

Job satisfaction: how crucial is participative decision making?

Job
satisfaction

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Abstract

Purpose – The purpose of this paper is to empirically examine the role of perceived ability to participate in decision making in the workplace, with respect to job satisfaction.

Design/methodology/approach – Data from the fourth wave of the European Value Survey, is utilised, and a bivariate probit model is employed to account for unobserved heterogeneity.

Findings – Empirical analysis comparing univariate and bivariate probit models reveals that the results from the former are negatively biased; potentially indicating that prior research may have underestimated the impact of participative decision making (PDM) on job satisfaction. Additionally, it appears clear that the magnitude of the marginal effects for both socio-demographic and work characteristics do not differ when comparing workers with above and below average participation. More importantly, the authors find a substantial negative marginal effect of below average participation on job satisfaction (close to three times the magnitude of the next largest marginal effect estimated in the model), indicating how crucial it is for employers to actively pursue programmes that enhance PDM.

Originality/value – This study contributes to the growing literature aimed at understanding drivers of satisfaction in the workplace. Adding to the scant empirical investigation of the influence of PDM on job satisfaction, the authors find strong evidence of a direct and positive impact, which is further amplified after controlling for unobserved heterogeneity.

Keywords Job satisfaction, Bivariate probit, Participative decision making

Paper type Research paper

1. Introduction

There is a substantial body of research that has highlighted the benefits that satisfied employees can provide organisations. As a result, worker satisfaction has become an essential consideration for management, and one popular strategy employed by many organisations involves allowing employees to participate in job-related decisions (Harley *et al.*, 2000; Scott *et al.*, 2003). The theoretical literature indicates that one would expect employee participative decision making in the workplace (PDM) to increase job satisfaction via satisfying employees' higher-order needs (Maslow, 1943) and self-expression (Miller and Monge, 1986). However, empirical investigation of the link between PDM and job satisfaction is scant, and much of it is dated (see Alutto and Acito, 1974; Black and Gregersen, 1997; Morse and Reimer, 1956; Schuler, 1980). Additionally, much of the prior research is specific to a particular firm/industry, and this hampers the generalisability of findings. For instance, Wright and Kim (2004) use data from a single state agency in New York to assess the role of PDM and other job characteristics on job satisfaction. Employing structural equation modelling, the authors find a positive



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association between these two variables. They also identify three potential mechanisms via which PDM positively influences job satisfaction: increase in perceived significance of work fulfils self-actualisation and/or esteem needs; increased understanding of institution, processes, and opportunities; and greater communication and performance feedback helps guide employee growth and development.

While much of the past literature on the antecedents of job satisfaction has been under the realm of social psychology, it has increasingly been accepted into the domain of economists, as data sets improve, and with the growing realisation of the significance of job satisfaction with respect to a range of economic behaviours/outcomes. For example, Lange (2009) investigates the determinants of job satisfaction across eastern Europe, with a focus on cultural attitudes, values, and beliefs. Using the third wave of the European Values Survey (hereafter EVS), Lange (2009) includes PDM within the category of covariates encompassing values and beliefs. His study finds a significant and positive impact of PDM on job satisfaction, with this impact being marginally stronger for males, relative to females. The author goes on to indicate that this strong role for “freedom to make decisions in the job” illustrates that employees in the transition economies of eastern Europe are appreciative of personal responsibility in the workplace. More recently, making use of the first release of the fourth wave of the EVS (39 countries), Van der Westhuizen *et al.* (2012) also found a strong and significant role for PDM in explaining job satisfaction.

The aim of this study is to extend the empirical literature linking PDM and job satisfaction. In particular, past studies have modelled the determinants of job satisfaction and PDM separately. However, if there is an overlap in the unobserved characteristics that determine both PDM and job satisfaction (such as personal traits, values, etc.), then the errors from the two regression models will be related. The impact of the unobserved heterogeneity is that the coefficient on PDM will be biased and not exogenous to job satisfaction. To combat this modelling obstacle, empiricists must resort to either an instrumental variable approach or bivariate probit model. We adopt the latter in the following analysis and compare our findings with separate univariate probit models. We further extend this line of enquiry by assuming a sequential approach between PDM and job satisfaction and assessing the marginal effects of a range of individual covariates conditional on whether an employee experiences above or below average PDM.

The empirical analysis will be based on the fourth full wave of the EVS. As this sample covers 48 countries, we control for country-specific differences via clustering. The main advantage of the EVS is that it provides information on job satisfaction, PDM, as well as a range of demographics, and job characteristics expected to influence our outcome variable in this study.

The remainder of this paper is organised as follows: Section 2 provides a brief overview of the literature linking PDM and job satisfaction. Section 3 outlines the data used, and the bivariate model employed. Section 4 discusses key results and Section 5 provides concluding comments.

