**EMPLOYEE SHARE OWNERSHIP, TRAINING, AND EARLY PROMOTION POLICY**

**AS A BUNDLE IN ENHANCING LABOR PRODUCTIVITY:**

**A TEST OF THE THREE-WAY INTERACTION EFFECT**

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**Abstract**

The three-way interaction effect of (broad-based) employee share ownership (ESO), training, and early promotion policy on labor productivity was examined in a longitudinal sample of 614 organizations (1,605 organization-year data points) in Korea. The ESO-productivity relationship was positive only when the investment in training was high and the opportunity for early promotion was present. However, we found no evidence for the two-way interaction effects of ESO and training and ESO and early promotion policy on labor productivity. The results are in alignment with the emergent view that the productivity benefits of ESO can be better realized when ESO co-exists with a bundle of complementary HRM practices. Thus, this study meaningfully extends the contingency perspective and related studies in the ESO literature, which tend to examine the productivity effect of ESO in isolation or in conjunction with a single HRM practice.

Keywords: Employee share ownership, labor productivity, training, early promotion, three-way interaction

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**INTRODUCTION**

Human capital is a key source of corporate success in the increasingly competitive business environment (Hitt, Bierman, Shimizu & Kochhar, 2001). As a result, finding an answer to the question of how to more effectively manage human capital has been the core task of management scholars and practitioners. Naturally, there has been a surge of studies in the last several decades in search of human resource management (HRM) practices that can effectively manage human capital and enhance labor productivity.

Amongst these practices, employee share ownership (ESO) has received much attention as a tool to align the interest of employees with that of the firm, foster development of human capital, and increase tenure of employees within the firm (Bryson & Freeman, 2010; Kalmi, Pendleton & Poutsma, 2005; Kruse, Blasi & Freeman, 2012; Poutsma & Braam, 2012; Robinson & Wilson, 2006; Sesil & Kroumova, 2007). This, in turn, has led to the expectation that ESO can help firms to enhance their productivity. As a result, firms have widely adopted ESOs. For example, statistics show that about 14 million employees in the United States (U.S.) in 2014 hold some form of ESOs and this translates into about 1.3 trillion dollars in value (National Center for Employee Ownership, 2017).

 The empirical evidence in support of ESO shows a positive, albeit small effect on performance. In alignment with this argument, a recent meta-analysis of 102 studies from around the world by O’Boyle and colleagues (2016) shows a positive and statistically significant relationship between ESO and firm performance, but only at a small magnitude (weighted mean correlation = 0.04). Although the overall productivity effect seems positive, the magnitude of this effect varies across studies with some studies reporting no effects on productivity (e.g., Kruse, 1992; Pendleton, 1997; Sengupta & Yoon, 2018).

 The variations in the results have led to the rise of the contingency view that the benefits of ESO can be better realized under certain contexts, including the presence of certain HRM practices (Kaarsemaker & Poutsma, 2006; Kruse, Freeman & Blasi, 2010; Sengupta, 2008). For example, there have been studies examining the role of communication or participation in decision making (e.g., Blasi, Freeman, Mackin & Kruse, 2010; Freeman, Kruse & Blasi, 2004; Kalmi, 2002; Kruse et al., 2010) and profit sharing practices (e.g., Blasi et al., 2010; Freeman et al., 2004; Kruse et al., 2010; Wilson & Peel, 1990) on the productivity effect of ESO.

The argument that the productivity-enhancing effect of ESO can be strengthened under the high training condition has garnered much interest recently (Whitfield, Pendleton, Sengupta & Huxley, 2017). The theoretical rationale is based on the “lock-in” capabilities of ESO and reciprocal signals about the commitment between organizations and employees through investment in training. Through providing ESOs to its employees, an organization indicates that it will not monopolize the gains from training. And through holding the ESOs, employees indicate their intention to remain with the firm. This, in turn, mitigates the organization’s risk of investing in training (Whitfield et al., 2017).

Despite the strong theoretical arguments for the positive synergistic effect of ESO and training, the evidence is inconclusive and limited to a few studies (e.g., Whitfield et al., 2017). The limited and mixed evidence directs attention to the increasingly popular view that the productivity benefits of ESO can be better realized when ESO co-exists with more than one complementary HRM practice (Blasi et al., 2010; Bryson & Freeman, 2010; Kruse et al., 2010, Pendleton & Robinson, 2011; Robinson & Wilson, 2006). In fact, there is a strong theoretical rationale for expecting positive synergistic complementarities among ESO, investment in training (Guery & Pendleton, 2016; Pendleton & Robinson, 2011; Whitfield et al., 2017), and early promotion policy (Rousseau & Shperling, 2003). However, previous studies have only focused on the two-way complementarities of ESO and training. The synergies between ESO, training, and early promotion policy as a bundle remain unexplored.

The current study, therefore, tries to fill this gap in the ESO literature by demonstrating that the productivity benefits of ESO can be better realized when both the training and early promotion policy as a bundle are in alignment with the productivity-enhancing mechanism of ESO. In so doing, this study offers insights into why we may observe an inconsistent result in the interaction effect of ESO and training on labor productivity. Furthermore, the study tests the emergent and compelling arguments that the productivity effect of ESO can be fully realized within a bundle of complementary HRM practices (Blasi et al., 2010; Bryson & Freeman, 2010; Freeman, Kruse & Blasi, 2010; Kruse et al., 2010, Whitfield et. al. 2017). Finally, the study identifies a bundle of complementary HRM practices that yield desired performance outcomes and thereby contributes to the ongoing debate about what constitutes an effective configuration of HRM practices in terms of increasing productivity (Delery & Gupta, 2016).

**THEORETICAL BACKGROUND AND HYPOTHESIS**

**Literature review on ESO-labor productivity relationship**

ESO schemes are expected to have a positive impact on labor productivity (Blair & Kruse, 1999; Kruse, 2002; Kruse et al., 2010; Pendleton, 2001). The first underlying mechanism is that ESO aligns the interests of employees with that of the firm and fosters profit-maximizing behavior of employees (Conte & Svejnar, 1990). This enhances employees’ commitment, self and peer monitoring, and willingness to share information. It also reduces absenteeism, turnover, and monitoring costs (*golden path* thesis) (Blasi et al., 2010; Freeman et al., 2010; Mowday, Steers, & Porter, 1979; Sengupta, Whitfield & McNabb, 2007). The second underlying mechanism is that the lower level of employee turnover induced by the ‘lock-in’ effects of ESO encourages a firm to invest in human capital which in turn leads to higher labor productivity (*golden handcuff* thesis) (Blair & Kruse, 1999; Marsden, 1999; Richardson & Nejad, 1986; Sengupta et al., 2007).

 While the majority of the empirical evidence suggests that ESO schemes are associated with higher labor productivity (Freeman et al., 2010; Kim & Ouimet, 2014; Kumbhakar & Dunbar, 1993; Park & Song, 1995) and firm performance (Blasi et al., 2010; Bryson & Freeman 2010; Fernie & Metcalf, 1995; Kruse et al., 2010; Long, 1978; McNabb & Whitfield, 1998; O’ Boyle et al., 2016; Pendleton, 2001; Sengupta, 2008; Sengupta et al., 2007), others demonstrate no effect (Kruse, 1992; Pendleton, 1997; Sengupta & Yoon, 2018). Furthermore, a positive, yet small productivity effect was evident in a recent meta-analysis of 102 studies representing 56,984 firms from around the world (O’Boyle et al., 2016). The analysis found that ESO had a positive and statistically significant relationship with firm performance, but only at a small magnitude (weighted mean correlation = 0.04).

Acknowledging these variations in results, ESO scholars have strived to identify moderators of the ESO-labor productivity relationship. And one form of moderator that has attracted the attention of many studies was the presence of other HRM practices (e.g., Blasi et al., 2010; Bryson & Freeman, 2010; Freeman et al., 2004; Kalmi, 2002; Kruse et al., 2010; Wilson & Peel, 1990). Indeed, the most predominant empirical result that has emerged from a range of studies supports the contingency view that the positive combination of ESO schemes and other HRM practices is the key factor contributing towards ESO success (Blasi et al., 2010; Bryson & Freeman, 2010; Kruse et al., 2010, Pendleton & Robinson, 2011; Robinson & Wilson, 2006).

The research, up to date, has focused on combinations of ESO with a single other HRM practice, predominantly participation in decision making (Freeman et al., 2004; Kalmi, 2002; Kruse et al., 2010) and profit sharing (Freeman et al., 2004; Kruse et al., 2010; Wilson & Peel, 1990). The studies, however, have produced mixed results. For example, the study results on the moderating effect of participation practices on the relationship between ESO and firm performance/productivity are varying. While some studies have demonstrated that a participation practice positively moderates this relationship (e.g., Kato & Morishima, 2002), other studies have shown that the moderating effect is insignificant (Kalmi et al., 2005; Robinson & Wilson, 2006) or negative (e.g., Pendleton & Robinson, 2010). One possible reason for the mixed results could be that there is a variation in the extent to which participation is offered across different contexts. Recent studies investigating the participation mechanism more closely have revealed that the productivity benefits are not realized unless employees are offered a ‘real involvement’ in the decision-making process (Robinson & Wilson, 2006; Sengupta, 2008).

