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Imperfect Information and Labor Market Bias against Small and Medium-sized Enterprises: A Korean Case

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Abstract

In this study, we examine the labor market's bias against small and medium-sized enterprises focusing on the Seoul Digital Industrial Complex case. We adopt Heckman's approach to control selection bias, and use primary data from questionnaire surveys conducted at both firm and employee levels. We find that conventional firm-specific factors, such as wages, fringe benefits, and weekly work hours, primarily explain the labor market bias, but imperfect information is also positively associated with the bias. For example, a firm's inadequate ability to identify a pool of potential employee candidates or to provide them comprehensive firm- or job-specific information tends to worsen labor shortages, and an employee's *ex-ante* incomplete knowledge of on-the-job training or education opportunities tends to increase *ex-post* turnover intentions. Our results suggest that reducing the market bias requires improving imperfect information as well as conventional firm-specific conditions.

Keywords: small and medium-sized enterprises, labor shortage, turnover intentions, imperfect information, Korea

JEL Classifications: E24, J21, J48, J64, L25, L53, M54, O25

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1. Introduction

Why do small and medium-sized enterprises (SMEs) often have trouble filling vacancies or keeping employees, even when they offer seemingly competitive working conditions? And does imperfect information contribute to the situation?

SMEs employ the vast majority of the global labor force and hold the key to job creation (Ayyagari *et al.*, 2007). In 2009, for example, establishments with fewer than 50 employees accounted for over 80% of the total manufacturing employment in 28 industrialized economies (OECD, 2013). SMEs have been found to have greater job-creation effects than large enterprises (de Wit and de Kok, 2014; Neumark *et al.*, 2011), thanks to their intensive use of labor and promotion of economy-wide positive externalities, such as increased competition and entrepreneurship (Beck *et al.*, 2005).

Among the main threats to the pro-SME growth policy is a labor shortage (World Bank, 2002). SMEs' labor shortage problem is often viewed as an outcome of their limited ability to offer competitive wages and working conditions (Brown and Medoff, 1989). The size-biased tendency of labor shortages, however, may go beyond such explanations that focus on conventional firm-specific factors. Part of the evidence is that even “competitive SMEs”—a small group of high-performing SMEs that generate disproportionately large job-creation effects—are also subject to the labor constraint (Tewari *et al.*, 2013). Such evidence leaves room for alternative or complementary views of the size-biased tendency.

In this paper, we pay attention to imperfect information as a key dimension missing from the standard explanations of labor shortages. Prevalence of imperfect information is a general characteristic of the labor market, and it is likely to generate size-biased effects on firm-level labor shortage rates (Autor, 2001). One reason is that SMEs often confront more serious resource constraints than large firms in identifying target labor pools and advertising vacancies. This sort of internal resources gap translates into a gap in recruitment capacity and

may force firms of different sizes to deal with varying degrees of imperfect information in the labor market. From a job seeker's perspective, paying greater attention to large firms than to SMEs may be rational, as it saves search and information costs. Better and easier access to information on vacancies in large firms is one explanation, and a higher chance of employment in large firms is another—the number of vacancies requiring similar skills and qualifications tends to increase with firm size.

We hypothesize that imperfect information is a significant contributor to the labor market bias against SMEs. Here, the labor market bias refers to the situation where the magnitude of the labor shortage confronted by SMEs exceeds the level expected given their conventional job or firm-specific conditions (e.g., wages). This hypothesis, despite its high plausibility, has rarely been tested in empirical settings. Our study is motivated to fill this gap.

The Seoul Digital Industrial Complex (SDIC), which is one of Korea's 24 national industrial parks, is chosen to test our hypothesis. In the first place, Korea provides an empirical setting, consistent with the global trend in terms of SMEs' role in the economy and the challenge they face. In 2011, SMEs¹ accounted for 85.6% of Korea's total employment, showing an increasing trend from 66.8% in 1987 (Statistics Korea, 2013). A labor shortage, however, has emerged as a serious challenge to sustaining or further expanding SMEs' role in Korea's economy. In 2010, for example, SMEs left 21.6% of their vacancies unfilled, while the comparable number for large firms was only 5.9% (Ministry of Employment and Labor, 2010). Therefore, how to improve the situation has arisen as an urgent policy question.

For two reasons, we see the SDIC sample as suitable for testing our hypothesis. The first is that a labor shortage is prevalent among SDIC tenants despite several favorable conditions that distinguish them from typical SMEs. The primary constituents of the park are small information and communications technology (ICT) ventures (with fewer than 50

¹ Following the definition by the Korean government, we define SMEs as firms with fewer than 300 employees, unless stated otherwise.

employees) capable of offering market-competitive wages (Career Development Center, 2009). Also, their location in the nation's capital offers multiple location-specific advantages, such as easy access to abundant local labor pools and superior physical and non-physical infrastructure for business.

The second reason is our suspicion that SDIC tenants suffer from a distorted public perception of them. Since the late 1990s, the SDIC has successfully repositioned itself as a high technology industrial park to adapt to the new economic environment, which brought rising wages and increased capital mobility. When founded in the mid-1960s, however, the SDIC was home to export-oriented SMEs in the labor-intensive sector (textile manufacturing, most notably), and this historic image persists. Accordingly, the SDIC case can help us examine the potential size-biased effects of imperfect information on the labor market.

2. Literature Review

2.1. Labor Market Mismatch

For several reasons, the labor market does not clear in reality. One reason is that it is segmented by occupation, geography, and industry (Cain, 1976; Kniesner and Goldsmith, 1987). Labor mobility across the segmented markets is limited due to minimum skills requirements or institutional factors like labor unions, and oversupply in one segmented market is of little help in terms of undersupply in another (Taubman and Wachter, 1986). In addition, the labor market is often a buyer's market, allowing firms excessive control over prices (Lester, 1941). Given this deviation from perfect competition, public interventions, such as minimum wage or collective bargaining regulations, persist in the labor market. Imperfect information is another key contributor to the market imperfection. Workers have only limited knowledge of their alternative job opportunities, and employers cannot consider every aspect that affects the marginal product of labor (Mortensen, 1986). Some

institutionalists view transaction costs, which give rise to internal labor markets (Doeringer and Piore, 1971), as fundamental sources of this labor market imperfection (Kaufman, 2008).

The anti-SME bias in Korea's labor market—persistent unfilled vacancies in SMEs despite a large pool of unemployed labor—may be understood in the context of segmented and imperfect labor markets. One can draw three hypotheses from the literature (Song and Seol, 2001). The first is the skills mismatch hypothesis (Handel, 2003; Marchante *et al.*, 2006). SMEs may fail to fill vacancies for a structural reason—the gap between jobs' minimum requirements and job seekers' qualifications. A second possibility is a job-worker mismatch (Gronau, 1971; McCall, 1970). As argued in typical job search theory, job seekers may choose to remain unemployed until they have offers meeting their preferred working conditions. This suggests that the bias may result from SMEs' limited capacity to make attractive job offers. The final hypothesis supposes imperfect information (Stigler, 1962). SMEs' recruitment difficulties may result in part from job seekers' insufficient, incomplete, or incorrect information about job openings or firms.