2. Literature review

Theory

Although extensively researched, much debate has surrounded the meaning of job satisfaction. At the centre of this debate is the question of whether job satisfaction is determined by the characteristics of the job itself, within the mind of the employee, or through the interaction of the employee and his/her job (Locke, 1969). Nevertheless, a

popular definition of job satisfaction proposed by Locke (1969, p. 316) defines it as “the pleasurable emotional state resulting from the appraisal of one’s job as achieving or facilitating the achievement of one’s job values”. Based on this definition, it can be postulated that job satisfaction is a function of the perceived relationship between what an employee seeks to gain from his/her job and what the employee perceives his/her job to be offering.

This concept of relative utility means that higher job satisfaction can result from a number of avenues: improvements in objective facets of an individual’s job, lower job expectations, and changes in weights of different aspects of the job such that negative aspects receive less attention compared to the more pleasurable values. It is also the case, as argued by Mason (1997), that “job values represent a primary means by which *different* individuals may experience *different* satisfaction given the *same* objective conditions or outcomes” (p. 165, original emphasis retained).

Research in job satisfaction has surged in recent years, as it becomes more evident that findings from such research can provide organisations with significant benefits when designing management strategy. Such benefits include cost savings resulting from lower staff turnover and absenteeism (Mirvis and Lawler, 1977) and improved employee performance (Wright and Cropanzano, 2004). Early work on job satisfaction and its relationship with employee behaviours such as absenteeism, intention to quit, and motivation (see Hoppock, 1937; Kerr, 1948; Super, 1939) laid the foundations for what has become a multi-disciplinary pursuit. This includes extensive work in human resource management, applied psychology, sociology, and labour economics. Research in the social sciences continues towards identifying explanatory variables of job satisfaction. These range from socio-demographic factors such as gender, age, education, and marital status, to more domain specific variables such as dispositional (e.g. personality traits – see Judge and Bono, 2001) and work situational influences (e.g. job challenge, autonomy, acknowledgement, security – see Kovach, 1995).

There has also been much debate surrounding the meaning of PDM in the job satisfaction literature (see Cotton *et al.*, 1988). In general, it can be conceptualised as a process whereby influence is shared between workers, who would otherwise be unequal in a traditional hierarchical management structure. PDM practices consequently increase the involvement of managers and their employees across the spectrum of problem-solving; decision making; and information processing (Wagner, 1994). One of the most comprehensive definitions of PDM is that proposed by Heller *et al.* (1998, p. 42): “Participation is the totality of forms, i.e. direct (personal) or indirect (through representatives or institutions) and of intensities, i.e. ranging from minimal to comprehensive, by which individuals, groups, collectives secure their interests or contribute to the choice process through self-determined choices among possible actions during the decision process”. The nature and degree of PDM can of course vary substantially across organisations. Wood *et al.* (2012) highlight two potential types of opportunity for PDM within an organisation: namely, adjust job design such that it allows greater employee discretion and responsibility; and organisational involvement methods such as team-working and idea-capturing schemes. In general, both of these PDM channels involve giving employees a voice in organisational decisions.

From an organisational perspective, the primary motivation for implementing PDM programmes would be to promote gains in productivity. Cognitive models of participation, such as Miller and Monge (1986), suggest that collaboration with employees is a viable organisational strategy as it enhances the flow and use of important information within the organisation. The human resource perspective

suggests that the motivation for allowing employees to participate in job-related decisions is the potential for job enrichment (Greenberg, 1975) and ultimately improved productivity and efficiency. PDM responsibility is also said to be conducive to the healthy development of employees as it leads to the attainment of their higher-order needs (Maslow, 1943), self-expression (Miller and Monge, 1986), independence, and feelings of fate control, which ultimately promotes job satisfaction (Vroom, 1964).

Empirical evidence

Empirical findings have pointed to job satisfaction being a major determinant of key organisational outcomes, such as labour market mobility, employee retention, attrition, and turnover (Freeman, 1978; Clark *et al.*, 2012; Clark, 2001; Sousa-Poza and Sousa-Poza, 2007), and withdrawal behaviours such as lateness and drug abuse (Saari and Judge, 2004). It can therefore be inferred that low job satisfaction has the potential to be very costly to an organisation in terms of low performance, low productivity, and high staff turnover. The practical value of job satisfaction research lies in the insight gained with respect to factors within the work environment that can be manipulated[1], with an aim of fostering higher levels of job satisfaction. Such factors include on-the-job training (Georgellis and Lange, 2007), establishment size (Gazioglu and Tansel, 2006), job security and autonomy (Kovach, 1995; Sousa-Poza and Sousa-Poza, 2000; Skalli *et al.*, 2008), work arrangements (Origo and Pagani, 2008), work relationships (Sousa-Poza and Sousa-Poza, 2000), etc. For example, Sousa-Poza and Sousa-Poza (2000) find that having good relations with management, particularly for women, is a consistently important determinant of job satisfaction. Notably, the importance of other factors, such as job security and autonomy, were found to be country-specific. Similarly, Skalli *et al.* (2008) find that the relative importance of factors potentially influencing job satisfaction, such as job security or pecuniary compensation, varies between countries.

