A. E. M. (2009), "Life designing: A paradigm for career construction in the 21st century", *Journal of Vocational Behavior*, Vol. 75 No. 3, pp. 239-250.
- Sobel, M.E. (1982), "Asymptotic confidence intervals for indirect effects in structural equation models", *Sociological Methodology*, Vol. 13, pp. 290-312.
- Sørensen, J. B. (2007), "Bureaucracy and entrepreneurship: workplace effects on entrepreneurial entry", *Administrative Science Quarterly*, Vol. 52 No. 3, pp. 387-412.
- Stephan, U. (2018), "Entrepreneurs' mental health and well-being: a review and research agenda", *Academy of Management Perspectives*, Vol. 32 No. 3, pp. 290-322.
- Thurik, A.R., Carree, M.A., van Stel, A., and Audretsch, D.B. (2008), "Does self-employment reduce unemployment?" *Journal of Business Venturing*, Vol. 23 No. 6, pp. 673-686.
- Uppal, N. (2017), "Uncovering curvilinearity in the organizational tenure-job performance relationship", *Personnel Review*, Vol. 46 No. 8, pp. 1552-1570.
- Van Ruysseveldt, J., and van Dijke, M. (2011), "When are workload and workplace learning opportunities related in a curvilinear manner? The moderating role of autonomy", *Journal of Vocational Behaviour*, Vol. 79 No. 2, pp. 470-483.
- Wu, C.H. (2016), "Personality change via work: a job demand-control model of Big-five personality changes", *Journal of Vocational Behaviour*, Vol. 92, pp. 157-166.
- Wu, C.H., Griffin, M.A., and Parker, S.K. (2015), "Developing agency through good work: longitudinal effects of job autonomy and skill utilization on locus of control", *Journal*

*of Vocational Behaviour*, Vol. 89, pp. 102-108.

Zhou, Y., Zou, M., Williams, M., and Tabvuma, V. (2017), "Is the grass greener on the other side? A longitudinal study of the impact of employer change and occupational change on job satisfaction", *Journal of Vocational Behavior*, Vol. 99, pp. 66-78.

**Figure 1 Job satisfaction, job autonomy, and skill variety before and after the transition to self-employment**

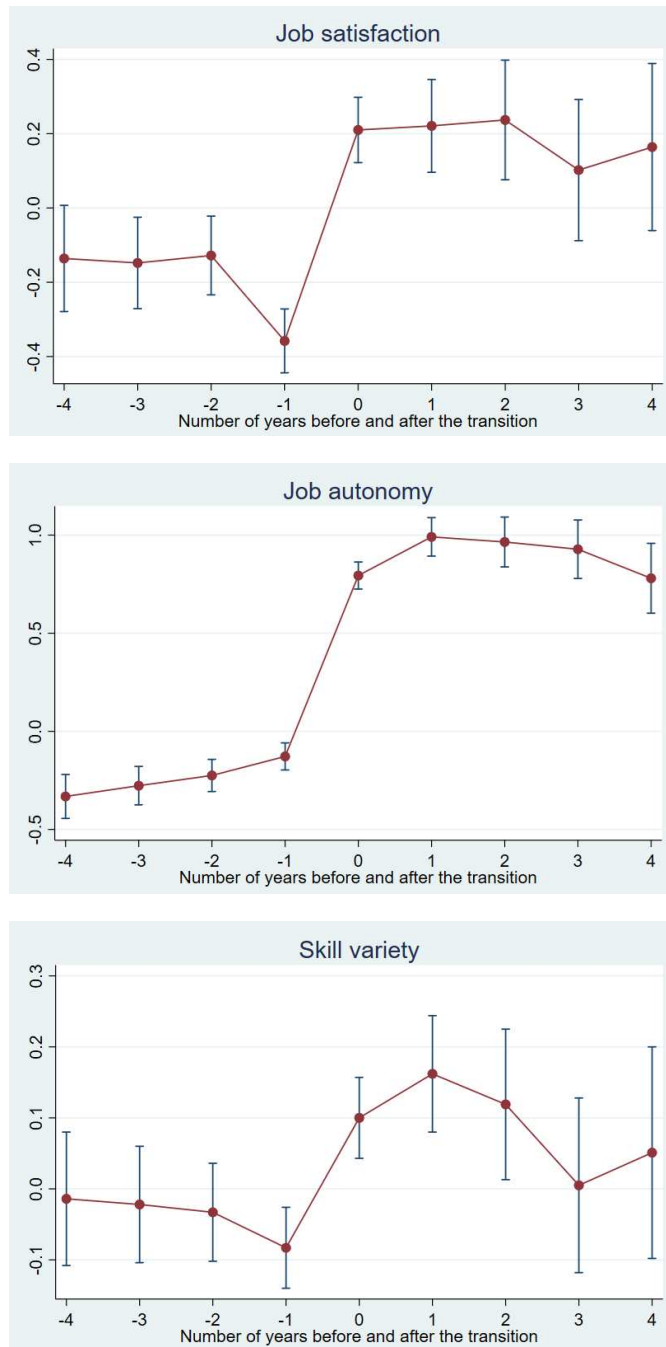


Table 1  
*Descriptive Statistics*

	Obs	Job Satisfaction	Job Autonomy	Skill Variety
Pre-transition 4 years	309	7.597	4.242	4.610
Pre-transition 3 years	419	7.562	4.307	4.587
Pre-transition 2 years	609	7.574	4.352	4.555
Pre-transition 1 year	952	7.339	4.463	4.482
Transition	952	7.940	5.395	4.705
Post-transition 1 year	434	8.035	5.748	4.810
Post-transition 2 years	258	8.078	5.792	4.839
Post-transition 3 years	177	8.040	5.809	4.675
Post-transition 4 years	125	8.104	5.797	4.746