As a result, there has been an emphasis on combining ESO with a bundle of complementary practices (e.g., Kruse et al., 2010). It is implied that ESO interacting with another ‘single’ HRM practice may not be sufficient in achieving desired performance outcomes. Despite the consensus that the effectiveness of ESO schemes can be enhanced when they are introduced alongside several complementary HRM practices, the empirical effort of testing this notion has been limited. A notable exception is a study by Kruse and colleagues (2010). In this study, the researchers found positive interaction effects of the shared capitalism index and HPWS index (including training, job security, and employee involvement) on a range of employee outcomes (e.g., loyalty and absenteeism). They concluded that shared capitalism and HPWS appeared to complement each other. The study, however, focuses on the outcome at the individual level. The notion that ESO schemes can enhance firm outcomes, such as labor productivity, when they are introduced alongside several complementary HRM practices has been untested. However, the study by Kruse and colleagues (2010) has paved the way for focusing on how ESO schemes interact with a combination of complementary HRM practices to impact firm outcomes.

**The ESO-training complementarity on labor productivity**

Recently, there has been much interest in the complementarity between ESO and training in enhancing the productivity and performance of organizations (Whitfield et al., 2017). The first theoretical rationale for the positive interaction effect of ESO and training on productivity is that ESO schemes help to overcome the classic ‘hold up’ problem that prevents firms and employees from making investments in training because of potential risks borne by both parties (Guery & Pendleton, 2016; Pendleton & Robinson, 2011; Whitfield et al., 2017).

Training can be classified into two types: general and firm-specific human capital training (Becker, 1965). General human capital training enhances knowledge, skills, and abilities (KSAs) that are equally valuable to the current and other organizations (i.e., general human capital) while firm-specific human capital training strengthens KSAs that are only valuable to the current organization (and thus have no value to other organizations, i.e., firm-specific human capital).

As a result of the different types of training (i.e., general and firm-specific human capital) being valued differently by different organizations (i.e., current organization vs. other organizations), there can be a ‘hold up’ problem that prevents both organizations and employees from investing in training. On the one hand, investment in general human capital poses a risk to the employer because the employees may take advantage of the enhanced KSAs that are also valuable to other organizations and leave the firm for a better opportunity. Indeed, the human capital theory confirms that newly trained employees are more attractive to competitors and are likely to leave the organization (Becker, 1965). Hence, organizations are reluctant to invest in general human capital training unless they are assured of gaining some benefits from this investment (Guery & Pendleton, 2016). On the other hand, employees also bear the risk of firm-specific human capital training. This is because it will generate benefits only for the current employer but will have no value to other employers (Guery & Pendleton, 2016; Pendleton & Robinson, 2011). As a result, the employee’s outside opportunities can be restricted through participating in firm-specific human capital training. Similarly, the property rights framework suggests that unless employees have residual rights to profits, they will be reluctant to invest in firm-specific human capital (Hart & Moore, 1990; Wang & Mahoney, 2009).

Due to the difference in the entity (i.e., organization vs. employee) that reaps the benefits of the two different types of training (i.e., general and firm-specific human capital training), a well-accepted answer to the question of “who should bear the cost of training?” was that organizations should bear the cost of firm-specific human capital training while employees should bear the cost of general human capital training (Lazear & Gibbs, 2014). However, in reality, one party bearing the entire cost of either general or firm-specific human capital training is difficult. As a result, a well-acknowledged prediction and practice are that the employer and employee share the costs of training, to reduce incentives on both sides to terminate the relationship (Lazear & Gibbs, 2014).

The important question is, then, how can organizations and employees share the cost of training and solve the ‘hold up’ problems that are inherent in both types of training? ESO can be a solution that organizations can utilize. In the case of general human capital training, ESO schemes act as a retention tool by offering employees an incentive to remain with the firm. (Whitfield et al., 2017). The ability of ESO schemes to retain employees through ‘lock-in’ mechanisms may foster employee commitment, and thus the possibility of training benefits being depleted by employee exits can be decreased (Guery & Pendleton, 2016; Rousseau & Shperling, 2003). The lock-in mechanism of ESO schemes minimizes the risk of organizations losing returns from investment in general human capital due to employee turnover. Hence, firms are incentivized to invest in general training under the presence of ESO.

In the case of firm-specific human capital training, ESO act as a motivation tool for employees to willingly develop KSAs that are specific to the firm. This is because the improved productivity as a result of enhancement in firm-specific human capital can eventually result in more employee wealth. Thus, ESO can help to counteract the ‘hold up’ behavior of employees by providing them with residual rights to profits (Blair, 1995). As a result, ESO encourages employees to participate in firm-specific human capital training (Hashimoto, 1981; Jovanovic, 1979).

The second theoretical rationale for the complementarity between ESO and training in enhancing labor productivity is that training can reinforce the *golden path* and *golden handcuff* effects of ESO schemes. In human capital theory, skills are viewed as enablers of productivity (Becker, 1965). Investment in training demonstrates a commitment on the part of the employer to develop and nurture talent and foster a long term employment relationship with the employees. These practices help employees fulfill their needs for personal growth through self-development and continuous learning (Ito & Brotheridge, 2005; London & Smither, 1999), and consequently, build commitment (Meyer, Stanley, Herscovitch & Topolnytsky, 2002). Indeed there is compelling evidence to suggest that employee development leads to positive employee attitudes and retention (Cappelli, 2000; Craig, Kimberly & Bouchikhi, 2002). Furthermore, employer investment in firm-specific human capital, in particular, furnishes employees with a unique set of skills specific to the firm. As a result, it makes it more lucrative for the employees to stay on in the firm, and thereby further reinforcing the retention effect. Therefore, investment in training can be expected to strengthen the ESO-labor productivity relationship by building commitment (the *golden path* effect) and fostering retention (the *golden handcuff* effect) and thereby result in higher productivity.

The studies exploring the synergistic effects of ESO and training on productivity, however, is limited (Whitfield et al. 2017). Most of the studies focus on the correlation between ESO presence and investment in training (Guery & Pendleton, 2016; Pendleton & Robinson, 2011; Robinson & Zhang, 2005). There is strong evidence to suggest that firms with ESO usually have a high level of investment in training (Ben-Ner, Burns, Dow & Putterman, 2000; Guery & Pendleton, 2016; Pendleton & Robinson, 2011; Robinson & Zhang, 2005). In contrast, the evidence for the interaction effect of ESO and training on productivity is scanty and inconclusive.

The only study, to the best of our knowledge, that has explored the synergistic effects of ESO and training on productivity (or performance) only offers partial support for the positive outcomes (Whitfield et al., 2017). Drawing on a nationally representative dataset of British firms from the 2004 and 2011 Workplace Employee Relations Survey (WERS), the study found that the positive interaction effects of ESO and training were observed for financial performance but not for labor productivity. Furthermore, these positive effects on financial performance were evident only during the economic boom (WERS 2004) and disappeared during the recession (WERS 2011).

 Supporting our argument of ESO-training complementarity on labor productivity, however, studies show that the relationship between ESO and investment in training is significantly positive within the U.S. and European contexts (Ben-Ner et al., 2000; Guery & Pendleton, 2016; Pendleton & Robinson, 2011; Robinson & Zhang, 2005). Furthermore, studies of HRM policies in over 30 countries also reveal that ESO provides a reward for employees for investment in training while binding them to the firm in the longer term (Pendleton, Poutsma, Van Ommeren & Brewster, 2001, 2003). These studies indicate that firms with ESO usually have a high level of investment in training. Previous studies have been unable to identify the direction of causality between the presence of ESO and employer investment in training. However, using panel data from the French REPONSE survey, the study by Guery and Pendleton (2016) demonstrates that significant and continuous investments in human capital take place before the implementation of ESO.

From the line of reasoning presented in this section, we hypothesize that *there is a positive interaction effect of ESO and training on labor productivity. The relationship between ESO and labor productivity is more positive when the level of training is high, and the relationship between training and labor productivity is more positive when organizations utilize ESO (Hypothesis 1).*

**Early promotion policy strengthening the ESO-training complementarity on labor productivity**

As highlighted in the earlier section, the empirical evidence on the interaction effect of ESO and training on labor productivity is mixed and scanty. This raises concerns about whether the presence of ESO and training is sufficient in yielding the desired outcomes. A key criticism of the predicted synergistic relationship between ESO and training emerges from the skepticism associated with ESO schemes to effectively lower employee turnover and foster longer-term employment relationships (Culpepper, Gamble & Blubaugh, 2004). For example, when the share prices rise, employees may be encouraged to claim the benefit and quit. When the share prices fall, the financial lure of these schemes to defer the decision to quit can be weakened. A counter-argument suggests that vesting procedures reduce the potential impact of the share price increase, and there is compelling evidence to show that ESO lowers employee turnover (Sengupta et al., 2007). ESO, however, does not completely eliminate these risks, particularly during times of recession when share prices are plummeting. During these times, ESO may not be financially lucrative and hence fail to act as golden handcuffs. Furthermore, there is theory and evidence to suggest that employees who have acquired skills through training are more likely to leave owing to their increased attractiveness in the labor market (Becker, 1965; Benson, Finegold & Mohrman, 2004). Therefore, for the synergistic effect of ESO and training to be realized, it may be vital to have another complementary HRM practice that encourages a long-term employee-employer relationship that is less likely to be affected by the outside (or economic) conditions.