While there is a large and growing empirical literature on the determinants of various aspects of job satisfaction, there appears to be a lack of studies that have explicitly investigated the role of PDM in the workplace. Buch and Spangler (1990) and Sukirno and Siengthai (2011) find participation has a positive impact on job performance; while Macy *et al.* (1989) find evidence of improvements in organisational effectiveness. In terms of specific evidence regarding the degree to which PDM influences job satisfaction, there is also limited literature on this front. This may be because quantitative researchers have shied away from such topics due to job satisfaction being a subjective concept and economists in particular often lamenting that it is too noisy to be of analytical value. The few empirical works that do link job satisfaction with PDM are mostly dated (e.g. Morse and Reimer, 1956; Alutto and Acito, 1974; Schuler, 1980; Black and Gregersen, 1997), indicating a clear gap in contemporary literature to be filled.

Research by Alutto and Acito (1974) studied the effect of decisional discrepancy on job satisfaction. Respondents in their survey were categorised as decisionally deprived, saturated, or in equilibrium, and it was found that respondents with decisional equilibrium had higher job satisfaction. More recent research by Black and Gregersen (1997) used 370 questionnaire responses and employed correlation and regression analysis. The correlations between PDM and job satisfaction were positive while regressions indicated that generating alternatives, planning, and evaluating results increased satisfaction. These findings are consistent with those of Schuler (1980) who also found positive correlations between PDM and job satisfaction. Many of these

studies suffered from low external validity, for example Alutto and Acito's work was organisational specific. Similarly, research by Scott *et al.* (2003) that examined whether job satisfaction mediated the relationship between PDM and an employee's willingness to cooperate with co-workers and intention to quit, did find a significant positive relationship, but this analysis was focused on one US-invested enterprise in the People's Republic of China.

Recent research by Van der Westhuizen *et al.* (2012) makes use of the first release of the fourth wave of the EVS (2008) and empirically tests the relationship between PDM and job satisfaction. Based on their sample of 39 countries, they find that employees would experience higher levels of job satisfaction as their freedom to participate in job-related decisions increase. Specifically, their result was significant at the 1 per cent level and the odds ratio from their analysis indicates that for an employee whose freedom to participate in job-related decisions rises to the next category, the odds of reporting a higher category of job satisfaction (on a scale of 1-10) would be 1.44 times greater, holding all other variables constant. This study wishes to extend their line of enquiry by allowing for the possibility of an overlap in the unobserved characteristics that determine both PDM and job satisfaction, and accounting for that via a bivariate probit model.

It is also important to note that the majority of relevant past studies have focused on the direct impacts of PDM on job satisfaction (see for instance Kim, 2002), rather than the indirect or mediating factors at play between these two variables. An exception to this is Wright and Kim (2004) who find that PDM impacts job satisfaction via job specificity, career development support, and task significance. To date, there has been no investigation of whether individual characteristics (such as workers' socio-demographics and occupational type characteristics) play a role in the way that PDM influences job satisfaction. This study will venture down this research pathway by assessing the influence of individual covariates conditional on whether the worker has above or below average PDM. By setting high (low) levels of participation as a prerequisite in our bivariate probit model, we can assess whether the impacts of various determinants of job satisfaction are mitigated or enhanced in such circumstances. For instance, let's suppose that workers find the perception of "achieving something" in their job to have a positive direct influence on job satisfaction. The forthcoming empirical analysis will allow us to investigate whether this positive influence is magnified or diminished if we first assume an above (below) average level of PDM for the worker.

3. Data and methodology

We employ cross-sectional data from the fourth wave (2008) of the EVS (details of this survey are available at: www.europeanvaluesstudy.eu), covering 48 European countries. We restrict our sample to include only those workers employed between the age of 16 and 64, yielding an effective sample of 22,547 observations.

Job satisfaction is a self-reported, ordinal categorical variable on a scale of 1-10, with 1 representing complete dissatisfaction and 10 representing complete satisfaction with the respondent's job. Although participation has been defined conceptually and operationally in many different ways (Cotton *et al.*, 1988; Dachler and Wilpert, 1978), participation is generally defined as a process in which influence is shared among individuals who are otherwise hierarchically unequal (Locke and Schweiger, 1979; Wagner, 1994). In the EVS, PDM is a categorical variable and is ordered on a Likert scale of 1-10, with 1 representing "no freedom for decision making" and 10 representing "a great deal of freedom for decision making" in the respondent's current job. This variable captures two considerations: whether PDM exists within the respondent's job;

and to what extent management allows PDM to be practised. An important consideration is that PDM is self-rated, and therefore subjective in nature. Nevertheless, it is this perception by the worker, rather than an objective measure, that is expected to influence the individual's level of job satisfaction.

The following analysis will also control for country-specific differences via clustering, as there are wide variations in levels of PDM and job satisfaction across Europe. For instance, the lowest levels of job satisfaction appear to be in Azerbaijan and Belarus (average values of 6.26 and 6.46, respectively), whereas the highest levels are located in Iceland and Ireland (average values of 8.26 and 8.14, respectively). Similarly, the range for average PDM begins at 5.34 (in Bosnia Herzegovina) and hits the upper limit at 7.63 (in Sweden).