Several empirical studies attempt to test the first two hypotheses. For example, Weon (2004) found that larger firms tended to offer higher wages, and firm-specific wage levels and unfilled vacancy rates were positively correlated. He concluded that the expanding wage differentials between SMEs and their large counterparts are primarily responsible for the worsening bias against SMEs in Korea's labor market, supporting the job mismatch hypothesis. There is also evidence backing up the skills mismatch hypothesis. For example, SMEs in the ICT sector tend to present particularly high unfilled vacancy ratios (Lee and Youn, 2009), which parallels the negative correlation between unfilled vacancy ratios and the size of the labor market for an industry that SMEs belong to (Hong and Chang, 2009). Compared with the first two, the last hypothesis has received much less attention and has rarely been explored in empirical settings.

2.2. Labor Turnover Intentions

Labor turnover is relevant to our discussion, as the labor market bias is a two-pronged problem of filling vacancies and keeping employees. A firm's high labor shortage rates may arise from a high turnover ratio that exceeds its recruitment capacity. In fact, labor turnover has been reported to be negatively correlated with employer size, contributing to the anti-SME market bias (Idson, 1993; Ehrenberg and Smith, 2011). Employee turnover intentions—the likelihood of changing jobs for a given period—have been widely adopted as a direct predictor of actual turnover or job mobility (Mobley, 1977; Rusbult and Farrell, 1983).

Wages have been identified as one of the greatest influential factors on turnover intentions, as job search theory posits (Galizzi and Lang, 1998; Hall and Lazear, 1984; McLaughlin, 1991). In a typical job search model, a worker accepts a job only when the wage offered equals or exceeds his/her own reservation level. Given search costs and time discounts, a rational individual chooses the best of a selected wage sample, instead of the entire wage population. Turnover intentions grow in this context, giving an incentive for a continued search for a better job opportunity, even for those who have already accepted job offers (Mortensen, 1986). Beside wages, several job or employer conditions—including fringe benefits, work hour flexibility, weekly work hours, and opportunities for promotion or on-the-job training (OJT)—have also been found to affect turnover intentions (Garcia-Serrano, 1998; Haines et al., 2010; Mitchell, 1982; Powers and Powers, 2010).

Among them, OJT, often seen as a main source of internal labor markets, may affect turnover intentions in a somewhat different way. An outcome of OJT is deepened skill specificity and increased “bilateral monopoly” (Althauser, 1989). Firm-specific skills increase employee replacement costs and thus incentivize employers to keep existing employees. Increased skill specificity, at the same time, lowers employee turnover intentions,

as firm-specific skills are less valuable to other employers (Doeringer and Piore, 1971).

There are also employee characteristics that shape turnover intentions. Gender is one of them, as women tend to show higher job satisfaction and lower job mobility than men (Blau and Kahn, 1981; Royalty, 1998). Age, marital status, and union membership are known to be negatively associated with turnover intentions (Campbell, 1997; Holmlund, 1984; Kidd, 1994). Also, workers with higher education levels tend to have better job market alternatives and thus higher turnover intentions (Booth and Francesconi, 2000; Campbell, 1997; Bender and Heywood, 2006).

Through multiple channels, firm size interacts with turnover intention determinants. A primary channel is through wages, as firm size is positively associated with wages (Brown and Medoff, 1989; Groshen, 1991; Troske, 1994), and this size-wage premium tends to reduce turnover intentions in large firms (Idson, 1993). The size-wage premium may reflect large firms' greater ability to utilize higher-quality workers (Baron *et al.*, 1987; Oi, 1983) and to exploit capital-skill complementarity (Hamermesh, 1980; Reilly, 1995). Or it may originate from excess profits from large firms' greater monopolistic power (Weiss, 1966; Mellow, 1982). In a certain context, the size-wage differential may intend to weaken unionism or to compensate for undesirable working conditions, such as impersonal or inflexible work environments, more likely to be found in larger firms (Foulkes, 1980). Some large firms attempt to avoid potential shirking by paying higher wages (Eaton and White, 1983).

Other non-wage variables may also intermediate the size-turnover relationship. Examples include fringe benefits, internal job opportunities, business failure rates, OJT, working conditions, and monitoring capacity (Idson, 1993).

2.3. Implications for This Study

Several key implications can be drawn from the literature reviewed above. First, the labor

market mismatch literature suggests that the anti-SME labor market bias is shaped by the interplay among structural elements, firm-specific factors, and imperfection embedded in market institutions. By comparison, the labor turnover literature places more emphasis on rationality in job search and employment. **In general, large firms have greater incentives and ability to pay high wages (and fringe benefits) than SMEs**, and job seekers' rational response to this size-wage premium tends to form the anti-SME bias in the labor market.

The literature reviewed here, though helpful in identifying a list of key control variables, does not offer a direct answer to our main research question. The potential contribution of imperfect information to the anti-SME market bias is hypothesized in a rather implicit way, and literature empirically testing such a hypothesis is sparse.

3. Conceptual Lens and Research Design

3.1. Hypothesis

As discussed earlier, our main hypothesis is that imperfect information significantly contributes to the labor market bias against SMEs. We use firm-level labor shortage rates and employee turnover intentions as measures of the labor market bias, seeing the bias as a two-pronged problem of filling vacancies and keeping employees. Then, our empirical analysis focuses on testing the statistical significance of the effects of imperfect information on these two variables.

In our empirical test setting, the main hypothesis can be rewritten into two propositions. The first is that imperfect information tends to worsen labor shortage rates at the firm level. The underlying logic is that imperfect information caused by a firm's limited capacity to provide job seekers with accurate details on vacancies or about the firm itself—which is often the case for SMEs—tends to shape job seekers' downward bias toward the vacancies or the firm and thus increase the firm's labor shortage rate. The second proposition subject to testing is that imperfect information affects labor turnover intentions, but the

direction of the effects differ, depending on the direction of the initial bias. The logic behind this hypothesis is that imperfect information shaping an employee's higher *ex-ante* expectation on the job or the firm is likely to raise his or her *ex-post* turnover intentions, while imperfect information associated with *ex-ante* downward bias may lead to lower *ex-post* turnover intentions.

We use several proxy measures for imperfect information. Our firm-level survey includes explanatory variables that reveal the level of dependence on a closed search system and the level of inter-firm collaboration in recruitment. The former, signaling a firm's limited recruitment capacity, is positively associated with asymmetric information, while the latter relaxes the recruitment constraint and thus reduces imperfect information. Our employee-level analysis tests eight variables that evaluate employees' initial perception of certain aspects of their current positions or firms when accepting job offers. Then, the distance between initial perceptions and reality approximates the degree of imperfect information that job seekers confront.

3.2. Research Design

The primary data for our two-stage regression analysis have been collected through two sets of questionnaire surveys, completed between August 6, 2009 and October 16, 2009. One survey was conducted at the firm level; the other targeted employees.