Table 2  
*Study Results*

	Job Satisfaction	Job Autonomy	Skill Variety		Job Satisfaction	
	(1)	(2)	(3)	(4)	(5)	(6)
Job Autonomy				0.303*** (0.004)		0.229*** (0.004)
Skill Variety					0.480*** (0.005)	0.422*** (0.005)
Pre-transition 4 years	-0.136 (0.073)	-0.332*** (0.057)	-0.014 (0.048)	-0.035 (0.071)	-0.129 (0.069)	-0.054 (0.068)
Pre-transition 3 years	-0.148* (0.063)	-0.277*** (0.050)	-0.022 (0.042)	-0.065 (0.061)	-0.138* (0.060)	-0.076 (0.059)
Pre-transition 2 years	-0.128* (0.054)	-0.225*** (0.042)	-0.033 (0.035)	-0.060 (0.052)	-0.112* (0.051)	-0.062 (0.050)
Pre-transition 1 year	-0.358*** (0.044)	-0.128*** (0.035)	-0.083** (0.029)	-0.319*** (0.043)	-0.318*** (0.042)	-0.293*** (0.041)
Transition	0.210*** (0.045)	0.794*** (0.035)	0.100*** (0.029)	-0.031 (0.043)	0.162*** (0.042)	-0.014 (0.042)
Post-transition 1 year	0.221*** (0.064)	0.991*** (0.050)	0.162*** (0.042)	-0.079 (0.062)	0.144* (0.061)	-0.074 (0.060)
Post-transition 2 years	0.237** (0.082)	0.965*** (0.065)	0.119* (0.054)	-0.056 (0.080)	0.180* (0.078)	-0.035 (0.077)
Post-transition 3 years	0.102 (0.097)	0.928*** (0.076)	0.005 (0.063)	-0.180 (0.094)	0.100 (0.092)	-0.113 (0.090)
Post-transition 4 years	0.164 (0.115)	0.780*** (0.091)	0.051 (0.076)	-0.072 (0.112)	0.140 (0.109)	-0.036 (0.107)
Fixed Individual Effects	YES	YES	YES	YES	YES	YES
With Controls	YES	YES	YES	YES	YES	YES
Observations	108,384	108,384	108,384	108,384	108,384	108,384
Number of individuals	18,755	18,755	18,755	18,755	18,755	18,755

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

Table 3

*Mediation Results: Sobel Test*

Panel A: Job Autonomy								
<i>Number of year(s): Entry</i>	<i>Indirect effect</i>	<i>Test statistic</i>	<i>Std. Error</i>	<i>p-value</i>	<i>LL 90 CI</i>	<i>UL 90 CI</i>	<i>LL 95 CI</i>	<i>UL 95 CI</i>
Pre-transition 4 years	-0.101***	-5.807	0.017	0.000	-0.129	-0.073	-0.135	-0.067
Pre-transition 3 years	-0.083***	-5.525	0.015	0.000	-0.108	-0.058	-0.113	-0.053
Pre-transition 2 years	-0.068***	-5.344	0.013	0.000	-0.089	-0.047	-0.093	-0.043
Pre-transition 1 years	-0.039***	-3.653	0.011	0.000	-0.056	-0.022	-0.060	-0.018
Transition	0.241***	21.732	0.011	0.000	0.223	0.259	0.219	0.263
Post-transition 1 year	0.300***	19.175	0.016	0.000	0.274	0.326	0.269	0.331
Post-transition 2 year	0.293***	14.569	0.020	0.000	0.260	0.326	0.254	0.332
Post-transition 3 year	0.282***	12.055	0.023	0.000	0.244	0.320	0.236	0.328
Post-transition 4 year	0.236***	8.517	0.028	0.000	0.190	0.282	0.182	0.290
Panel B: Skill Variety								
<i>Number of year(s): Entry</i>	<i>Indirect effect</i>	<i>Test statistic</i>	<i>Std. Error</i>	<i>p-value</i>	<i>LL 90 CI</i>	<i>UL 90 CI</i>	<i>LL 95 CI</i>	<i>UL 95 CI</i>
Pre-transition 4 years	-0.007	-0.292	0.023	0.771	-0.045	0.031	-0.052	0.038
Pre-transition 3 years	-0.01	-0.524	0.020	0.600	-0.043	0.023	-0.050	0.030
Pre-transition 2 years	-0.016	-0.943	0.017	0.346	-0.044	0.012	-0.049	0.017
Pre-transition 1 years	-0.04**	-2.861	0.014	0.004	-0.063	-0.017	-0.067	-0.013
Transition	0.048***	3.446	0.014	0.001	0.025	0.071	0.021	0.075
Post-transition 1 year	0.077***	3.854	0.020	0.000	0.044	0.110	0.037	0.117
Post-transition 2 year	0.057*	2.203	0.026	0.028	0.014	0.100	0.006	0.108
Post-transition 3 year	0.002	0.079	0.030	0.937	-0.048	0.052	-0.057	0.061
Post-transition 4 year	0.024	0.671	0.036	0.502	-0.036	0.084	-0.048	0.096

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$