Both PDM and job satisfaction variables were reconstructed into dichotomous groups depending on whether they were above or below the sample average. For example, the mean for job satisfaction in our sample was 7.27. Therefore, individuals reporting values of 8-10 were classed as above average, with respect to satisfaction in the workplace. In a similar fashion, those with below and above average PDM were split into two groups, based on the mean of 6.36. This dichotomisation is necessary if we expect an overlap in unobserved characteristics that determine PDM and job satisfaction. This is because a bivariate probit model is equipped to deal with the errors of the two models being correlated.

The usual concern with the constructs described above (PDM and job satisfaction), are that they are parameterised using single-item measures. While this is a common approach with many studies on satisfaction in the workplace (see Lange, 2009), we must acknowledge that we are unable to distinguish between satisfaction with the extrinsic aspects of employment such as promotion, pay or job security; and the intrinsic aspects, such as relationships with colleagues, nature of work, etc. A similar caveat is also required for the PDM variable, as it can refer to task participation (relating to decisions about how workers conduct their work routines) and broader worker influence over different levels of management decision making. While we acknowledge these concerns, our investigation does take comfort from the result of a meta-analysis of job satisfaction research by Wanous *et al.* (1997), which suggests that workers' satisfaction can be adequately examined on the basis of a single-item measurement.

The EVS data also provides a comprehensive list of demographic and work related characteristics that are required covariates in the forthcoming regressions[2]. The definitions of all variables and sample means are provided in Table I.

Based on this sample, a standard univariate probit analysis of the impact of PDM on job satisfaction would assume the following:

$$Y_{1i}^* = X_{1i}\beta_1 + \beta_2 PDM_i + u_i \tag{1}$$

$$Y_{1i} = 1 \text{ if } Y_{1i}^* > 7; \quad 0 \text{ otherwise}$$

where Y_{1i} is the probability of having above average job satisfaction, and we assume that $u_i \sim N(0, 1)$. We can also expect the determinants of PDM to be similar to the above X vector, and estimated via the following univariate probit:

$$Y_{2i}^* = X_{2i}\beta_3 + v_i \tag{2}$$

$$Y_{2i} = 1 \text{ if } Y_{2i}^* > 6; \quad 0 \text{ otherwise}$$

Variable	Definition	Mean (SD)
Job satisfaction	Ordinal categorical variable on a scale 1-10 (1 = extremely dissatisfied, 10 = extremely satisfied)	7.274 (2.117)
Job satisfaction dichotomised	Dummy variable: 1 for above average job satisfaction; 0 otherwise	0.544 (0.498)
PDM	Ordinal categorical variable on a scale of 1-10 (1 = extremely dissatisfied, 10 = extremely satisfied)	6.355 (2.559)
PDM dichotomised	Dummy variable: 1 for above average PDM; 0 otherwise	0.548 (0.498)
Male	Dummy variable: 1 for male; 0 otherwise	0.495 (0.500)
Age	Age in years	40.438 (11.393)
Married	Dummy variable: 1 for married or registered partnership; 0 otherwise	0.595 (0.491)
Widowed	Dummy variable: 1 for widowed; 0 otherwise	0.028 (0.165)
Divorced or separated	Dummy variable: 1 for divorced or separated; 0 otherwise	0.108 (0.310)
Medium education	Dummy variable: 1 for middle level educational qualification; 0 otherwise	0.501 (0.500)
High education	Dummy variable: 1 for high level educational qualification; 0 otherwise	0.348 (0.476)
Medium income	Dummy variable: 1 for middle income; 0 otherwise	0.331 (0.471)
High income	Dummy variable: 1 for high income; 0 otherwise	0.196 (0.397)
Part time	Dummy variable: 1 if working less than 30 hours a week; 0 otherwise	0.121 (0.327)
Work is important	Dummy variable: 1 if believe work is very/quite important in your life; 0 otherwise	0.976 (0.155)
Good pay	Dummy variable: 1 if individual thinks good pay is an important job characteristic; 0 otherwise	0.839 (0.367)
Pleasant people	Dummy variable: 1 if individual thinks sense of belonging/pleasant co-workers is an important job characteristic; 0 otherwise	0.784 (0.412)
Job security	Dummy variable: 1 if individual thinks job security is an important job characteristic; 0 otherwise	0.678 (0.467)
Good hours	Dummy variable: 1 if individual thinks good working hours is an important job characteristic; 0 otherwise	0.565 (0.496)
Use initiative	Dummy variable: 1 if individual thinks opportunity to use initiative (freedom for self-expression) is an important job characteristic; 0 otherwise	0.505 (0.500)
Achieve something	Dummy variable: 1 if individual thinks potential to achieve something (ego motivation) is an important job characteristic; 0 otherwise	0.609 (0.488)
Interesting work	Dummy variable: 1 if individual thinks interesting work is an important job characteristic; 0 otherwise	0.699 (0.459)
Skilled	Dummy variable: 1 for skilled; 0 otherwise	0.278 (0.448)
Less skilled	Dummy variable: 1 for less skilled; 0 otherwise	0.291 (0.454)
Manual	Dummy variable : 1 for manual; 0 otherwise	0.158 (0.365)
<i>n</i>		22,547

Table I.
Variable definitions
and descriptive
statistics

Note: SDs in parentheses

where Y_{2i} is the probability of having above average PDM, and we assume that $v_i \sim N(0, 1)$, and $cov(u_i, v_i) = 0$.