Promotion can be defined as an act of an employee assuming a job that is higher in rank within the job hierarchy in the same organization (Bidwell & Keller, 2014). This hierarchical move is usually associated with increased rewards, status, responsibilities, and skill demands. Promotion can also be a way to re-establish the fit between employee skills and job requirements (Bidwell & Keller, 2014; Liu, 1986).

In many cases, however, employees need to acquire a certain level of experience or years of tenure to be promoted. This can delay the process of utilizing the employee skills that are enhanced through training. However, this delay can be minimized by utilizing the early promotion policy, which is defined as the policy that promotes employees as soon as their skills and abilities are revealed to be high (Owan, 2004). Thus, an early promotion policy can offer employees an incentive to stay by making other job opportunities less attractive.

Human capital theory suggests that individuals decide whether to stay with a firm partly on the basis of whether their firms recognize their skills and provide an opportunity to use these new skills by matching their skills to their job responsibilities (Bishop, 1996; Liu, 1986). Therefore, a longer-term employment relationship can be fostered by opening up career development opportunities by offering early promotion. Besides, this opportunity to reap the benefits of newly acquired or enhanced skills through training is less likely to be affected by outside (or economic) conditions. Therefore, an early promotion practice that strengthens the upward mobility may be crucial for the ESO-training complementarity to work.

More specifically, we can expect that the interaction effect of ESO and training on labor productivity to be strengthened when the opportunity for early promotion is present for the following two reasons. First, longer-term employment encouraged by the early promotion opportunities within a firm complements ESO as a retention tool and thereby lowers employee turnover and maximizes productivity. On the one hand, ESO schemes encourage employees to stay by offering financial rewards for remaining in employment. On the other hand, the human capital theory argues that individuals decide whether to stay with a firm partly on the basis of whether their jobs provide the best fit with and returns on their skills (Bishop, 1996; Liu, 1986). Thus, the presence of opportunities for career growth through early promotion can help employees to better match their skills with their job responsibilities. This, in turn, may encourage longer-term employment relationships by enhancing job satisfaction and rewarding loyalty (Benson et al., 2004).

Furthermore, motivation-enhancing practices such as ESO schemes and early promotion can create an emotional bond between employer and employee, thus affecting turnover intentions (Jiang, Lepak, Hu & Baer, 2012). Together, they offer financial (i.e., ESO) as well as non-financial (i.e., early promotion) incentives to employees to build a longer-term employment relationship with the firm. Hence, they reinforce the message that the employer values employees and are willing to share their financial success and invest in their future growth. Thus, ESO schemes and early promotion policies both foster longer-term employment relationships and commitment.

Second, the longer-term employment relationship fostered by early promotion can mitigate the possibility of high employee turnover anticipated with investment in training. It is widely accepted that retention is crucial for realizing the benefits of employer investment in training (Benson et al., 2004). Hence, the lower employee turnover will encourage firms to make investments in training and development and also reap the benefits from these investments owing to a longer-term and more stable employer-employee relationship. The early promotion policy prevents training to be the end in itself and ensures that enhanced skills are properly utilized and rewarded by matching skills to responsibilities.

The effect of early promotion on lowering employee turnover is well documented (Benson et al., 2004). Several studies have found that (early) promotions are negatively correlated with turnover (e.g., Carson, Carson, Griffeth, & Steel, 1994; Johnston, Griffeth, Burton, & Carson, 1993). In a notable exception, Trevor, Gerhart, and Boudreau (1997) found that promotions (measured in a way to reflect how fast the employee got promoted, which is closely related to the concept of early promotion) were positively related to voluntary turnover possibly because it signals greater individual capability to competitors. Further support for the human capital theory was offered by a seminal study based on data from 9,439 salaried employees of a large manufacturer which showed that voluntary turnover increases when individuals earn graduate degrees but is significantly reduced if they are subsequently promoted (Benson et al., 2004). Furthermore, there is a growing body of research showing that providing promotion opportunities has positive effects on employee attitudes (Jans, 1989; Meyer & Smith, 2000; Tansky & Cohen, 2001). These results validate the human capital theory that opportunities for early promotion can affect an individual's decision to stay and positively impact employee outcomes.

Following from the first and second arguments, it can be expected that the opportunity for early promotion, which encourages a long-term employee-employer relationship, is crucial for the ESO-training complementarity to work. This is because ESO may play only a little part in encouraging the investment in human capital unless they are embedded in a relationship that is understood to be for the longer term (Blair, 1999). Providing employees with early promotion opportunities can help both the firm and employees to benefit from investments in human capital, and thus the longer-term relationship between the two parties can be more strongly established. Therefore, the longer-term employment relationships fostered by the combination of ESO schemes and early promotion policies coupled with the firm’s investment in training is likely to yield productivity benefits. Thus, we can expect that the productivity benefits of ESO can be fully realized under the condition of high investment in training and utilization of early promotion policy.

An important element of this is that a firm should enhance the skills and abilities of its employees through training, continuously develop and provide them with opportunities through early promotions, and motivate and retain them through compensation practices if the firm wants to enhance its stock of human capital and control key resources on which it depends on (Guery & Pendleton, 2016; Kaarsemaker, Pendleton & Poutsma, 2009, 2010; Pfeffer & Salancik, 1978; Rousseau & Shperling, 2003). A similar argument has also been made in the ESO literature. For example, Pfeffer and Veiga (1999) identify contingency payment such as ESO schemes, employer investment in training, and long-term employment relationship as being a critical package in enhancing labor productivity.

Based on our theoretical arguments in this section, we hypothesize that *the opportunity for early promotion strengthens the positive interaction effect of ESO and training on labor productivity. The proposed effect in Hypothesis 1 is stronger when the early promotion policy is present (Hypothesis 2).*

**METHOD**

**Overview and sample**

To test the hypotheses, the Human Capital Corporate Panel (HCCP) was analyzed. HCCP is a database that is publicly available in South Korea (hereinafter Korea). The survey was administered by the Korean Research Institute for Vocational Education and Training (KRIVET: www.krivet.re.kr/eng/). The data was collected using the stratified sampling frame to represent Korean for-profit firms with 100 or more employees. Firms in agriculture, fishing, mining, and forestry industries and foreign company subsidiaries were not surveyed. HCCP is an employer-employee matched dataset with the information of firms’ HRM practices, business characteristics and environment, workforce characteristics, and various employee perceptions. HCCP is administered every two years, and the data from 2005, 2007, 2009, 2011, 2013, and 2015 surveys are currently available. More information on HCCP can be found at http://www.krivet.re.kr/eng/eu/eh/euDAADs.jsp.

 In this study, we have analyzed firms from 2007 to 2013 HCCP (4 survey years). 2005 HCCP was excluded because one of our moderators, investment in training, was not reported. 2015 HCCP was excluded because the dependent variable, labor productivity, was not reported (see the ‘Measures’ section for more detail). With missing data excluded, we have analyzed 1,605 firm-year data points in 614 firms. 185 firms were present in all four survey years (740 firm-year data points, 46.1 percent), 156 firms were present in three survey years (468 firm-year data points, 29.2 percent), 124 firms were present in two survey years (248 firm-year data points, 15.5 percent), and 149 firms were present in one survey year (149 firm-year data points, 9.3 percent).

**ESO in the Korean context**

ESO in Korea dates back to 1958. However, they became more widespread owing to a host of government initiatives first introduced in the 1960s. Participation in the ESO is voluntary and open to every employee except for the board of director and part-time and temporary workers. Korean ESOs are designed to be participatory in nature since the ESO holders have similar rights as the other shareholders, such as a right to convene a general meeting for shareholders and cumulative voting rights to select board of directors and security holders’ proposals (Cin, Han & Smith, 2003; Cin & Smith, 2002). ESO holders can also individually cast votes on all corporate-voting issues that are defined by Korean business law (Cin et al., 2003).

Initially, to encourage the use of ESO, a range of tax incentives were introduced to make these schemes financially lucrative (Cin et al., 2003; Cin & Smith, 2002). For example, before the 1997 financial crisis, Korean ESOs were awarded tax incentives on the value of ESO purchased. These tax incentives were abolished in 1996. After the 1997 financial crises, the Capital Development Law was abolished, and a lot of the ESO incentives were scaled down.

There also have been reforms to ensure that the employees held the shares over a long period so that the potential benefits of improving firm-level productivity and social stability through broad-based share ownership could be achieved. Initially, the employees were required to hold the stock until they retired. After 1993, however, the compulsory holding time was reduced to seven years for all employees but just two years in special cases, and in 1999, the compulsory holding time was further reduced to one year (Cin et al., 2003; Kato, 2014).

In a majority of cases, employees purchase ESOs themselves (Cin & Smith, 2002). The loans for ESO purchases are paid directly from the employees’ own funds, usually within five years (Cin & Smith, 2002). There are three major sources of funds for purchasing shares. These include employees’ own savings or debts, loans from the company (with or without interest), and special loans made by the Korea Securities Finance Corporation and the Kookmin bank, using the purchased shares as collateral (Cin & Smith, 2002). In practice, companies have made few contributions other than to offer primary purchase options at a discounted price (Cin & Smith, 2002).