Our firm-level survey focuses on the sample of 200 ICT establishments, which are chosen based on a stratified sampling method. One half of them compose the experimental group and are selected from the SDIC register. The other half are non-SDIC ICT establishments, forming the control group. These latter establishments are selected from three sources: the VENTUREIN database (Korea Technology Finance Corporation, 2009), the Korean Business Directory (Korea Chamber of Commerce and Industry, 2009), and the

establishment register of the Seongnam Industrial Complex, comparable with the SDIC in terms of industrial mix and locational advantage. For this firm-level survey, we use the same questionnaire for both SDIC and non-SDIC establishments. Survey questions either require responses specified on five- or seven-point scales, or ask for the top three (prioritized) choices from a given list.

In addition, we survey a total of 300 employees to collect information on their turnover intentions, also selected based on stratified sampling. Among them, 200 employees work for SDIC establishments and the other 100 work for non-SDIC establishments. We use an identical questionnaire for the entire sample.

3.3. Sample Characteristics

As shown in **Table 1**, the establishments included in our sample are SMEs that hire fewer than 30 employees on average, although the experimental group appears to be slightly larger than the control group (e.g., 31 vs. 25 employees). Compared with the control group (15.3%), the SDIC tenants included in our sample showed lower labor shortage rates (12.7%) but the differential was not huge. Many firms in our sample reported that tenancy in their current locations is partly due to their intention to the benefit from proximity to other firms in the same industry and other business-friendly, location-specific advantages. Workers in the SDIC firms had shorter continuous service years (3.6 years) than those in the non-SDIC firms (4.8 years), but the continuous service period in either group, less than five years, suggests relatively high turnover rates. The survey respondents answered that their recruitment difficulties are associated with lack of information and ineffective recruitment channels. We did not find significant difference in wages between the experimental and control groups.

Motivations to enjoy explicit cost savings (from geographical location and government subsidy) and positive externalities (from industrial agglomeration) affect the

sample firms' tenancy decisions more than any other aspect (**Fig. 1**). The SDIC tenants reported that their tenancy decision was mainly due to low rent and maintenance costs, proximity to other firms in the same industry, and commuting convenience. They also see the business-friendly environment and pleasant surroundings as crucial aspects. In contrast, the non-SDIC establishments reported commuting convenience as the single most important determinant. Other important aspects for consideration include low rent and maintenance costs, proximity to other firms in the same industry, and the business-friendly environment. One interesting result is that 6% of non-SDIC establishments answered that the good image of the location matters for their tenancy decision, while none of the SDIC firms did.

As shown in **Table 2**, the SDIC and non-SDIC employees share common features, in terms of individual characteristics, job satisfaction, and turnover intentions. Both groups also identify quite similar factors that affected their decision to apply for their current positions (**Fig. 2**). Crucial aspects common to both experimental and control groups include firm's growth potential, wages, fit to expertise, job stability, recommendation by acquaintances, and relevance to future career. Less crucial but still significant aspects are fringe benefits (SDIC) and firm's reputation (non-SDIC).

4. Method

We conduct two sets of two-stage regression analyses. The first set of analyses is based on the firm-level survey data; the second set uses the employee survey data.

Both sets of regression analyses adopt Heckman's two-step approach, designed to control the selection bias involved in sampling (Heckman, 1979). The model consists of two stages. In the first stage, we estimate selection equations, describing probabilities of tenanting in the SDIC or of working for SDIC-based establishments given location- and firm-specific, or individual characteristics. Then we correct self-selection by incorporating a transformation

of the estimated selection equation into the second-stage regression model as an additional explanatory variable.

We see this two-stage analysis strategy as necessary, given the potential endogeneity between tenancy in the SDIC (or working for SDIC-based firms) and its chosen explanatory variables. As briefly discussed in Section 1, the SDIC's historic image as home for SMEs in traditional labor-intensive sectors may have provided some newer ICT ventures, likely to be more sensitive to such public images, strong disincentives for tenancy in the complex. For this reason, tenants' characteristics in the SDIC may be distinct from those in other comparable ICT clusters in Korea, raising an issue of potential selection bias. If the selection bias turned out to exist, omitting the first stage would lead to inconsistent second-stage estimation results. Even in the absence of selection bias, demonstrating the absence of selection bias would itself help increase the generalizability of our key findings, as it suggests that there is little evidence that systematically distinguishes SDIC tenants from other non-SDIC establishments. Below we provide further details of our model.

Our first-stage selection equation is given as Equation 1, where S_{ij} and \mathbf{X}_{ij} are current status and a vector of explanatory variables, respectively, for employee i and establishment j . In addition, $\boldsymbol{\beta}$ and u_{ij} refer to a vector of parameters and error terms ($\mathbf{u} \sim N(0,1)$), respectively:

$$S_{ij} = \mathbf{X}_{ij}\boldsymbol{\beta} + u_{ij}. \quad (1)$$

In this equation, S_{ij} is assigned 1 if j is an SDIC-based establishment and assigned 0 otherwise. Then we assume the following probit regression form, where Φ is the cumulative distribution function of the standard normal distribution:

$$\Pr[S_{ij} = 1 | \mathbf{X}_{ij}] = \Phi(\mathbf{X}_{ij}\boldsymbol{\beta}). \quad (2)$$

Our second-stage regression model is shown in Equation 3, if R_{ij} is defined as the

labor shortage rate for establishment j . In addition, \mathbf{Z}_{ij} , $\boldsymbol{\gamma}$, and v_{ij} refer to a vector of explanatory variables, a vector of parameters, and error terms ($\mathbf{v} \sim N(0,1)$), respectively:

$$R_{ij} = \mathbf{Z}_{ij}\boldsymbol{\gamma} + v_{ij}. \quad (3)$$

Then we incorporate Equation 1 into Equation 3, as shown in Equation 4:

$$R_{ij} = \mathbf{Z}_{ij}\boldsymbol{\gamma} + \lambda(\mathbf{X}_{ij}\boldsymbol{\beta}) + \varepsilon_{ij}. \quad (4)$$

Here, λ is the inverse Mills ratio evaluated at $\mathbf{X}_{ij}\boldsymbol{\beta}$, and ε_{ij} is an error term. If \mathbf{u} and \mathbf{v} are independent (and thus jointly normal), then $E[\varepsilon|\mathbf{X}]$ is zero and Equation 4 is equivalent to Equation 5:

$$E[R_{ij} | \mathbf{Z}_{ij}, S_{ij} = 1] = \mathbf{Z}_{ij}\boldsymbol{\gamma} + \lambda(\mathbf{X}_{ij}\boldsymbol{\beta}). \quad (5)$$

For the analysis of employee turnover intentions, however, we estimate the following probit regression model, instead of Equation 5 because the dependent variable of the second-stage equation is a binary variable. In this case, R_{ij} , turnover intentions of employee i working for establishment j , is assigned 1 if employee i has an intention to quit his/her current job and assigned 0 otherwise:

$$\Pr[R_{ij} = 1 | \mathbf{X}_{ij}, \mathbf{Z}_{ij}, S_{ij} = 1] = \Phi(\mathbf{Z}_{ij}\boldsymbol{\gamma} + \lambda(\mathbf{X}_{ij}\boldsymbol{\beta})). \quad (6)$$

A potential limitation to application of the Heckman correction is its sensitivity to the joint normality assumption (Newey *et al.*, 1990). Our models for the labor shortage rate analysis, in particular, require this assumption, while those for the employee turnover intention analysis—which are two-stage probit models—do not. For this reason, we have also conducted conventional normality tests of the residuals, estimated from the models for our labor shortage rate analysis. We provide the results in Section 5.1.