Equations (1) and (2) describe the standard univariate probit model. However, what if there is a potential overlap in unobserved characteristics that determine PDM and job satisfaction, such as personal traits/values. If this is the case, then the errors of the two

equations will be related in the following manner:

$$u_i = \delta_i + \varepsilon_{1i} \text{ and } v_i = \delta_i + \varepsilon_{2i}$$

ε_{1i} and ε_{2i} are errors that are unique to each model; and δ_i are errors that are common to both (1) and (2). Consequently, $cov(u_i, v_i) \neq 0$, as u_i and v_i will be dependent on each other. The result of the unobserved heterogeneity is that the coefficient on PDM will be biased, due to the error term being correlated with the covariates in Equation (2), resulting in PDM not being exogenous to job satisfaction. An instrumental variable approach or bivariate probit model is required to deal with these issues. The latter of these methods is adopted in this study and the underlying model assumes that the EVS data takes the format shown in Figure 1. Consistent with approaches elsewhere, this paper therefore examines whether there are associations between a range of personal and job characteristics on job satisfaction and PDM. However, a distinctive feature with this paper is that it models these hypotheses at the same time, which are shown in Figure 1 as *H1* and *H2*.

The error terms in the bivariate probit model have means of 0, variances of 1, and $cov(\varepsilon_{1i}, \varepsilon_{2i}) = \rho$. Thus the worker's satisfaction probability can be written as:

$$\Pr(\text{satisfaction}) = \Pr(Y_{1i} = 1, Y_{2i} = 1) = \Phi_2(X_{1i}\hat{\beta}_1, X_{2i}\hat{\beta}_2, \hat{\rho})$$

where Φ_2 is the bivariate normal cumulative distribution function with correlation coefficient ρ . The model has full observability if Y_{1i} and Y_{2i} are both observed in terms of all four possible outcomes (i.e. $Y_{1i} = 1, Y_{2i} = 1$; $Y_{1i} = 1, Y_{2i} = 0$; $Y_{1i} = 0, Y_{2i} = 1$; $Y_{1i} = 0, Y_{2i} = 0$). This is the case in our study and full observability naturally leads to the most efficient estimates (Ashford and Sowden, 1970; Zellner and Lee, 1965).

It is often seen as good practice to include extra variables in the selection equation to enhance identification. We encounter the common problem of trying to select variables

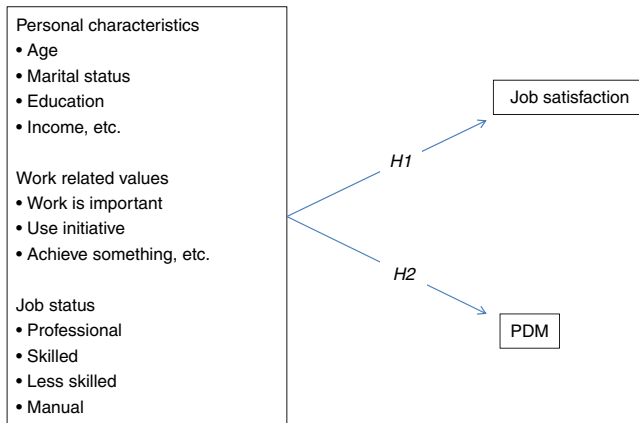


Figure 1. Summary of associations investigated in this paper

Notes: PDM will also be included in the job satisfaction regression; expected associations between (personal characteristics, work related values, job status) and job satisfaction = *H1*; PDM = *H2*

that are related to the PDM (selection) equation but not the job satisfaction equation – which are not at all clear – but we contemporaneously recognise that this good practice is at odds with Heckman (1978), Wilde (2000) and Miranda and Rabe-Hesketh (2006) who acknowledge that no exclusion restrictions are needed to identify the model.

4. Results

Table II provides coefficient estimates of the univariate and bivariate probit models, as well as the likelihood ratio test for the correlation coefficient ρ . We reject the null hypothesis that $\rho = 0$, indicating that the univariate probit estimates are inefficient. More importantly, the fact that ρ is significant and negative signals that unobserved factors decrease the probability of both PDM and job satisfaction. Consequently, the coefficient estimate on PDM will be underestimated under the univariate model. Indeed, we can see this is the case when comparing results from the alternative models in Table II; the bivariate approach reveals a greater influence of PDM on job satisfaction.

Results for other covariates in Table II are in line with a priori expectations[3]. For example, males are less likely to report above average levels of job satisfaction; temporary employment via part time hours also reduces the probability of high levels of job satisfaction; and high-income households are more likely to experience greater satisfaction in the workplace. In line with findings from Clark (1996), and Fargher *et al.* (2008), we find that married workers have greater levels of job satisfaction; and in contrast to prior evidence (Verhofstadt *et al.*, 2007) we find no significant link between greater levels of education and satisfaction in the workplace.

