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Free-Riding in Firms' Parental Leave Policies

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This paper develops a simple model showing that firms may have an incentive to free ride on parental leave programs provided by other firms rather than invest in their own. The analysis demonstrates that the equilibrium level of parental leave provision is lower than the coordinated level envisioned by government policy, helping to explain the limited use of parental leave observed in several East Asian countries. To address this gap, the paper proposes a subsidy scheme that complements firm-provided parental leave programs and brings the decentralized equilibrium closer to the socially coordinated outcome.

I. Introduction

Childbirth- and childcare-related policies have become a central policy challenge in East Asian countries facing extremely low fertility rates. South Korea, where the fertility rate remains among the lowest in the world, recorded a total fertility rate of around 0.7 in 2023. In neighboring Japan, the fertility rate was also well below the replacement level, at about 1.2. Similarly, in places such as Taiwan and Singapore, the rate remains below 1. Against this backdrop, many countries, including those noted above, have adopted parental leave systems as a core policy response. These systems allow employees to take time off from work after childbirth without the risk of dismissal and with some degree of income support. While the details and benefit levels vary by country, all have legally established parental leave policies.¹

However, the extent to which workers actually use these systems depends heavily on corporate culture and managerial decisions within firms. For example, in Japan, a culture that prioritizes organizational convenience under the norms of long working hours and the “ideal worker” model remains deeply rooted, which discourages employees from taking parental leave (Brinton & Mun, 2016). In South Korea as well, some firms may formally approve leave but later implicitly encourage voluntary resignation, reflecting a passive attitude toward supporting parental leave. Such practices have been identified as a factor behind the low utilization rate of parental leave (Kim & Lundqvist, 2023).

As a result, actual take-up often falls short of the maximum permitted by law. In Japan, for instance, the parental leave uptake rate in 2023 was 84.1% for women, but only 30.1% for men. Moreover, the duration of leave is often short—around 40% of male users took less than two weeks of leave. A similar situation is observed in South Korea. Although the male uptake rate exceeded 30% for the first time in 2024 (reaching 31.6%), it remains relatively low. These patterns suggest that, even where parental leave systems are formally available, their actual use remains constrained by firm behavior and employee responses and therefore does not reach the level envisioned by government policy.

This paper develops a simple probabilistic choice model to explain why the level of parental leave support provided by firms may fall below the level encouraged by the government. If the equilibrium level of parental leave utilization remains below what the government-designed system is intended to achieve, this may help explain why fertility outcomes continue to fall short of policy objectives. Identifying the factors that hinder the use of parental leave is therefore of critical importance. The analysis also clarifies the mechanism generating this outcome and identifies policy instruments that may help align firm incentives with government goals.

The central idea of the model is that each firm has an incentive to free ride on the parental leave systems provided by other firms. To illustrate this intuitively, consider a married couple: the husband works at firm *H* and the wife at

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¹ For example, in South Korea, each parent can take up to 12 months of parental leave (18 months in total), with full wage compensation for the first 6 months and reduced support thereafter. In Japan, each parent can take up to 2 years of leave, with 67% of previous earnings paid during the first 180 days, and 50% thereafter. In Singapore, parents can take up to 30 weeks of leave in total, with partial wage compensation provided by the government. In Taiwan, each parent can take up to 2 years of leave, and parental benefits equivalent to 60% of average wages are paid for up to 7 months.

firm W . If firm H offers strong parental leave benefits, it is more likely that the husband will take leave. However, if firm W offers such benefits, the wife is more likely to take leave, which may reduce the need for the husband to do so in firm H . From the perspective of firm H , it is preferable for the wife to take leave at firm W rather than for the husband to take leave from firm H , because firm H can continue to benefit from the husband's labor without bearing the associated leave-related costs. Firm H therefore has an incentive to benefit from firm W 's system while avoiding a productivity loss that would arise if its own employee took leave. Because of this free-riding incentive, in equilibrium, the level of parental leave support provided by each firm is likely to be lower than what would be achieved through coordinated action among firms.

Research on parental leave programs can be broadly divided into two strands: studies that evaluate the effects of such programs using theoretical and empirical approaches, and studies that examine the optimal design of parental leave policies. Representative works in the former category include Ruhm (1998), Erosa et al. (2010), and Sakamoto and Morita (2018), while Givati and Troiano (2012), Miyazaki (2021, 2023), and Sakamoto (2023) fall into the latter group.² Although the present study shares a common focus on parental leave, it differs from prior work in its normative emphasis. In earlier studies, the main concern has been how couples make use of existing systems, whereas our analysis shifts attention to the supply side, examining how much effort firms devote to developing and supporting such systems. Specifically, we show that the level of parental leave support chosen by individual firms in equilibrium can fall short of the cooperative level that would arise under coordination. We show that firms have an incentive to free ride on the parental leave provisions of others, generating positive externalities from program development that are not fully internalized. This mechanism may help explain why actual usage of parental leave remains below the levels envisioned by government policy.

The remainder of the paper is organized as follows. Section II presents the basic model and derives the equilibrium outcome. Section III derives the coordinated outcome and shows that the equilibrium level of parental leave support is too low. It also proposes a subsidy policy that can close the gap between these two outcomes and raise the equilibrium to the coordinated level. Section IV concludes the paper.