5. Results

5.1. Labor Shortage Rates

To identify key variables underlying the labor shortage rates of the SDIC-based firms, we test a total of 19 explanatory variables, 9 of which (X_1 – X_9) are used in the selection equation and the other 10 (Z_1 – Z_{10}) are used in the second-stage equation. We are particularly interested in estimating the effects of the first six independent variables included in the second-stage equation (Z_1 – Z_6) on labor shortage rates while controlling for the effects of conventional firm-specific characteristics (Z_7 – Z_{10}) and of potential selection bias (X_1 – X_9).

Our analysis adopts a stepwise procedure by excluding the variables showing substantially low statistical significance from the models in a stepwise fashion. This approach begets several alternative models that include different sets of explanatory variables. **Table 3** displays two of the alternative models with the selection equations, titled *Heckman 1A* and *Heckman 1B*. The former includes all of the independent variables that we would like to test; the latter includes only some of them, those that show statistical significance in *Heckman 1A*. The same table also includes the results of ordinary least square (OLS) regression without the selection equation, titled *OLS*, for a comparison purpose.

Our first-stage estimation identifies independent variables that affect firms' pro-SDIC tenancy decision. According to the results, those SMEs that record less annual sales (X_9) and that give higher scores to the SDIC's business-friendly environment (X_5) are more likely to reside in the SDIC. In contrast, those more cautious about the SDIC's negative image (X_8) are less likely to reside in the SDIC, supporting our initial hypothesis that the SDIC's historic image has played a role in a firm's tenancy decision. We also find that commuting convenience (X_2) is negatively associated with the firm's tenancy in the SDIC, although this relationship is less robust in *Heckman 1B* and significant only at the 10% level.

However, this first-stage selection equation does not have a significant effect on our second-stage estimation results. As shown in the same table, we cannot reject the null

hypothesis that the Mills lambda (λ) is zero at all three significance levels that we consider. This suggests that there is no convincing evidence to suspect selection bias involved in tenancy in the SDIC, so our findings may have broader implications beyond the SDIC case. Accordingly, *Heckman 1A* and *OLS* show similar results, in terms of the list of independent variables with statistical significance and of magnitude and signs of estimated coefficients for those variables.

When the selection equation is included in the main model, the three most statistically significant variables are mean weekly work hours (Z_8), recommendation by current employees (Z_2), and recruitment information sharing at the complex level (Z_6). The former two variables are positively associated with the dependent variable, meaning that those SDIC tenants that require longer mean weekly work hours or depend more on recommendation by current employees as a main recruitment channel tend to show higher labor shortage rates. The positive sign of the coefficient for Z_8 is as suggested in the literature. The positive sign of that for Z_2 also coincides with our expectation, although its understanding requires some additional thought.

As stated earlier, our primary intention in introducing Z_2 is as a potential contributor to asymmetric information in the labor market. Insiders' recommendation is often the recruitment channel most readily available to Korean SMEs, the majority of which have limited capacity to utilize more open job-advertising channels, such as the public media or the Internet. We associate preference for the closed channel over other open alternatives with weak capacity for firm or job advertisement, which may lead to insufficient or incorrect information among potential job seekers.

In contrast to Z_2 and Z_8 , Z_6 is negatively correlated with labor shortage rates. That is, those SDIC tenants that more actively share recruitment information with other SDIC tenants tend to show lower labor shortage rates. This result is significant at the 5% level in all

of the three models displayed in Table 3, demonstrating the robust, positive effects of collaboration at the SDIC level on relaxing the labor shortage issues faced by the SDIC tenants. Given this result, information sharing and related collaborative actions among SMEs with certain common characteristics (e.g., collective advertisement of vacancies targeting a common pool of potential job candidates) may be seen as an effective measure to complement their limited recruitment capacity and thus to reduce the anti-SME labor market bias.

Besides these three variables, average wages and employment size are significant, depending on the models. The former is significant at the 5% level in *Heckman 1A* and *OLS*, but is not significant even at the 10% level in *Heckman 1B*. Negative signs for it in all models coincide with the literature, indicating that firms offering higher wages tend to show lower shortage rates. Employment size is also negatively associated with labor shortage rates, but this relationship is significant only at the 10% level in all three models. This result also conforms to the findings of other empirical studies.

We conduct conventional normality tests on the error terms to see whether our estimates are robust. As stated in Section 4, unbiased results from *Heckman 1A* and *Heckman 1B* require the joint normality condition for the error terms of the two-step estimation equations (\mathbf{u} and \mathbf{v}) or equivalently the normality condition for the error terms of the main model (ϵ). Our tests for *Heckman 1A* and *Heckman 1B* focus on ϵ , rather than \mathbf{u} and \mathbf{v} . We also conduct the normality test on *OLS*, as conventional OLS estimation also requires the normality condition of the error terms to ensure unbiased results.

Table 4 summarizes the results from the three conventional normality tests—Sharpiro-Wilk W test, Sharpiro-Francia W' test, and Skewness-Kurtosis test. As shown in the table, we cannot reject the null hypothesis of normality for all three models at the 5% significance level, independent of testing method. In particular, the results for *Heckman 1A*

and *Heckman 1B* suggest that there is no convincing evidence to suspect violation of the joint normality assumption, ensuring the robustness of our Heckman two-step estimation results.

5.2. Employee Turnover Intentions

From the employee survey, we construct a total of 29 explanatory variables to explore what underlies turnover intentions of SDIC employees. Among them, 25 variables ($Z'_1-Z'_{25}$) are used for our second-stage analysis, while the other four ($X'_1-X'_4$) are included in the selection equation only. Our hypothesis testing requires estimating the effects of the first eight second-stage variables ($Z'_1-Z'_8$) on employee turnover intentions while controlling for the effects of the remaining second-stage variables ($Z'_9-Z'_{25}$) and of potential selection bias ($X'_1-X'_4$). Similar to our previous firm-level analysis, we narrow these variables down to a short list by excluding those with low statistical significance in a stepwise manner. This approach yields several alternative models, and we display the two most preferred models in **Table 5**, titled *Heckman 2A* and *Heckman 2B*. In the same table we also display conventional probit estimation results, titled *Probit*, for a comparison purpose.