The majority of situational variables that describe the characteristics of the respondents' job are strongly significant in predicting above average job satisfaction. This includes variables that capture ego motivation (where the individual thinks that they have the potential to achieve something), and task significance (where the individual values interesting work). Workers that believe good pay and/or good hours are important, are less likely to experience above average job satisfaction. This is not surprising as it is likely that a worker who is unhappy with their pay and/or hours is more likely to indicate that these are important attributes to their job.

In terms of occupational status, relative to professionals, there is not a significant difference in job satisfaction levels for manual, less skilled, and skilled workers[4]. This may in part be due to inclusion in the model of a wide range of work characteristics capturing differences across the occupational hierarchy – such as using initiative, job security, etc.

Results for the PDM equation are provided in the bottom panel of Table II. Many of these results are also in line with a priori expectations. For example, relative to professionals, all occupational status categories are less likely to have PDM in their current job. Other variables that describe the characteristics of the respondents' job indicate that individuals that regard work as very important, want to achieve something, and want to use initiative, all have a positive influence on PDM. Additionally, males, and older workers are more likely to experience higher levels of PDM relative to females and younger workers. These gender differences corroborate findings by Reskin and Ross (1992) and Parnell and Crandall (2001). The latter of these studies found a marked difference in levels of the propensity to participate in decision making by gender, with males averaging 35.7 per cent of one standard deviation above the mean for PDM, and females averaging 36.4 per cent of one standard deviation below the mean.

Variable	Univariate	Bivariate
<i>Job satisfaction</i>		
PDM	0.885 (0.031)***	1.108 (0.377)***
Male	-0.033 (0.020)*	-0.044 (0.025)*
Age	0.002 (0.001)**	0.002 (0.001)
Age ²	0.047 (0.013)***	0.048 (0.013)***
Married	0.093 (0.028)***	0.089 (0.030)***
Widowed	0.033 (0.065)	0.039 (0.067)
Divorced or separated	0.001 (0.036)	-0.003 (0.037)
Medium education	0.037 (0.039)	0.035 (0.038)
High education	-0.017 (0.042)	-0.031 (0.044)
Medium income	0.154 (0.046)***	0.128 (0.070)*
High income	0.223 (0.064)***	0.177 (0.095)*
Part time	-0.118 (0.048)**	-0.120 (0.047)**
Work is important	0.386 (0.082)***	0.360 (0.086)***
Good pay	-0.131 (0.030)***	-0.119 (0.031)***
Pleasant people	0.088 (0.027)***	0.085 (0.030)***
Job security	0.108 (0.024)***	0.116 (0.031)***
Good hours	-0.123 (0.028)***	-0.112 (0.031)***
Use initiative	0.027 (0.022)	0.007 (0.039)
Achieve something	0.080 (0.025)***	0.074 (0.026)***
Interesting work	0.072 (0.029)**	0.071 (0.029)**
Skilled	-0.059 (0.029)**	-0.036 (0.055)
Less skilled	-0.242 (0.036)***	-0.109 (0.074)
Manual	-0.179 (0.041)***	-0.129 (0.105)
Constant	-0.958 (0.106)***	-1.036 (0.173)***
<i>Participative decision making</i>		
Male	0.136 (0.027)***	0.136 (0.027)***
Age	0.005 (0.001)***	0.005 (0.001)***
Age ²	-0.005 (0.011)	-0.006 (0.011)
Married	0.050 (0.035)	0.049 (0.035)
Widowed	-0.069 (0.065)	-0.069 (0.065)
Divorced or separated	0.051 (0.042)	0.052 (0.042)
Medium education	0.030 (0.031)	0.030 (0.031)
High education	0.179 (0.038)***	0.179 (0.039)***
Medium income	0.292 (0.047)***	0.292 (0.047)***
High income	0.550 (0.063)***	0.550 (0.063)***
Part time	0.025 (0.044)	0.025 (0.044)
Work is important	0.279 (0.079)***	0.278 (0.079)***
Good pay	-0.132 (0.043)***	-0.132 (0.043)***
Pleasant people	0.025 (0.034)	0.025 (0.034)
Job security	-0.107 (0.031)***	-0.107 (0.031)***
Good hours	-0.126 (0.024)***	-0.126 (0.024)***
Use initiative	0.238 (0.027)***	0.238 (0.027)***
Achieve something	0.064 (0.023)***	0.064 (0.023)***
Interesting work	0.002 (0.022)	0.003 (0.022)
Skilled	-0.289 (0.027)***	-0.289 (0.027)***
Less skilled	-0.377 (0.033)***	-0.377 (0.033)***
Manual	-0.582 (0.039)***	-0.583 (0.039)***
Constant	-0.348 (0.098)***	-0.347 (0.098)***
<i>n</i>	22,547	
<i>ρ</i>	-0.141**	