Due to the initial intention of the Korean government to introduce ESO as the wealth-sharing tool, relaxation of the compulsory holding period, and scaled-down tax incentives, some may question whether the ESOs in the Korean context can be a useful retention tool to organizations. However, on closer inspection, a more nuanced picture is revealed, which suggests that Korean ESOs may be perceived as a retention tool. There still are specific tax incentives to encourage employees to invest in the Korean ESOs (which is referred to as “Ulisaju” in the following *Measures* section) and hold onto them for a longer duration of time. For example, when employees purchase the *Ulisaju* through their salary, the amount used to buy the stocks are not taxed. However, when the employees cash out *Ulisaju*, the cashed out amount is viewed as an earned income and is taxed accordingly. However, if the employees hold on to *Ulisaju* for three years, 50% of the cashed out amount is exempt from being taxed. If the employees hold on to *Ulisaju* for five years, 75% of the cashed out amount is not taxed (Kim, 2015).

**Measures**

 ***Labor productivity.*** KRIVET also provides a financial performance dataset that can be merged with HCCP. The data was collected by the Korea Information Services (KIS). KIS is a partner company of Moody’s. We used the natural logarithm of sales per employee to measure labor productivity. This measure has been widely used in earlier studies of HRM (e.g., Datta, Guthrie, & Wright, 2005; Huselid, 1995; Koch & Mcgrath, 1996). We examined labor productivity that was measured one year after the measurement of other variables (i.e., ESO, investment in training, early promotion policy, and control variables) to examine the productivity effect of ESO from a predictive perspective (Wright, Gardner, Moynihan & Allen, 2005). For example, the data point of ESO, investment in training, early promotion policy, and control variables measured in 2007 HCCP was matched with the firm’s labor productivity in 2008.

 ***Employee share ownership (ESO).*** The firms in HCCP reported the use of an employee stock ownership plan and stock options. The employee stock ownership plan in HCCP, which is referred to as “Ulisaju” in Korean, is a broad-based stock ownership scheme that has operated in Korea since 1958 (Cin & Smith, 2002). The Capital Market Development Law mandates the companies utilizing the *Ulisaju* program to establish the Employee Stock Ownership Association (ESOA) to manage the stocks under the program. Table 1 shows that the average employee participation rate in the *Ulisaju* program was 76.1 percent between 2007 and 2013. If a firm reported that it utilizes the *Ulisaju* program, it was coded as an ESO firm. We have utilized a broad-based stock ownership scheme as our ESO measure since our theoretical argument can be more valid under the condition where a large portion of employees is covered by the ESO scheme. We were able to find no compelling evidence that the stock option programs in Korea are broad-based. Thus, for the measure of ESO, we did not include the firms that reported to use only the stock options and not the *Ulisaju* program1. The ESO variable was coded in a binary fashion and did not reflect the ratio of employees covered by ESO. The ratio of employees covered by ESO was not reported in HCCP.

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Insert Table 1 about here

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 ***Investment in training.*** The firms in HCCP reported the total expenditure (in a million Korean Won) for employee training in the previous year. We divided this number by the number of total employees that firms reported in HCCP. Therefore, investment in training was measured as the training expenditure per employee.

 ***Early Promotion Policy.*** An organization that utilizes early promotion policy was coded as 1, and an organization that does not utilize the policy was coded as 0 on this measure. In HCCP, an early promotion policy was defined as the policy that promotes employees who are high on abilities and performances regardless of tenure or accrued seniority within the current job. Thus, the policy provides employees with opportunities to be in a job that better matches the enhanced skills through training via vertical movement within the organization without waiting for the seniority to be accrued.

 ***Control variables.*** In alignment with previous research on the effect of HRM practices on labor productivity (e.g., Datta et al., 2005; Huselid, 1995; Koch & Mcgrath, 1996), the following variables were controlled: industry, strategy type, sales growth, size, presence of a union, and pay level. Industry and strategy types were controlled due to their possible effects on both labor productivity and use of HRM practices based on high commitment (Datta et al., 2005; Huselid, 1995). The industry was dummy coded into three groups: manufacturing, finance, and other services. Strategy type was dummy coded into four groups: exploration, selective exploration, exploitation, and others. In HCCP, firms reported their market strategy for their main product and/or service. Exploration firms indicated that they develop new products and/or services before their competitors and lead the change in the market. Selective exploration firms, in contrast, indicated that they only selectively develop new products and/or services depending on the outcomes of the leaders in the market. Finally, exploitation firms indicated that they do not actively develop new products and/or services, and only focus on improving their existing market products and/or services. Firms that selected ‘others’ as their market strategy were coded as the other firm. Firm size and sales growth were controlled since they can both be related to labor productivity and investment in HRM. Past strategic HRM studies (e.g., Datta et al., 2005; Huselid, 1995) have controlled for both firm size and sales growth for these reasons. Firm size was measured by the natural logarithm of total employees in a firm. Sales growth was measured as the growth rate of sales for a given firm in the past three years. The presence of a union was also controlled in the model due to its potential effect on labor productivity (Freeman & Medoff, 1984). A firm’s overall pay level was controlled to account for its effect of sorting in productive workers and thereby influencing labor productivity (Barber & Bretz, 2000). It was measured as the average amount of the total yearly pay of the three job levels that are common in Korea: first-year *Sawon*, *Kwajang*, and *Bujang*. The value of *Ulisaju* is not included in this measure. Lastly, we also have controlled for survey year (dummy coded into four survey years: 2007, 2009, 2011 and 2013). And adding to these control variables that were guided by past studies on HRM-productivity relationship, we also have controlled for capital intensity and early promotion ratio. The capital intensity was controlled for its strong effect on labor productivity (Koch & McGrath, 1996). It was measured by the natural logarithm of capital per employee. Early promotion ratio was controlled to examine the pure effect of the ‘presence’ of the early promotion policies when the magnitude of their usage is held constant. It was measured as the percentage of early promotion cases among all the promotion cases in the previous year.

**Analysis model**

The data structure in this study is multi-leveled (i.e., firm-year data points nested within a firm). Thus, we applied the two-level hierarchical linear modeling (HLM) in our data analysis (Hofmann, 1997). The level-1 analysis was at the firm-year level and modeled how the variables that vary by survey years (e.g., ESO, investment in training, early promotion policy, etc.) affect labor productivity. The level-2 analysis was at the firm level and modeled how the variables that do not vary by survey years (i.e., only the industry in our model) affect labor productivity. ICC values were examined to determine the non-independence in the data. ICC(1) and ICC (2) values were 0.854 and 0.938, respectively, for the natural logarithm of labor productivity. These high ICC values indicate the need for utilizing the multi-level method in our analysis model (Bliese, 2000; Krull & MacKinnon, 2001). We have utilized HLM 7 (Raudenbush, Byrk, Cheong, Congdon, & du Toit, 2011) for the analysis.

**ANALYSIS AND RESULTS**

**Descriptive statistics**

The descriptive statistics (mean, standard deviation, and correlations) of the variables in the analysis model are presented in Table 2. One value to note is the mean value of ESO: 0.262. This shows that 26.2 percent of firm-year data points (421 firm-year data points) in the sample utilized ESO (*Ulisaju* program). In terms of firm numbers, this translates into 210 firms utilizing ESO at some point in four survey years (2007, 2009, 2011, or 2013). Given that our sample consists of 614 firms, the data shows that 34.2 percent of firms utilized ESO at some point in these survey years. Other value that is also notable is the positive correlation between ESO and labor productivity (*r* between ESO and labor productivity = 0.099, p < 0.01). The number of firm-year observations on the three main HRM practices of our interest (i.e., ESO, high investment in training, and early promotion policy) is reported in Table 3.

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Insert Tables 2 and 3 about here

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**The relationship between ESO and labor productivity**

Table 4 shows the HLM results. The relationship between ESO and labor productivity is reported in Model A2. The relationship is insignificant (coefficient = 0.046, SE = 0.036, ns). Thus, in this sample, we found no evidence for the argument that ESO is positively related to labor productivity.

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Insert Table 4 about here

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**ESO-training complementarity on labor productivity**

The interaction effects of ESO and training on labor productivity are shown in Model A3 and A6 of Table 4. All the interaction effects are insignificant at the five percent confidence level (coefficient in Model A3 = 0.077, SE = 0.057, ns; coefficient in Model A6 = 0.092, SE = 0.058, ns). Thus, in this sample, we found no evidence for the ESO-training complementarity on labor productivity. Therefore, Hypothesis 1 is not supported.

**Three-way interaction effect of ESO, investment in training, and early promotion policy on labor productivity**

The three-way interaction effects of ESO, investment in training, and early promotion policy on labor productivity are reported in Models A7 of Table 4. The three-way interaction effect is significantly positive (coefficient = 0.349, SE = 0.108, p < 0.01). The results demonstrate that the interaction effect of ESO and investment in training on labor productivity is strengthened in a positive direction when organizations utilize the early promotion policy. Thus, we found support for the three-way interaction effect.

We also followed the method by Dawson and Richter (2006) and tested whether individual slopes of ESO on labor productivity under various conditions (i.e., high and low conditions of investment in training and early promotion policy) differed from one another in the direction that we hypothesized. For our Hypothesis 2 to be confirmed, we should observe a positive effect of ESO on labor productivity under the condition of high training and early promotion policy being present. Moreover, this effect should be significantly more positive than the effects in other conditions (i.e., conditions of low training or no early promotion policy). The results are reported in Figure 1 and Table 5.