Our first-stage estimation results show that wage levels (X'_1), government support (X'_2), and internship experience (X'_4) particularly matter in explaining employees' decision to work for SDIC-located firms. Awareness of SDIC-targeting government support in during job searches tends to increase the probability of accepting job offers from SDIC-based firms. In contrast, those who place relatively low importance on wages when accepting job offers or those who had no internship experience in the ICT sector when searching for jobs are more likely to work for SDIC-based firms.

However, our second-stage estimation begets Mills lambda (λ) with low significance. As shown in the same table, the likelihood ratio test fails to reject the null hypothesis that λ is zero for *Heckman 2A* and *Heckman 2B*, even at the 10% significance level. Accordingly, the

selection equation does not necessarily raise the explanatory power of our second-stage probit regression model, suggesting that SDIC-specific characteristics do not play a significant role in shaping the turnover intention of SDIC employees. In fact, *Probit* displays results that are very similar to *Heckman 2A* in terms of magnitude and signs of coefficients and of their statistical significance.

Our second-stage estimation includes four categories of variables (imperfect information, reasons for accepting current jobs, job satisfaction, and individual characteristics), in addition to the first-stage selection equation. As stated earlier, we are particularly interested in the imperfect information variables ($Z'_1-Z'_8$), reflecting the degree of employees' awareness of SDIC- or firm-specific characteristics when accepting jobs. To construct these categorical variables, respondents were asked to answer on a five-point scale how strongly they agreed with statements regarding their initial recognition of certain aspects of the SDIC or its tenants. A greater value for these variables represents a higher level of assent. For example, a greater value for the "SME-centered factory town" variable (Z'_5) means that the employee showed a higher assent to the proposition that she or he perceived the SDIC as an SME-centered factory town when accepting her/his current job.

Our second-stage results show that fringe benefits (Z'_{10}), satisfaction with work hours (Z'_{19}), and overall job satisfaction (Z'_{20}) are crucial explanatory variables for turnover intentions. All these variables are statistically significant at the 1% level, whether the selection equation is included or not. Z'_{10} is positively associated with turnover intentions, meaning that those who place greater importance on fringe benefits in the job search process tend to possess higher turnover intentions. This result suggests that SDIC-based firms may have failed to fulfill employees' expectation, in terms of fringe benefits. In contrast, Z'_{19} and Z'_{20} are negatively correlated with turnover intentions. That is, the more satisfied employees are with their current job and working condition, the lower turnover intentions they tend to

possess, which coincides with the finding of other empirical studies. In particular, it is noteworthy that satisfaction with work hours, as well as overall job satisfaction, affects turnover intentions significantly. This finding seems to be related to the fact that SME employees in Korea are typically required to commit to substantially longer labor hours than those at larger firms.

Besides these three variables, wages (Z'_9), age (Z'_{25}), and two imperfect information variables—SME-centered factory town (Z'_5) and OJT and education opportunities (Z'_8)—are found to be statistically significant, all negatively associated with employee turnover intentions. Negative coefficients for Z'_9 mean that those who placed greater importance on wages in a job search decision tend to show lower turnover intentions. This result may suggest that the sample SDIC tenants pay relatively competitive wages to their employees, but the given relationship is significant only in *Heckman 2B* at the 5% level. Similarly, negative coefficients for Z'_{25} imply that older employees are less inclined to leave their current jobs. This result is consistent with the findings of many existing studies, but is significant only in *Probit* at the 10% level.

Interpretation of the results regarding Z'_5 and Z'_8 requires caution, however. The negative coefficients for Z'_5 mean that employees whose initial perception of the SDIC was more strongly associated with its historic image as an SME-centered factory town tend to possess lower turnover intentions. One possible explanation of this result is that employees who had a historically biased perception may be more impressed by the actuality of the SDIC as a high-tech cluster than those who did not, contributing to the former's lower turnover intentions. This relationship is significant at the 10% level in all three models.

Similarly, negative coefficients for Z'_8 mean that employees who had greater knowledge of offered OJT and education opportunities when accepting jobs tend to possess lower turnover intentions. We associate this result with the fact that OJT and education

opportunities in SMEs, including SDIC tenants, are often limited due to lack of resources or high turnover rates. Thus, incorrect or incomplete knowledge of these opportunities is likely to be biased upward (i.e., toward high expectation), and the gap between expectation and reality may increase employee turnover intentions. This negative correlation is significant in *Heckman 2B* at the 5% level and in *Heckman 2A* and *Probit* at the 10% level.

5.3. Summary and Discussion

Our selection equation estimation identifies business-friendly environment and overall negative image as the two most crucial determinants of a firm's tenancy decision. In particular, negative public perception of the SDIC, rooted in its origin as home to SMEs with inferior working conditions, is found to lead to a firm's tenancy decision against the SDIC, raising the need for its improvement. However, our second-stage estimation demonstrates that this historic bias toward the SDIC does not result in selection bias at statistically significant levels.

Our main models identify as primary sources of their labor shortage undesired firm-specific characteristics (e.g., low wages and long weekly work hours) and asymmetric information arising from high dependence on closed recruitment channels.² We have also found statistically robust effects of recruit information-sharing among SDIC tenants on reducing their labor shortage rates, suggesting that collaborative actions among SMEs with certain common characteristics can partly complement their weak recruitment capacity.

Our employee-level analysis reveals that fringe benefits, satisfaction with work hours, and overall job satisfaction are the most crucial explanatory variables for labor turnover intentions. The signs of the coefficients of these variables suggest that SDIC-tenanted SMEs

² However, we impose the caveat that endogeneity may be involved in the latter variable's case, if firms facing more serious labor shortage or failing to fill vacancies through other channels tend to depend more on personal networks for recruitment.

offer relatively competitive wages but fall behind in terms of fringe benefits and work hours.

As hypothesized, imperfect information is found to have dualistic effects on labor turnover intentions: more complete knowledge of actual OJT and education opportunities when accepting jobs tends to lower labor turnover intentions, while employees having less biased initial perception of the SDIC as a traditional factory town tend to show greater turnover intentions. We associate these dualistic effects with the direction of initial bias, as initial knowledge of OJT and education opportunities is likely to be biased upward, while initial perception of the SDIC, if biased, is biased downward. Wage levels, SDIC-targeting government support, and individual internship experience are found to have significantly affected employees' job offer acceptance decisions, but this first-stage result does not have statistically significant effects on our second-stage probit estimation.

One caveat in the application of our research design to other empirical settings is that having large firms as a control group may be necessary if there is a strong suspicion that large firms are also subject to a market bias shaped by imperfect information. It should be noted that this study omits the survey of large firms as a control group, given Korea's special circumstances. It is well known that a few giant diversified business groups dominate Korea's economy, forming strong vertical linkages with SMEs often through subcontracting (Nugent and Yhee, 2002). The gap in recruitment capacity, caused by the gap in internal resources, is apparent between these two groups. In general, large firms possess effective internal resources to promote public relations, and job seekers are well informed of the firms and their career opportunities through various official (e.g., corporate website, mass media, college job fairs) and unofficial (e.g., alumni networks, small job search groups) channels. In this context, associating imperfect information with large firms lacks good grounds. In other contexts where this does not hold, however, demonstrating the size-biased effects of imperfect information in the labor market would require additional attention to large firms.