Table II.
Job satisfaction and
PDM coefficient
estimates

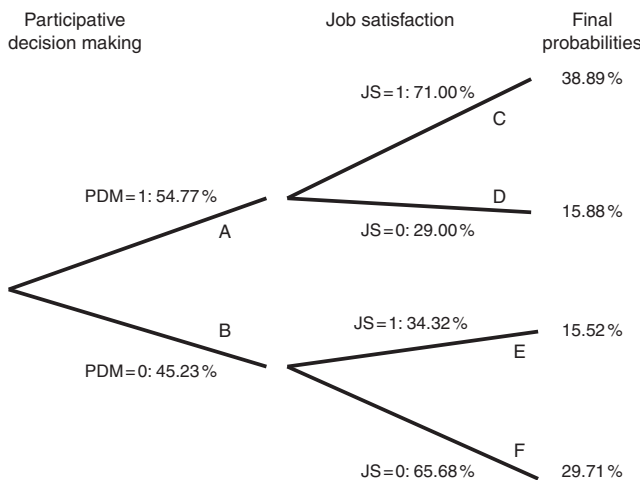
Notes: SEs are in parentheses and are adjusted for clusters of 48 country affiliations. Reference categories = single, low education, low household income, full-time employment, and professionals. *, **, *** Statistical significance at the 10, 5 and 1 per cent levels, respectively

Results conditional on status of PDM

A small extension to the bivariate probit model involves assessing the influence of all covariates on job satisfaction, conditional on the PDM status of the worker. This scenario is depicted in Figure 2, and reveals that the sample is quite evenly split between above and below average PDM. It also appears that those with above average PDM are more likely to be satisfied at work, vs those below average (71.00 vs 34.32 per cent). This result is consistent with the empirical results presented in Table II, the limited past empirical research on this front, as well as the theoretical perspectives on the relationship between PDM and job satisfaction.

To estimate the drivers of job satisfaction conditional on the status of PDM for the worker, marginal effects were estimated for $Pr(JS = 1|A \text{ or } B)$, i.e. $P(JS = 1|PDM = 0)$ and $P(JS = 1|PDM = 1)$. The resulting two conditional probabilities permits identification of whether the drivers of job satisfaction differ depending on whether the worker experiences above (below) average PDM. These estimates are presented in Table III and essentially compares routes C and E on the tree diagram (portrayed in Figure 2) with routes D and F.

Inspection of Table III reveals two key results. First, the marginal effects of individual and situational characteristics, with respect to job satisfaction, do not differ depending on whether or not the respondent has above average PDM. This shows that the determinants of job satisfaction are relatively stable, irrespective of whether or not the employee experiences above average PDM. This is an important result because it indicates that while PDM is an important contributory factor in generating greater job satisfaction, it does not exacerbate or diminish the importance of other factors (ranging from individual to household, and job characteristics). Consequently, from a policy point of view, employers should continue to emphasise job values (that are within their remit) such as job security, achieving something, pleasant people, and interesting work – all of which significantly enhanced job satisfaction levels.



Note: PDM/JS = 1 (0) indicates above (below) average participative decision-making/job satisfaction

Figure 2.
Tree diagram

Table III.
Marginal effects

Variable	JS = 1 PDM = 1	JS = 1 PDM = 0
<i>Job satisfaction</i>		
PDM	0.422***	-0.416***
Male	-0.013	-0.012
Age	0.001**	0.001**
Age ²	0.019***	0.018***
Married	0.037***	0.036***
Widowed	0.013	0.013
Divorced or separated	0.0004	0.001
Medium education	0.015	0.015
High education	-0.007	-0.006
Medium income	0.061***	0.060***
High income	0.088***	0.088***
Part time	-0.047**	-0.046**
Work is important	0.152***	0.153***
Good pay	-0.052***	-0.051***
Pleasant people	0.035***	0.034***
Job security	0.043***	0.041***
Good hours	-0.049***	-0.048***
Use initiative	0.011	0.011
Achieve something	0.032***	0.031***
Interesting work	0.029**	0.028**
Skilled	-0.024**	-0.024**
Less skilled	-0.057***	-0.056***
Manual	-0.072***	-0.071***

Notes: *, **, ***Statistical significance at the 10, 5 and 1 per cent levels, respectively

The second key result in Table III is the substantial negative marginal effect of below average participation on job satisfaction – close to three times the magnitude of the next largest marginal effect estimated in the model. Specifically, conditional on having below average PDM, the impact of this circumstance on the probability of experiencing above average job satisfaction is a decrease in probability of 41.6 per cent (significant at the 1 per cent level). Consequently, this finding is symbolic for how crucial it is for employers to actively pursue programmes that enhance PDM.

Results by gender

Past research has generally been inconclusive with regards to which gender, if any, is more satisfied in the workplace. Nevertheless, there are a number of studies that find women experience higher levels of job satisfaction, despite being likely to have lower levels of pay, autonomy, and promotional opportunity (Sousa-Poza and Sousa-Poza, 2000). This paradox has often been attributed to the varying drivers of job satisfaction by gender (Hodson, 1989). For instance, Lange (2009) finds evidence (with Eastern European data) to suggest that males are more likely to value extrinsic job attributes such as good pay. On the other hand, some job characteristics such as working in a responsible job had a similar impact on job satisfaction, regardless of gender. In this study, we also find males are less likely to be satisfied in the workplace (see Table II), although this result is significant at just the 10 per cent level.