The three-way interaction effect of ESO, investment in training, and early promotion policy on labor productivity is depicted in Figure 1. The simple slope values and the differences in these values are listed in Table 5. The slope of the relationship between ESO and labor productivity is significantly positive only in the ‘High Training – Early Promotion Policy’ condition (0.162 and 0.285 when the high training level is set at 1SD and 2SD above mean, respectively: see Row 1 in Table 5). The Line (1) in Figure 1 depicts this relationship. In other conditions, however, the slopes are no different from 0 at the five percent confidence level (see Rows 2, 3, and 4 in Table 5). More importantly, the slope of the ‘High Training – Early Promotion Policy’ condition is significantly more positive than those of the ‘High Training – No Early Promotion Policy’ (the differences are 0.199 and 0.398 when the high training level is set at 1SD and 2SD above mean, respectively: see Row 5 in Table 5) and the ‘Low Training – Early Promotion Policy’ (the differences are 0.208 and 0.331 when the high training level is set at 1SD and 2SD above mean, respectively: see Row 6 in Table 5) conditions. Moreover, at the ten percent confidence level, the slope of the ‘High Training – Early Promotion Policy’ condition is significantly more positive than that of the ‘Low Training – No Early Promotion Policy’ when the high training level is set at 2SD above mean (the difference is 0.194: see Row 7 in Table 5)

This demonstrates that the high investment in training alone is not enough for the productivity effect of ESO to be realized. It has to be accompanied by the early promotion policy for the effect to be fully realized. More specifically, the firms with ESO were 16.2 percent and 28.5 percent more productive (in terms of sales per employees) than non-ESO firms under the ‘High Training – Early Promotion Policy’ condition when the high level of training is set at 1SD and 2SD above mean, respectively (see Row 1 in Table 5). In other conditions (see Rows 2, 3, and 4 in Table 5), however, firms with ESO were not significantly more productive than non-ESO firms at the five percent confidence level.

Another group of results that we need to focus on in Table 5 is the slope difference between ‘High Training – Early Promotion Policy’ and ‘Low Training – Early Promotion Policy’ conditions (Row 6 in Table 5) and between ‘High Training – No Early Promotion Policy’ and ‘Low Training – No Early Promotion Policy’ conditions (Row 9 in Table 5). The slope difference between ‘High Training – Early Promotion Policy’ and ‘Low Training – Early Promotion Policy’ conditions are significantly positive (the differences are 0.208 and 0.331 when the high training level is set at 1SD and 2SD above mean, respectively: see Row 6 in Table 5), meaning that the interaction effect of ESO and training on labor productivity is significant in a positive direction when early promotion opportunity is present. The slope difference between ‘High Training – No Early Promotion Policy’ and ‘Low Training – No Early Promotion Policy’ conditions, however, are insignificant (the differences are -0.128 and -0.204 when the high training level is set at 1SD and 2SD above mean, respectively: see Row 9 in Table 5), meaning that there is no interaction effect ESO and training on labor productivity when the opportunity for early promotion is not present. Thus, we found support for Hypothesis 2.

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Insert Figure 1 and Table 5 about here

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**Robustness analysis**

We also have conducted analyses using the early promotion ratio as the measure of early promotion policy. The distribution of this variable is right-skewed, so we did not use this measure as our moderator in the main analysis. This is because the results can be driven by a few data points that are high on this value.

 The HLM results using the early promotion ratio as the measure of early promotion policy are reported in Table 6. The results demonstrate a similar pattern that was observed in the main analysis: no main effect of ESO on labor productivity, no two-way interaction effect of ESO and investment in training on labor productivity, but a significant three-way interaction effect of ESO, investment in training, and early promotion policy on labor productivity.

 We also have conducted analyses excluding early promotion ratio and sales growth as control variables. Although controlling these two variables can be meaningful (as explained in the ‘Measures’ section), it may also cause a problem, given that early promotion ratio is correlated with the use of early promotion policy and that sales growth is correlated with the numerator of the dependent variable, which is measured as sales per employee. The results were the same as in the main analysis in that no main effect of ESO and two-way interaction effect of ESO and investment in training on labor productivity were observed. However, as in the main analysis, a significant three-way interaction effect of ESO, investment in training, and early promotion policy on labor productivity was observed at the five percent confidence level (this is not reported in the table).

 Finally, we have conducted analyses using the same-year labor productivity as our dependent variable. For example, the data point of ESO, investment in training, early promotion policy, and control variables measured in 2007 HCCP was matched with the firm’s labor productivity in 2007. The results were again the same as in the main analysis: no main effect of ESO, no two-way interaction effect of ESO and training, but a significant three-way interaction effect of ESO, training, and early promotion policy on labor productivity (this is not reported in the table).

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Insert Table 6 about here

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**Other interaction effects**

Although not the main interest of our study, the results of other interaction effects on labor productivity are worth mentioning. First, there is no significant interaction effect of ESO and early promotion policy on labor productivity (coefficient in A4 of Table 4 = 0.005, SE = 0.059, ns; coefficient in Model A6 of Table 4 = 0.004, SE = 0.059, ns). We also found no evidence for the interaction effect of investment in training and early promotion policy on labor productivity (coefficient in Model A5 of Table 4 = -0.046, SE = 0.046, ns; coefficient in Model A6 of Table 4 = -0.061, SE = 0.047, ns).

**DISCUSSION**

**Findings and theoretical implications**

In this study, we found no support for the two-way interaction effects of ESO and investment in training on labor productivity. However, we were able to observe the three-way interaction effect of ESO, investment in training, and early promotion policy on labor productivity. Further analysis seems to suggest the ESO-productivity relationship is positive only under the condition of high investment in training and the early promotion policy being present.

 More specifically, the following results related to our hypotheses were found in our study. First, we found no evidence that ESO by itself is related to a higher level of labor productivity. This can be due to various contexts that are present in our study. According to the Expectancy Theory (Vroom, 1964), the foremost condition of a pay practice to be motivating is that there is a valence in the reward. In other words, employees need to perceive that ESO is valuable. However, the current tax benefits that we have explained in the section ‘ESO in the Korean context’ may not be strong enough for employees to feel that participating in *UIisaju* program is financially attractive. Moreover, a large portion of the data was collected when the Korean economy was still affected by the global financial crisis that has started in 2008 (Wang, 2014). This can also negatively impact the expected value of ESO. The lack of financial worth means that ESO is less likely to be an effective motivation or retention tool, and benefits associated with ESO are unlikely to manifest.

 Second, we found no evidence for the interaction effect of ESO and training on labor productivity. This is in alignment with our theoretical argument that the third HRM practice that is less likely to be affected by the outside (or economic) conditions is needed for the ESO-training complementarity to work. However, the result can also be affected by the Korean context. As we have outlined earlier, ESO has to be an effective retention tool for the ESO-training complementarity to work. But as we have mentioned above, the current tax benefits in Korea may not be strong enough for employees to hold on to ESO for long. According to Cin and colleagues (2003), only about 58 percent of all ESO shares have been held for less than three years while over three quarters have been held for less than four years in Korea. Moreover, as mentioned earlier, the unfavorable economic situation during the time of the data collection could also have weakened the result.

 Lastly, we found strong evidence for the three-way interaction effect of ESO, training, and early promotion policy on labor productivity. This is in alignment with our overall theoretical argument that early promotion policy, which can be the third HRM policy that is less likely to be affected by the economic or other outside conditions, strengthens the ESO-training complementarity in enhancing labor productivity. The result identifies early promotion policy as a tool that can overcome the skepticism associated with ESO in discouraging employee turnover and promoting longer-term employment relationships (Culpepper, Gamble & Blubaugh, 2004). The synergetic effect of ESO and training on labor productivity can better emerge with the presence of early promotion policy.

Although not the main interest of our study, an interesting observation is that we found no evidence for the two-way interaction effect of HRM practices on labor productivity. The interaction effect of ESO and investment in training on labor productivity was not observed. Moreover, the early promotion policy did not significantly alter the relationship between investment in training and labor productivity. The lack of two-way interaction effect of HRM practices on productivity is in alignment with the bundling approach in the strategic HRM literature which states that it is the ‘pattern’ or ‘bundle’ of HRM practices that help organizations to achieve their goals rather than a single HRM practice or its fit with another single HRM practice (Wright & McMahan, 1992).

Overall, the study makes an important contribution to theory and evidence in the ESO literature. The findings provide a possible answer to the question of why we observe inconsistent results in examining the interaction effect of ESO and training on labor productivity. Despite the strong theoretical background on the ESO-training complementarity, empirical support is not consistent (Whitfiled et al., 2017). The current study suggests that utilizing the early promotion policy can be a critical factor for the ESO-training complementarity to work.

The current study also demonstrates the possibility that the productivity-enhancing effect of ESO can be better realized under the bundle of HRM practices that support the productivity mechanism of ESO. In our analysis, the productivity effect of ESO was realized only under the condition in which the other two HRM practices (i.e., training and early promotion policy) are both in alignment with the intended effect of ESO. The productivity-enhancing effect of ESO was not observed in the presence of a single HRM practice (either the conditions of ‘High Training – No Early Promotion Policy’ or ‘Low Training – Early Promotion Policy’). This is in alignment with the bundling approach within the strategic HRM literature (Wright & McMahan, 1992). Therefore, the current study provides support for the argument that the productivity effect of ESO needs to be examined utilizing the HRM bundle perspective rather than examining ESO in isolation or in conjunction with a single other HRM practice (Harden, Kruse & Blasi, 2010; Huselid, 1995: Kruse et al., 2010), which is based on a narrow and simplistic contingency view.