6. Conclusions

In this study, we examine the SDIC case to explore primary sources of anti-SME bias in Korea's labor market, with particular interest in the potential contribution of imperfect information to the bias. We survey non-SDIC sample firms and employees, as well as SDIC samples, and adopt Heckman's two-step approach to control potential selection bias at both firm and employee levels. Our results show that the selection equations of the first step do not have significant effects on our second-stage estimation, leaving room for generalization of our findings beyond the SDIC case.

We find that a set of firm- or job-specific characteristics greatly affect labor shortage rates and turnover intentions. Among the most crucial explanatory variables for both labor shortage rates and employee turnover intentions are wages, fringe benefits, mean weekly work hours, and overall job satisfaction. In particular, fringe benefits and work hours, rather than monetary compensation, need to be improved in order to reduce anti-SME bias in Korea's labor market.

Among firm-level proxy variables for imperfect information, dependence on closed recruitment channels is positively associated with the labor market bias, while more active sharing of recruitment information among SDIC tenants tends to reduce labor shortage rates. This result suggests that part of the anti-SME market bias stems from limited recruitment capacity at the firm level, but collaborative actions across SMEs with common characteristics or interests may help improve the situation. Persistent public perception of the SDIC as home to typical SMEs with inferior working conditions is found to affect a firm's tenancy decision against the SDIC, but this historic bias is not directly associated with labor shortage rates.

Our employee-level analysis demonstrates the potential dualistic effects of imperfect information on labor turnover intentions. According to the results, employees whose initial

perception of the SDIC was more strongly associated with historic bias (i.e., the SDIC as an SME-centered factory town) tend to show lower intentions to leave their current jobs; in contrast, less initial knowledge of actual OJT and education opportunities is associated with greater labor turnover intentions. We trace this dualistic effect on *ex-post* labor turnover intentions to the direction of initial bias, given that employees' *ex-ante* perception of the SDIC is biased downward, while their *ex-ante* expectation of OJT and education opportunities is biased upward.

We would like to highlight the following implications drawn from our analysis. One is that helping improve inferior firm-specific conditions matters in reducing the anti-SME market bias, as emphasized in the existing literature. Redressing the existing size-biased industrial policy and credit system may be a key step in improving the situation. In addition, the prevailing market institutions and conventions that permit large firms to inappropriately exercise their market power over subcontractors (often SMEs) are an area that requires urgent public intervention. Expanding the public support for industry-academic collaboration between SMEs and technical high schools or community colleges or for access to a foreign skilled labor force can also help the situation.

Another implication is that helping improve SMEs' limited recruitment capacity is necessary to reduce labor shortage. The market bias is found to arise partly from SMEs' inadequate ability to identify a pool of potential employee candidates or to provide job seekers with detailed and accurate information about themselves or vacancies. Given our findings that support the bias-mitigating role of collaborative actions in the labor market, such as recruitment information-sharing, we can imagine a complex-wide, integrated, open recruitment system or information-sharing tool, which complements individual firms' limited recruitment capacity. Supporting the networking of SMEs with common interests, which can lead to their voluntary actions toward shared goals, may also be effective.

Finally, effort to provide job seekers with more complete information on jobs or firms may also result in reduced labor turnover intentions. For example, *ex-ante* incomplete knowledge of OJT and education opportunities is found to increase *ex-post* employee turnover intentions. We also find that this relationship depends on the direction of initial bias, as exemplified by the negative association between *ex-ante* biased perception of the SDIC and *ex-post* labor turnover intentions. The latter result, however, should not be misinterpreted in favor of imperfect information, as our first-stage estimation results show that the initial downward bias regarding the SDIC's overall image significantly lowers the probability of accepting job offers from SDIC tenant firms in the first place.

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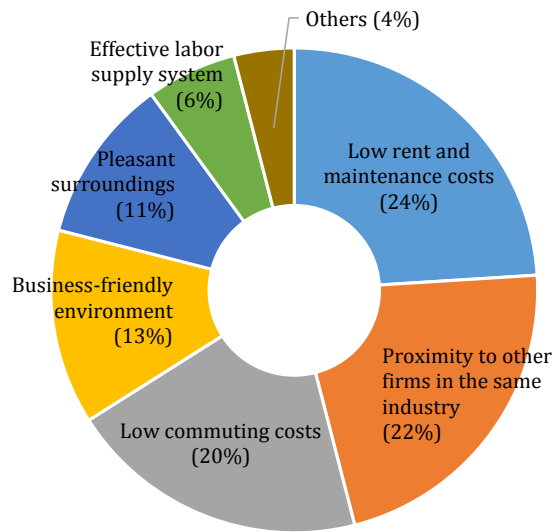
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(a) SDIC Establishments