Table IV replicates the bivariate probit analysis by gender, conditional on above average PDM. We find little difference in terms of the role of job characteristics in determining job satisfaction, by gender. For example, both genders value job security, and pleasant people, and are likely to be negatively impacted if they believe good hours and/or pay to be important. With respect to PDM, both genders gain a significant boost to their job satisfaction levels when they have above average PDM, and the marginal effects indicate the boost may be a little greater (both in terms of magnitude and statistical significance) for females, relative to males. A number of tentative explanations could be put forward to explain this result. For instance, males have traditionally been conferred more decision making ability and authority than their female counterparts – a feature of sex segregation in the labour market no longer explained solely by the fact that men and women hold different types of jobs/occupations (e.g. Reskin and Ross, 1992, found that even controlling for organisational level, education, and experience – women had more limited scope in their decision-making authority, as well as lower returns to earnings for decision-making responsibility where given). On this basis, one might therefore argue that women, who on average have experienced limited decision-making ability in the workplace, simply appreciate an increase in PDM more than male workers do. This explanation is complemented with earlier findings in this analysis (see Table II) that show men, on average, are much more likely to experience above average PDM. Therefore, given men are starting off at a higher average level of PDM, it is not surprising that the marginal effect on job satisfaction from PDM increasing is smaller for men, relative to their female counterparts, who are starting off from a lower base.

Variables	Female	Male
<i>Job satisfaction</i>		
PDM	0.505***	0.424**
Age	0.001**	0.001
Age ²	0.021***	0.018***
Married	0.055***	0.023
Widowed	0.025	-0.011
Divorced or separated	0.022	-0.030
Medium education	0.011	0.018
High education	-0.006	-0.005
Medium income	0.054***	0.064***
High income	0.067***	0.103***
Part time	-0.031	-0.084***
Work is important	0.175***	0.124***
Good pay	-0.061***	-0.045***
Pleasant people	0.032**	0.040***
Job security	0.046***	0.041***
Good hours	-0.030**	-0.069***
Use initiative	0.016	0.007
Achieve something	0.037***	0.027*
Interesting work	0.018	0.039**
Skilled	-0.020	-0.029
Less skilled	-0.065***	-0.049***
Manual	-0.083***	-0.064***

Notes: *, **, ***Statistically significant at the 10, 5 and 1 per cent levels, respectively

Table IV.
Marginal effects
by gender
(JS = 1|PDM = 1)

5. Conclusions

Many firms are attempting to improve the level of job satisfaction for their employees by allowing employees to participate in job-related decisions. This may stem from the organisational perspective whereby the primary motivation for implementing PDM programmes would be to promote gains in productivity.

Using recently released EVS data, this paper examines the empirical relationship between PDM and job satisfaction. Comparison of univariate and bivariate probit models (the latter used to correct for possible bias affecting estimations) reveals that the univariate model is negatively biased in terms of the impact of PDM on job satisfaction. We then further augment job satisfaction literature by investigating the determinants of job satisfaction and whether they differ conditional on the level of PDM the employee enjoys. These findings indicate that irrespective of whether the worker has PDM, the marginal effects of individual and situational variables are similar in terms of their impact on job satisfaction. This is an important result as it suggests that while PDM opportunities are an important factor in enhancing job satisfaction, managers should not forget other job characteristics proven to be of value to an employee in both this and past research (e.g. interesting work, achieving something, working with pleasant people, etc.).

Importantly, we also find a substantial negative marginal effect of below average participation on job satisfaction (close to three times the magnitude of the next largest marginal effect estimated in the model), signalling how crucial it is that employers continue to pursue PDM programmes in the workplace.

Finally, further analysis, split the sample by gender, and found both genders experienced substantial gains in job satisfaction conditional on enjoying above average PDM. This result was marginally greater for women, indicating women may place more value in being afforded PDM in the workplace. While this study has speculated possible reasons for this phenomenon, it serves as a useful avenue for future research to further disentangle. We also recommend further research on this topic may benefit from individual level longitudinal data, to aid in ascertaining the causal links between PDM and job satisfaction.

Notes

1. See Guest *et al.* (2003) for a review of the growing span of literature showing an association between human resource management practices and organizational performance.
2. Besides the independent variables listed in Table I, we would have also included a proxy for size of business (such as number of employees), but this was not available in the fourth wave of the EVS (except for the self-employed). Future research can aim to improve on this limitation to our research.
3. The authors have conducted tests for multicollinearity across the independent variables in the models presented in Table II, but find no evidence of this impacting the specifications at hand. While a correlation matrix is not provided for the case of brevity, it can be obtained from the authors upon request.
4. The four categories of occupational status (professionals, skilled, less skilled, and manual) correspond to the ISCO-08 classifications of major groups (1 and 2, 3 and 4, 5-7, 8 and 9). See ILO (International Standard Classification of Occupations, 2010) available at: www.ilo.org/public/english/bureau/stat/isco/isco08/index.htm

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