**Practical implications**

The findings in the current study also provide useful implications for practitioners. First, the results indicate that the productivity effect of ESO cannot be realized if conditions are not right. Therefore, the study results warn practitioners from expecting that adopting ESO will magically solve the management problems they may have. The findings indicate that training and early promotion policy need to supplement the mechanism of ESO in enhancing firm productivity.

More specifically, the results of this study advise the following. First, firms need to invest in training and provide early promotion opportunities to maximize the productivity effect of ESO. These two practices may especially strengthen the mechanism of developing human capital that can provide firms with beneficial outcomes. Second, and more importantly, the study indicates that ‘both’ these practices, and not just a single practice, need to be utilized to reap the benefits of ESO. When enough training was not provided under the utilization of early promotion policy, the ESO-productivity relationship was insignificant (in a negative direction). The result was the same when early promotion opportunities were not provided in the case of high investment in training. So, when practitioners design ESO programs, they may want to ensure that other HRM practices, especially training and early promotion practices, are in alignment with the productivity effect of ESO as a bundle, and not as a single HRM practice. Practitioners need to abandon the thought that a single HRM practice that can complement the productivity effect of ESO is enough.

**Limitations**

Despite all the important contributions that the current study makes, some limitations need to be acknowledged. First, generalizing the results beyond the Korean economy deserves revalidation. Korea is often classified as a coordinated market economy (Kong, 2006), where the economy is characterized by low flexibility in employment relationship (i.e., stronger labor protection and more difficulties in firms terminating employment relationships), higher likelihood of seniority-based rewards, and more focus on the development of firm-specific human capital (Hall & Soskice, 2001). Due to these characteristics of the economy, Korean firms may already exhibit a low level of turnover and may not benefit that much from ESO, investment in training, and early promotion policy. Therefore, the two-way interaction effects may also not be realized, and only the more extreme case of the three-way interaction effect can be present. Moreover, the ratio of firms in the manufacturing industry is high in Korea (0.733 in our sample), and this may also have influenced results. Thus, the results can be different in other types of economies (e.g., the liberal market economy in Hall & Soskice, 2001).

 Second, some measurement issues also need to be acknowledged. One measure to be noted is ESO. The construct was measured by the presence of ESO rather than how widely ESO is distributed within the firm (e.g., the ratio of employees holding ESO). Therefore, the measure considers the instances where ESO is only distributed to a small portion of employees as same as to the instances where ESO is distributed to all the employees within the firm. However, since our measure of ESO is likely to reflect a broad-based plan in Korea (*Ulisaju*), this can be less of a concern. Another measure to be acknowledged is the measure of early promotion policy. It was measured as the ‘presence’ rather than ‘usage amount (or ratio).’ As a result, our measure is binary and lacks variability. The ratio measure for early promotion was provided in HCCP. However, this measure was right-skewed, and utilizing it also had the risk of the overall result being driven by a few data points that are high on this value. The analyses utilizing different measures of early promotion (i.e., the presence measure in the main analysis and the ratio measure in the robustness analysis), nevertheless, yielded similar results. However, the two measures are correlated, and we need to be aware of the possibility that the aforementioned measurement issues can be affecting our results.

 Third, the level of longitudinal variation in our dataset may not be as high, and this may prevent us from controlling firm-specific unobservable factors. Our study examining 615 firms over four survey periods, which resulted in 1,605 firm-year observations, at a glance, may look impressive from a firm-level longitudinal design perspective. However, 149 firms (about 24 percent of total firms) appeared only in one survey year and 104 firms out of 210 total ESO firms (about 50 percent of the total ESO firms) did not have the variation in ESO adoption throughout the survey year (meaning that the firms have utilized ESO throughout the entire survey years that they have participated in HCCP). Although these numbers may not look too problematic, we need to acknowledge the possibility that the level of longitudinal variation may not be ideal.

Lastly, a mechanism driving the effect of early promotion may actually be the effect of job security. It could be argued that the early promotion policy signals strong job security. And employees may feel more sense of ownership when they have job security. This issue is complicated by the fact that it is hard to separate job security from early promotion. However, in this study, we may be inadvertently controlling for job security, given that a high level of job security is the norm in the Korean context (Kong, 2006).

**Conclusion**

Despite the acknowledged limitations, the current study meaningfully extends the ESO literature by providing support for the argument that the ESO-training complementarity can be strengthened when the opportunity for early promotion is present. The study also challenges the earlier approaches of examining the productivity effect of ESO in conjunction with a single HRM practice which was based on a simplified and less sophisticated contingency perspective. Drawing on the insight that can be obtained from the findings of this study, firms may need to start thinking about the ‘configuration’ of their HRM practices for ESO to work as intended.

**ENDNOTE**

1 The analysis of the sample including firms utilizing stock options yielded the same result as in our main analysis in that the direction and statistical significance of the coefficients of key variables were the same.

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Table 1.

Employee Share Ownership (*Ulisaju*) Participation Rate in South Korea (From 2007 to 2013)

|  |  |  |
| --- | --- | --- |
| Year  | Participation rate (%) | Data source |
| 2007 | 75.4 | Securities Finance, Volume 305 |
| 2008 | 75.4 | Securities Finance, Volume 309 |
| 2009 | 76.8 | Securities Finance, Volume 309 |
| 2010 | 76.7 | Securities Finance, Volume 313 |
| 2011 | 76.1 | Securities Finance, Volumes 317 to 320 |
| 2012 | 76.1 | Securities Finance, Volumes 321 to 324 |
| 2013 | 76.4 | Securities Finance, Volumes 325 to 328 |
| Average rate (%) | 76.1 | - |

*Note 1. Securities Finance can be downloaded from the website of the Korea Securities Finance Corporation (www.ksfc.co.kr).*

*Note 2. The participation rate is based on the percentage of employees who are members of the Employee Stock Ownership Association within a given firm. (The participation rate is calculated only with the firms that utilize Ulisaju program.)*

Table 2. Means, Standard Deviations, and Correlations of the Variables

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables | Mean | s.d. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1. Labor productivity: Lna (Sales per employeeb) | 12.957 | 0.946 |   |   |   |   |   |   |   |   |   |
| 2. Employee share ownership (ESO) | 0.262 | 0.440 | 0.099 |   |   |   |   |   |   |   |   |
| 3. Investment in trainingc | 0.390 | 0.571 | 0.239 | 0.052 |   |   |   |   |   |   |   |
| 4. Early promotion policy  | 0.560 | 0.497 | 0.004 | 0.072 | 0.043 |   |   |   |   |   |   |
| 5. Industry: Manufacturing | 0.733 | 0.442 | 0.159 | -0.066 | -0.216 | -0.066 |   |   |   |   |   |
| 6. Industry: Finance | 0.067 | 0.250 | 0.296 | 0.130 | 0.200 | 0.066 | -0.443 |   |   |   |   |
| 7. Industry: Other Services | 0.200 | 0.400 | -0.361 | -0.008 | 0.114 | 0.032 | -0.829 | -0.134 |   |   |   |
| 8. Year: 2007 | 0.249 | 0.432 | -0.075 | 0.040 | 0.026 | 0.109 | -0.035 | 0.014 | 0.030 |   |   |
| 9. Year: 2009 | 0.249 | 0.432 | 0.058 | 0.040 | 0.052 | 0.007 | -0.008 | 0.002 | 0.008 | -0.331 |   |
| 10. Year: 2011 | 0.270 | 0.444 | 0.048 | -0.022 | -0.023 | -0.026 | 0.025 | -0.005 | -0.024 | -0.350 | -0.350 |
| 11. Year: 2013 | 0.232 | 0.422 | -0.033 | -0.060 | -0.055 | -0.092 | 0.018 | -0.011 | -0.013 | -0.316 | -0.316 |
| 12. Strategy: Exploration | 0.318 | 0.466 | 0.018 | 0.103 | 0.129 | 0.110 | -0.017 | 0.080 | -0.031 | 0.028 | 0.034 |
| 13. Strategy: Selective exploration | 0.404 | 0.491 | 0.005 | -0.003 | -0.014 | 0.015 | 0.008 | 0.019 | -0.021 | -0.030 | 0.006 |
| 14. Strategy: Exploitation | 0.275 | 0.447 | -0.024 | -0.104 | -0.122 | -0.134 | 0.006 | -0.103 | 0.058 | -0.006 | -0.038 |
| 15. Strategy: Neither exploration or exploitation | 0.002 | 0.050 | -0.009 | -0.001 | 0.020 | 0.019 | 0.030 | -0.013 | -0.025 | 0.087 | -0.029 |
| 16. Size: Ln(Number of employees) | 5.968 | 1.060 | 0.197 | 0.095 | 0.279 | 0.060 | -0.119 | 0.270 | -0.037 | 0.049 | 0.019 |
| 17. Union | 0.472 | 0.499 | 0.223 | 0.030 | 0.092 | -0.126 | 0.107 | 0.088 | -0.173 | 0.034 | -0.001 |
| 18. Ln(Pay leveld) | 3.705 | 0.231 | 0.445 | 0.114 | 0.368 | -0.014 | -0.221 | 0.429 | -0.023 | -0.142 | -0.063 |
| 19. Sales growth | 0.245 | 0.989 | 0.060 | 0.028 | 0.030 | 0.039 | -0.009 | 0.029 | -0.008 | 0.010 | 0.070 |
| 20. Ln(Capital intensityb) | 17.575 | 4.846 | 0.231 | 0.127 | 0.148 | -0.014 | 0.022 | 0.142 | -0.113 | -0.001 | 0.039 |
| 21. Early promotion ratioe | 4.369 | 8.062 | -0.021 | 0.048 | -0.007 | 0.480 | -0.015 | 0.022 | 0.003 | 0.110 | -0.061 |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 11. Year: 2013 | -0.335 |   |   |   |   |   |   |   |   |   |   |
| 12. Strategy: Exploration | -0.022 | -0.040 |   |   |   |   |   |   |   |   |   |
| 13. Strategy: Selective exploration | 0.051 | -0.029 | -0.562 |   |   |   |   |   |   |   |   |
| 14. Strategy: Exploitation | -0.030 | 0.077 | -0.421 | -0.507 |   |   |   |   |   |   |   |
| 15. Strategy: Neither exploration or exploitation | -0.030 | -0.028 | -0.034 | -0.041 | -0.031 |   |   |   |   |   |   |
| 16. Size: Ln(Number of employees) | -0.034 | -0.033 | 0.152 | 0.019 | -0.176 | -0.028 |   |   |   |   |   |
| 17. Union | -0.005 | -0.029 | -0.005 | 0.014 | -0.007 | -0.022 | 0.353 |   |   |   |   |
| 18. Ln(Pay leveld) | 0.052 | 0.156 | 0.119 | -0.017 | -0.102 | -0.038 | 0.532 | 0.288 |   |   |   |
| 19. Sales growth | 0.034 | -0.117 | 0.015 | -0.028 | 0.015 | -0.001 | 0.007 | -0.045 | 0.000 |   |   |
| 20. Ln(Capital intensityb) | -0.010 | -0.028 | 0.082 | -0.011 | -0.064 | -0.087 | 0.309 | 0.194 | 0.262 | 0.053 |   |
| 21. Early promotion ratioe | -0.012 | -0.038 | 0.064 | -0.035 | -0.028 | 0.007 | -0.059 | -0.127 | -0.064 | -0.014 | -0.015 |