(b) Non-SDIC Establishments

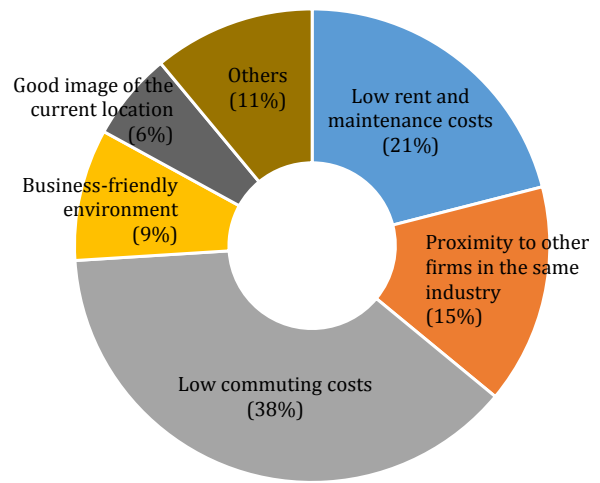


Fig. 1. Determinants of Locational Decision

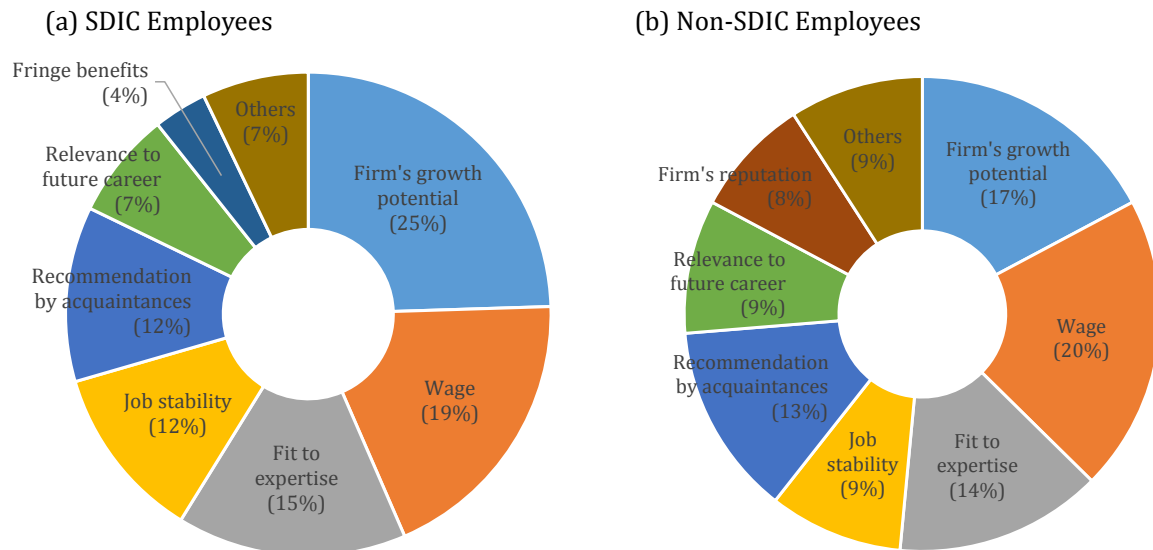


Fig. 2. Determinants of Job Offer Acceptance

Table 1. Characteristics of SDIC and Non-SDIC Establishments

<i>Variable</i>	<i>SDIC Establishments</i>		<i>Non-SDIC Establishments</i>	
	<i>Mean</i>	<i>Std Dev</i>	<i>Mean</i>	<i>Std Dev</i>
Establishment characteristics				
+ Labor shortage rate (%)	12.68	16.65	15.27	20.86
+ Average annual wages [*]	4.31	0.78	4.36	0.94
+ Average weekly work hours [†]	1.62	0.58	1.81	0.69
+ Average continued service time (years)	3.57	2.35	4.83	9.80
+ Sales in 2008 (billions of KRW)	21.84	36.42	38.62	47.71
+ Assets in 2008 (billions of KRW)	40.50	47.12	48.31	49.43
+ Number of current employees (persons)	30.63	49.14	25.12	32.58
Self-evaluated motivations for tenancy in industrial park [‡]				
+ Proximity to other firms in the same industry	3.53	0.95	3.11	1.25
+ Business-friendly environment	3.69	0.92	3.24	1.05
Self-evaluated dependence on select recruitment channels [‡]				
+ Internet recruitment sites	3.83	1.30	3.54	1.34
+ Recommendation by current employees	3.09	1.25	2.94	1.31
Self-evaluated reasons for recruitment difficulties [‡]				
+ Lack of information	2.82	1.02	2.63	1.05
+ Insufficient labor supply system	3.07	1.08	2.94	1.14
+ High turnover rates	2.53	1.11	2.89	1.18

Notes: ^{*} 7-scale categorical variable. 1: < KRW10 million; 2: ≥ KRW10 million and < KRW15 million; 3: ≥ KRW15 million and < KRW20 million; 4: ≥ KRW20 million and < KRW30 million; 5: ≥ KRW30 million and < KRW40 million; 6: ≥ KRW40 million and < KRW50 million; 7: ≥ KRW50 million.

[†] 4-scale categorical variable. 1: < 40 hours; 2: ≥ 40 hours and < 60 hours; 3: ≥ 60 hours and < 80 hours; ≥ 80 hours.

[‡] 5-scale categorical variable. 1: strongly disagree; 2: disagree; 3: neutral; 4: agree; 5 strongly agree.

Table 2. Comparison of the Characteristics between the Employees of SDIC and Non-SDIC Companies

<i>Variable</i>	<i>SDIC Establishments</i>		<i>Non-SDIC Establishments</i>	
	<i>Mean</i>	<i>Std Dev</i>	<i>Mean</i>	<i>Std Dev</i>
Respondent's characteristics				
+ Level of expertise or skill [*]	3.10	0.10	3.40	0.13
+ Current wage level [†]	4.21	0.07	4.79	0.17
+ Weekly work hours [‡]	3.05	0.06	2.94	0.07
+ Gender (1 = Male; 0 = Female)	0.64	0.03	0.65	0.05
+ Age ^{**}	1.73	0.05	1.88	0.07
+ Education level (final degree) ^{††}	2.52	0.05	2.67	0.78
Turnover intentions				
+ Intention to leave current job (1 = Yes; 0 = No)	0.27	0.44	0.21	0.41
Determinants of job acceptance ^{‡‡}				
+ Offered wages	4.13	0.07	4.21	0.06
+ Growth potential of the company	4.23	0.06	4.26	0.07
+ Location of the company	3.41	0.96	3.27	0.98
Job Satisfaction ^{‡‡}				
+ Satisfied with work hours	3.37	0.07	3.59	0.11
+ Overall job satisfaction	3.55	0.05	3.66	0.09

Notes: ^{*} 5-scale categorical variable: 1: less than 1 year in the same industry; 2: 2-3 years; 3: 3-4 years; 4: 5-10 years; 5: over 10 years.

[†] 7-scale categorical variable. 1: < KRW10 million; 2: ≥ KRW10 million and < KRW15 million; 3: ≥ KRW15 million and < KRW20 million; 4: ≥ KRW20 million and < KRW30 million; 5: ≥ KRW30 million and < KRW40 million; 6: ≥ KRW40 million and < KRW50 million; 7: ≥ KRW50 million.

[‡] 5-scale categorical variable. 1: < 30 hours; 2: ≥ 30 hours and < 40 hours; 3: ≥ 40 hours and < 50 hours; 4: ≥ 50 hours and < 60 hours; 5: ≥ 60 hours.

^{**} 5-scale categorical variable. 1: < 20 years; 2: ≥ 20 years and < 30 years; 3: ≥ 30 years and < 40 years; 4: ≥ 40 years and < 50 years; 5: ≥ 50 years.

^{††} 5-scale categorical variable. 1: high school diploma; 2: associate's degree; 3: bachelor's degree; 4: master's degree; 5 doctorates.

^{‡‡} 5-scale categorical variable. 1: strongly disagree; 2: disagree; 3: neutral; 4: agree; 5 strongly agree.

Table 3. Labor Shortage Rates Estimation Results

<i>Variables</i>	<i>Heckman 1A</i>	<i>Heckman 1B</i>	<i>OLS</i>
Stage 2 (Dependent variable: Labor shortage rates)			
Main recruitment channels			
+ Internet (Z_1)	-0.0082 (0.0217)		-0.0104 (0.0220)
+ Recommendation by current employees (Z_2)	0.0523*** (0.0177)	0.0531*** (0.0186)	0.0531*** (0.0185)
Reasons for recruitment difficulties			
+ Lack of information [†] (Z_3)	0.0140 (0.0232)		0.0070 (0.0237)
+ Ineffective labor supply system ^{††} (Z_4)	0.0062 (0.0240)		0.0185 (0.0241)
+ High turnover rates (Z_5)	0.0237 (0.0223)		0.0200 (0.0224)
Complex-wide collaboration for recruitment			
+ Recruitment information sharing with other SDIC-based establishments (Z_6)	-0.0544** (0.0249)	-0.0542** (0.0250)	-0.0523** (0.0256)
Firm-specific characteristics			
+ Average wage level (Z_7)	-0.0436** (0.0198)	-0.0294 (0.0200)	-0.0420** (0.0206)
+ Average weekly work hours (Z_8)	0.0755*** (0.0265)	0.0828*** (0.0263)	0.0746*** (0.0274)
+ Fringe benefits ^{†††} (Z_9)	0.0275 (0.0211)		0.0284 (0.0216)
+ Number of employees (Z_{10})	-0.0007* (0.0004)	-0.0005* (0.0003)	-0.0007* (0.0004)
Constant	0.0010 (0.1281)	0.0803 (0.1053)	0.0122 (0.1317)
Stage 1 (Dependent variables: Tenancy in the SDIC)			
Location-specific characteristics			
+ Proximity to other firms in the same industry (X_1)	0.0258 (0.1479)		
+ Commuting convenience (X_2)	-0.2782** (0.1361)	-0.2394* (0.1310)	
+ Systematic government support (X_3)	0.0361 (0.1675)		
+ Easy access to local labor market (X_4)	0.2522* (0.1446)		
+ Business-friendly environment (X_5)	0.4470*** (0.1586)	0.5647*** (0.1428)	
+ Low rent and maintenance costs (X_6)	0.0247 (0.132)		
+ Pleasant surroundings (X_7)	0.1525 (0.1577)		
+ Overall negative image (X_8)	-0.8549*** (0.1403)	-0.8003*** (0.1303)	
Firm-specific characteristics			
+ Annual sales in 2008 (X_9)	-6.1E-6** (2.6E-6)	-5.7E-6** (2.5E-6)	
Constant	0.5046 (0.5588)	1.0436** (0.4604)	
Mills lambda (λ)	0.0281 (0.0344)	0.0179 (0.0383)	

Notes: * significant at 10% level; ** significant at 5% level; *** significant at 1% level; standard errors are in parentheses. [†] e.g., information on firms among job seekers or information on employee candidates among employers; ^{††} e.g., university-industry partnership, OJT at the firm or complex level, internship opportunities; ^{†††} The fringe benefits variable is the mean implementation level of the following benefits: subsidy for educational expenses, four major types of insurance, parental leave, paid holidays, in-house group activities, covered health examinations, and in-house training.

Table 4. Normality Test Results

<i>Normality Test</i>	<i>Heckman 1A</i>	<i>Heckman 1B</i>	<i>OLS</i>
Shapiro-Wilk W test			
+ Test statistic (W)	0.9840	0.9802	0.9789
+ Standardized test statistic (Z)	0.578	1.073	1.236
+ Test results (p -value)	0.2816	0.1416	0.1082
Shapiro-Francia W' test			
+ Test statistic (W')	0.9820	0.9789	0.9784
+ Standardized test statistic (Z)	0.953	1.280	1.347
+ Test results (p -value)	0.1703	0.1003	0.0891
Skewness-Kurtosis test			
+ Test statistic (χ^2)	2.48	2.73	3.23
+ Test results (p -value)	0.2888	0.2550	0.1984

Table 5. Employee Turnover Intentions Estimation Results

Variables	Heckman 2A		Heckman 2B		Probit	
	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.
Stage 2 (Dependent variable: Turnover intentions)						
Imperfect Information (Awareness of SDIC- or firm-specific characteristics, when accepting jobs)						
+ Proximity to other firms in the same industry (Z'_1)	-0.1493	0.1571	-		-0.1448	0.1390
+ Flexible corporate culture (Z'_2)	0.1303	0.1969	-		0.1344	0.2052
+ Seoul location and commuting convenience (Z'_3)	-0.1256	0.1348	-		-0.1334	0.1258
+ Systematic government support (Z'_4)	0.0616	0.1842	-		0.0541	0.1671
+ SME-centered factory town (Z'_5)	-0.2430*	0.1401	-0.2314*	0.1223	-0.2485*	0.1366
+ Digital venture cluster (Z'_6)	0.1097	0.1732	-		0.0965	0.1615
+ Accommodations and recreational facilities (Z'_7)	-0.0163	0.1609	-		-0.0229	0.1587
+ OJT and education opportunities (Z'_8)	-0.2428*	0.1758	-0.2436**	0.1229	-0.2489*	0.1485
Reasons to accept current jobs						
+ Wages (Z'_9)	-0.3058	0.1868	-0.3351**	0.1639	-0.3124	0.2120
+ Fringe benefits (Z'_{10})	0.6826***	0.2314	0.5684***	0.1733	0.6919***	0.2234
+ Job stability (Z'_{11})	-0.2853	0.2090	-		-0.2826	0.1980
+ Awareness of the company (Z'_{12})	-0.0418	0.1923	-		-0.0394	0.1766
+ Growth potential of the company (Z'_{13})	0.0016	0.1805	-		0.0026	0.1645
+ Relevance to future career development (Z'_{14})	0.1945	0.1599			0.1966	0.1554
+ Company location (Z'_{15})	-0.1302	0.1617	-		-0.1345	0.1615
+ Recommendation by acquaintances (Z'_{16})	-0.0057	0.1267	-		-0.0090	0.1270
+ Fit to expertise (Z'_{17})	0.1553	0.1208	-		0.1508	0.1206
+ Company's tenancy in the SDIC (Z'_{18})	0.1893	0.1442	-		0.1943	0.1320
Job satisfaction						
+ Satisfied with work hours (Z'_{19})	-0.5201***	0.1565	-0.4758***	0.1395	-0.5226***	0.1518
+ Overall job satisfaction (Z'_{20})	-0.6952***	0.2404	-0.5827***	0.1804	-0.7141***	0.1994
Individual characteristics						
+ Level of current technical expertise (Z'_{21})	0.0038	0.1054	-		0.0026	0.0997
+ Gap between current expertise and job requirements (Z'_{22})	-0.0273	0.1389	-		-0.0300	0.1422
+ Education level (final degrees) (Z'_{23})	0.0251	0.1685	-		0.0363	0.1691
+ Gender (Z'_{24})	-0.3563	0.2649	-		-0.3538	0.2516
+ Age (Z'_{25})	-0.3233	0.2159			-0.3269*	0.1974
Constant	3.8626**	1.7392	3.5315***	1.0325	4.1402***	1.3073
Stage 1 (Dependent variable: Employed by SDIC establishments)						
+ Wages: Reasons to accept current jobs (X'_1)	-0.1593***	0.0571	-0.1564***	0.0566		
+ Awareness of government support for the SDIC, when searching for jobs (X'_2)	0.2810***	0.0801	0.2965***	0.0769		
+ Overall image of the SDIC (X'_3)	0.0479	0.0839	-			
+ Internship experience in the ICT sector, when searching for jobs (X'_4)	-0.6801***	0.2384	-0.6712***	0.2391		
Constant	0.4090	0.3847	0.5343*	0.2860		
Mills lambda (λ)	0.1605	0.6225	0.2446	0.5630		

Notes: * significant at 10% level; ** significant at 5% level; *** significant at 1% level.