*N =* *1,605 (614 organizations), a: Ln: Natural logarithm, b: In thousand KRW per employee, c: In million KRW per employee, d: In million KRW, e: in percentage*

*Note 1. Correlations with the absolute value of 0.050 or larger are significant at p < 0.05 level.*

*Note 2. Correlations are Pearson correlations (not accounting for multi-leveled nature).*

Table 3.

Firm-Year Observations with Employee Share Ownership (ESO), High Investment in Training,

and Early Promotion Policy

|  |  |  |
| --- | --- | --- |
| HRM Practice  | Number of Firm-Year Observations | Percentagea |
| ESO | 421 | 26.2% |
| High Investment in Training(+1SD above the mean) | 185 | 11.5% |
| Early Promotion Policy | 899 | 56.0% |
| ESO & High Investment in Training | 57 | 3.6% |
| ESO & Early Promotion Policy | 261 | 16.3% |
| High Investment in Training& Early Promotion Policy | 118 | 7.4% |
| All Three Practices(ESO, High Investment in Training& Early Promotion Policy) | 39 | 2.4% |

*a: Based on a total of 1,605 firm-year observations*

Table 4.

HLM Predicting Labor Productivity

|  |  |
| --- | --- |
| Variables | Dependent Variable: Ln(Sales per employeea) |
| ModelA1 | ModelA2 | ModelA3 | ModelA4 | ModelA5 | ModelA6 | ModelA7 |
|  | Constant | 9.656\*\* | 9.675\*\* | 9.682\*\* | 9.675\*\* | 9.647\*\* | 9.645\*\* | 9.613\*\* |
| (0.397) | (0.397) | (0.397) | (0.397) | (0.398) | (0.398) | (0.398) |
| Controls | Industry: Financeb | 0.566\*\* | 0.562\*\* | 0.554\*\* | 0.562\*\* | 0.565\*\* | 0.556\*\* | 0.560\*\* |
| (0.134) | (0.133) | (0.134) | (0.133) | (0.133) | (0.134) | (0.134) |
| Industry: Other servicesb | -0.840\*\* | -0.841\*\* | -0.841\*\* | -0.841\*\* | -0.842\*\* | -0.842\*\* | -0.844\*\* |
| (0.079) | (0.078) | (0.078) | (0.078) | (0.078) | (0.078) | (0.079) |
| Year: 2009c | 0.133\*\* | 0.133\*\* | 0.132\*\* | 0.133\*\* | 0.131\*\* | 0.131\*\* | 0.129\*\* |
| (0.029) | (0.029) | (0.029) | (0.029) | (0.029) | (0.029) | (0.028) |
| Year: 2011c | 0.089\*\* | 0.091\*\* | 0.089\*\* | 0.091\*\* | 0.089\*\* | 0.086\*\* | 0.086\*\* |
| (0.031) | (0.031) | (0.031) | (0.031) | (0.031) | (0.031) | (0.031) |
| Year: 2013c | -0.003 | 0.000 | -0.003 | 0.000 | -0.001 | -0.004 | -0.010 |
| (0.035) | (0.035) | (0.035) | (0.035) | (0.035) | (0.035) | (0.035) |
| Strategy:Selective explorationd | 0.033 | 0.035 | 0.037 | 0.035 | 0.034 | 0.036 | 0.039 |
| (0.033) | (0.033) | (0.033) | (0.033) | (0.033) | (0.033) | (0.032) |
| Strategy:Exploitationd | 0.094\*\* | 0.098\*\* | 0.098\*\* | 0.098\*\* | 0.098\*\* | 0.097\*\* | 0.105\*\* |
| (0.036) | (0.036) | (0.036) | (0.036) | (0.036) | (0.036) | (0.036) |
| Strategy:Neitherd | 0.015 | 0.017 | 0.016 | 0.017 | 0.025 | 0.027 | 0.038 |
| (0.222) | (0.222) | (0.222) | (0.222) | (0.222) | (0.222) | (0.221) |
| Organization size:Ln(# of employees) | -0.017 | -0.018 | -0.019 | -0.018 | -0.018 | -0.019 | -0.019 |
| (0.028) | (0.028) | (0.028) | (0.028) | (0.028) | (0.028) | (0.028) |
| Union | 0.080 | 0.080 | 0.081 | 0.080 | 0.079 | 0.079 | 0.077 |
| (0.050) | (0.050) | (0.050) | (0.050) | (0.050) | (0.050) | (0.050) |
| Ln(Pay levele) | 0.850\*\* | 0.843\*\* | 0.845\*\* | 0.843\*\* | 0.849\*\* | 0.853\*\* | 0.859\*\* |
| (0.116) | (0.116) | (0.116) | (0.116) | (0.116) | (0.116) | (0.116) |
| Sales growth | 0.029\* | 0.029\* | 0.028\* | 0.029\* | 0.029\* | 0.028\* | 0.026\* |
| (0.011) | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) |
| Ln(Capital intensitya) | 0.011\*\* | 0.011\*\* | 0.011\*\* | 0.011\*\* | 0.011\*\* | 0.011\*\* | 0.011\*\* |  |  |  |  |
| (0.004) | (0.004) | (0.004) | (0.004) | (0.004) | (0.004) | (0.004) |
| Early promotion ratiof | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
| Moderator | Investment in trainingg (T) | 0.034 | 0.034 | 0.021 | 0.034 | 0.051 | 0.040 | 0.062† |
| (0.027) | (0.027) | (0.029) | (0.027) | (0.032) | (0.033) | (0.033) |
| Early promotion policy (P) | 0.036 | 0.035 | 0.034 | 0.033 | 0.052 | 0.056 | 0.083\* |
| (0.032) | (0.032) | (0.032) | (0.035) | (0.036) | (0.039) | (0.040) |
| Independent variable | Employee share ownership (ESO) |  | 0.046 | 0.012 | 0.043 | 0.047 | 0.004 | 0.091 |
|  | (0.036) | (0.044) | (0.052) | (0.036) | (0.057) | (0.063) |
| Interaction effect | ESO \* T |  |  | 0.077 |  |  | 0.092 | -0.133 |
|  |  | (0.057) |  |  | (0.058) | (0.091) |
| ESO \* P |  |  |  | 0.005 |  | 0.004 | -0.137† |
|  |  |  | (0.059) |  | (0.059) | (0.073) |
| T \* P |  |  |  |  | -0.046 | -0.061 | -0.130\* |
|  |  |  |  | (0.046) | (0.047) | (0.051) |
| ESO \* T \* P |  |  |  |  |  |  | 0.349\*\* |
|  |  |  |  |  |  | (0.108) |
| Pseudo R2 (within) | 0.002 | 0.003 | 0.004 | 0.003 | 0.004 | 0.006 | 0.020 |
| Pseudo R2 (between) | 0.391 | 0.393 | 0.393 | 0.393 | 0.392 | 0.392 | 0.388 |
| Δ χ2 (df, compared model) |  | 1.613(1, B1) | 1.841(1, B2) | 0.007(1, B2) | 1.004(1, B2) | 3.540(3, B2) | 10.299\*\*(1, B6) |

*N = 1,605 (614 organizations) \*\* p < 0.01, \* p < 0.05, † p < 0.10 Standard errors are shown in parentheses.*

*a: In thousand KRW per employee, b: Base for comparison: Manufacturing, c: Base for comparison: 2007, d: Base for comparison: Exploration, e: In million KRW, f: In percentage, g: In million KRW per employee*

Table 5.

Slope Difference Tests of Three-way Interaction of Employee Share Ownership, Training,

and Early Promotion Policy Predicting Labor Productivity

|  |  |  |  |
| --- | --- | --- | --- |
| Row | Simple Slopes and Their Differences | High Training Level:+1SD above mean | High Training Level:+2SD above mean |
|  Row 1 | Simple slope for the condition ‘High Training - Early Promotion Policy’:Lines (1) in Figure 1 | 0.162\*\* | 0.285\*\* |
| Row 2 | Simple slope for the condition ‘High Training - No Early Promotion Policy’:Lines (2) in Figure 1 | -0.037 | -0.113 |
| Row 3 | Simple slope for the condition ‘Low Training - Early Promotion Policy’:Lines (3) in Figure 1 | -0.046 | -0.046 |
| Row 4 | Simple slope for the condition ‘Low Training - No Early Promotion Policy’:Lines (4) in Figure 1 | 0.091 | 0.091 |
| Row 5 | Slope difference between ‘High Training - Early Promotion Policy’ and‘High Training - No Early Promotion Policy’ conditions:Between lines (1) and (2) in Figure 1 | 0.199\* | 0.398\*\* |
| Row 6 | Slope difference between ‘High Training - Early Promotion Policy’ and‘Low Training - Early Promotion Policy’ conditions:Between lines (1) and (3) in Figure 1 | 0.208\*\* | 0.331\*\* |
| Row 7 | Slope difference between ‘High Training - Early Promotion Policy’ and‘Low Training - No Early Promotion Policy’ conditions:Between lines (1) and (4) in Figure 1 | 0.071 | 0.194† |
| Row 8 | Slope difference between ‘High Training - No Early Promotion Policy’ and‘Low Training - Early Promotion Policy’ conditions:Between lines (2) and (3) in Figure 1 | 0.009 | -0.067 |
| Row 9 | Slope difference between ‘High Training - No Early Promotion Policy’ and‘Low Training - No Early Promotion Policy’ conditions:Between lines (2) and (4) in Figure 1 | -0.128 | -0.204 |
| Row 10 | Slope difference between ‘Low Training - Early Promotion Policy’ and‘Low Training - No Early Promotion Policy’ conditions:Between lines (3) and (4) in Figure 1 | -0.137† | -0.137† |

*N = 1,605 (614 organizations) \*\* p < 0.01, \* p < 0.05, † p < 0.10*

*Note 1. Calculations are based on coefficients from Model A7 in Table 4.*

*Note 2. The low training level in all cases is 0.*

Table 6.

Robustness Analysis: HLM Predicting Labor Productivity

(Early Promotion Ratio as the Measure of Early Promotion Policy)

|  |  |
| --- | --- |
| Variables | Dependent Variable: Ln(Sales per employeea) |
| ModelB1 | ModelB2 | ModelB3 | ModelB4 | ModelB5 | ModelB6 | ModelB7 |
|  | Constant | 9.685\*\* | 9.703\*\* | 9.709\*\* | 9.703\*\* | 9.715\*\* | 9.715\*\* | 9.658\*\* |
| (0.397) | (0.397) | (0.397) | (0.397) | (0.397) | (0.397) | (0.397) |
| Controls | Industry: Financeb | 0.570\*\* | 0.565\*\* | 0.557\*\* | 0.565\*\* | 0.564\*\* | 0.557\*\* | 0.566\*\* |
| (0.134) | (0.134) | (0.134) | (0.133) | (0.133) | (0.134) | (0.134) |
| Industry: Other servicesb | -0.839\*\* | -0.840\*\* | -0.840\*\* | -0.840\*\* | -0.839\*\* | -0.839\*\* | -0.840\*\* |
| (0.079) | (0.079) | (0.079) | (0.079) | (0.079) | (0.079) | (0.079) |
| Year: 2009c | 0.133\*\* | 0.132\*\* | 0.132\*\* | 0.132\*\* | 0.133\*\* | 0.132\*\* | 0.128\*\* |
| (0.029) | (0.029) | (0.029) | (0.029) | (0.029) | (0.029) | (0.029) |
| Year: 2011c | 0.088\*\* | 0.089\*\* | 0.087\*\* | 0.089\*\* | 0.091\*\* | 0.088\*\* | 0.083\*\* |
| (0.031) | (0.031) | (0.031) | (0.031) | (0.031) | (0.031) | (0.031) |
| Year: 2013c | -0.005 | -0.002 | -0.005 | -0.002 | -0.001 | -0.004 | -0.012 |
| (0.035) | (0.035) | (0.035) | (0.035) | (0.035) | (0.035) | (0.036) |
| Strategy:Selective explorationd | 0.032 | 0.034 | 0.036 | 0.034 | 0.035 | 0.036 | 0.036 |
| (0.032) | (0.033) | (0.033) | (0.033) | (0.033) | (0.033) | (0.032) |
| Strategy:Exploitationd | 0.090\* | 0.095\*\* | 0.094\*\* | 0.095\*\* | 0.095 | 0.095\*\* | 0.099\*\* |
| (0.036) | (0.036) | (0.036) | (0.036) | (0.036) | (0.036) | (0.036) |
| Strategy:Neitherd | 0.014 | 0.015 | 0.015 | 0.014 | 0.010 | 0.010 | 0.025 |
| (0.222) | (0.222) | (0.222) | (0.222) | (0.222) | (0.223) | (0.222) |
| Organization size:Ln(# of employees) | -0.015 | -0.016 | -0.017 | -0.016 | -0.015 | -0.017 | -0.017 |
| (0.028) | (0.028) | (0.028) | (0.028) | (0.028) | (0.028) | (0.028) |
| Union | 0.080 | 0.080 | 0.081 | 0.080 | 0.080 | 0.080 | 0.082 |
| (0.050) | (0.050) | (0.050) | (0.050) | (0.050) | (0.050) | (0.050) |
| Ln(Pay levele) | 0.844\*\* | 0.838\*\* | 0.840\*\* | 0.838\*\* | 0.834\*\* | 0.838\*\* | 0.853\*\* |
| (0.116) | (0.116) | (0.116) | (0.116) | (0.116) | (0.116) | (0.116) |
| Sales growth | 0.029\* | 0.029\* | 0.029\* | 0.029\* | 0.029\* | 0.029\* | 0.027\* |
| (0.011) | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) |
| Ln(Capital intensitya) | 0.011\*\* | 0.011\*\* | 0.011\*\* | 0.011\*\* | 0.011\*\* | 0.011\*\* | 0.011\*\* |
| (0.004) | (0.004) | (0.004) | (0.004) | (0.004) | (0.004) | (0.004) |
| Moderator | Investment in trainingf (T) | 0.033 | 0.034 | 0.020 | 0.034 | 0.027 | 0.018 | 0.036 |
| (0.027) | (0.027) | (0.029) | (0.027) | (0.029) | (0.030) | (0.031) |
| Early promotion ratiog (P) | 0.001 | 0.001 | 0.001 | 0.001 | 0.000 | 0.001 | 0.003 |
| (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
| Independent variable | Employee share ownership (ESO) |  | 0.048 | 0.013 | 0.050 | 0.047 | 0.020 | 0.054 |
|  | (0.036) | (0.044) | (0.040) | (0.036) | (0.047) | (0.049) |
| Interaction effect | ESO \* T |  |  | 0.079 |  |  | 0.073 | -0.032 |
|  |  | (0.057) |  |  | (0.060) | (0.071) |
| ESO \* P |  |  |  | 0.000 |  | -0.001 | -0.008† |
|  |  |  | (0.004) |  | (0.004) | (0.004) |
| T \* P |  |  |  |  | 0.003 | 0.001 | -0.009 |
|  |  |  |  | (0.004) | (0.004) | (0.005) |
| ESO \* T \* P |  |  |  |  |  |  | 0.019\*\* |
|  |  |  |  |  |  | (0.007) |
| Pseudo R2 (within) | 0.001 | 0.001 | 0.002 | 0.001 | 0.001 | 0.002 | 0.007 |
| Pseudo R2 (between) | 0.390 | 0.391 | 0.391 | 0.391 | 0.392 | 0.392 | 0.388 |
| Δ χ2 (df, compared model) |  | 1.720(1, D1) | 1.895(1, D2) | 0.018(1, D2) | 0.502(1, D2) | 2.071(3, D2) | 7.265\*\*(1, D6) |

*N = 1,605 (614 organizations) \*\* p < 0.01, \* p < 0.05, † p < 0.10 Standard errors are shown in parentheses.*

*a: In thousand KRW per employee, b: Base for comparison: Manufacturing, c: Base for comparison: 2007, d: Base for comparison: Exploration, e: In million KRW, f: In million KRW per employee, g: In percentage*

Figure 1.

Three-way Interaction of Employee Share Ownership (ESO), Investment in Training, and Early Promotion Policy

Predicting Labor Productivity by Different Levels of Training and Early Promotion Policy



*Note. Calculations are based on coefficients from Model A7 in Table 4.*