II. Methodology

Environment. In this study, we analyze the decision-making regarding spouses' taking parental leave and firms' development of parental leave programs. We assume that the husband works for firm H and the wife works for firm W , and that each firm $i \in \{H, W\}$ chooses the level of its parental leave program development as a continuous variable $s_i \in [0, 1]$. Here, $s_i = 0$ indicates the absence of the program, while $s_i = 1$ indicates a fully developed program.

Implementing a parental leave program entails both benefits and costs for a firm. When a firm offers a high-quality parental leave program, it can experience positive effects such as improved employee retention and lower turnover, the recruitment of talented and diverse personnel, and increased productivity through higher employee satisfaction. Let $B(s_i)$ denote such a benefit, where $B' > 0$ and $B'' < 0$. A prime denotes the derivative. While there are benefits to enhancing the level of the program, the firm also faces the cost of program development. Designing and operating the program requires establishing the necessary administrative framework. Let $C(s_i)$ denote the cost of firm i having an in-house parental leave program at the level denoted by s_i , where $C' > 0$ and $C'' > 0$.

Couple's choice: The husband and wife, as a couple, decide which of them will take parental leave based on the level of the parental leave program offered by their respective employers. Let q_i denote the probability that parental leave is taken in firm $i \in \{H, W\}$; this probability is assumed to be given by

$$q_i = \frac{s_i}{s_W + s_H}, \quad (1)$$

implying that spouses are more likely to take parental leave from the firm with a higher program level.³ When parental leave is taken in firm i , the firm incurs an additional cost of L . For instance, if the firm does not replace the worker taking leave, it will be forced to reduce production. Even if it does hire a replacement, there will be additional costs for training, and productivity may temporarily decline if the substitute worker is less skilled than the original employee.

Firm's choice: Then the profit of risk-neutral firm i can be formulated as follows.

$$\pi_i = B(s_i) - q_i L - C(s_i), \quad (2)$$

where q_i is given by Equation (1). The first-order condition for profit maximization with respect to s_i is as follows.

² Ruhm (1998) examines the effects of parental leave policies on labor market outcomes in nine European countries, finding that while such policies increase employment among women of childbearing age, extended leaves are associated with reduced relative wages for women. Erosa et al. (2010) use a general equilibrium model to show that generous parental leave improves welfare for women but reduces it for men. Sakamoto and Morita (2018) show that work-life balance policies aimed at promoting continuous employment among married women, such as parental leave programs, may ultimately increase income inequality among married households in Japan. Givati and Troiano (2012) develop a model where the optimal length of maternity leave depends on societal tolerance for gender discrimination, using linguistic data as a proxy. Miyazaki (2021) models optimal leave duration and compensation structures based on worker preferences, while Miyazaki (2023) shows, using a labor search model, that mandatory leave policies can improve efficiency under certain cost conditions. Sakamoto (2023) shows that the effect of taking parental leave depends on the bargaining power between spouses.

³ Another possible approach is to use a deterministic model, in which the parent working for the firm with the higher-quality program always takes parental leave. In practice, however, other factors—such as commuting distance or differences in the couple's preferences—also affect the decision, making the probabilistic setting in Equation (1) a more realistic description.

$$B'(s_i) = \frac{s_j L}{(s_H + s_W)^2} + C'(s_i), \quad (3)$$

where the left-hand side represents the marginal benefit of increasing s_i , while the first and second terms on the right-hand side represent, respectively, the marginal cost arising from a higher probability that employees in firm i will take parental leave, and the marginal administrative cost required to raise s_i .

Symmetric equilibrium: Assuming that the two firms are symmetric in all aspects, the levels of parental leave programs provided by firms exhibit strategic complementarity, i.e., $\frac{\partial s_i}{\partial s_j} = -[4s^2(B'' - C'')]^{-1} > 0$ in a neighborhood of the symmetric equilibrium, and the level of the parental leave program in equilibrium, s^e , satisfies

$$B'(s^e) = \frac{L}{4s^e} + C'(s^e). \quad (4)$$

III. Cooperative Outcome

Let us set up the problem of maximizing the sum of the profits of both firms as follows.

$$\max_{s_H, s_W} \pi_H + \pi_W.$$

Solving this problem, we find that the cooperative solution s^* satisfies

$$B'(s^*) = C'(s^*). \quad (5)$$

where Equations (4) and (5) immediately lead to $s^e < s^*$, suggesting that the level of parental leave programs in equilibrium is below the coordinated solution. The mechanism leading to this result is simple. Consider the case where firm H increases its parental leave program level s_H . When s_H rises, the probability that the wife, who works at firm W , will take parental leave at firm W decreases. This, in turn, reduces the expected cost of losing an employee due to parental leave for firm W , represented by $q_w L$ in Equation (2). However, when firm H decides to raise s_H , it does not take into account this positive externality it confers on firm W . As a result, the equilibrium level of the parental leave program remains lower than the cooperative level. Conversely, by lowering s_H , firm H can increase the likelihood that the wife will take leave at firm W instead of the husband taking leave while working at firm H . In effect, this means that firm H is shifting the cost of parental leave onto firm W , thereby free-riding on the leave program provided by others.

The underprovision of parental leave programs in equilibrium can potentially be corrected through government subsidies. In fact, in Japan, the government provides financial support to small and medium-sized enterprises that assist employees in taking parental leave and returning to work. Specifically, a subsidy of 300,000 yen is granted at the time of leave and again upon return, for a maximum of 600,000 yen per employee. Moreover, since January 2024, firms that either hire replacement workers or provide extra compensation to existing employees during a worker's parental leave have become eligible for additional subsidies. A similar policy will be introduced in South Korea starting in 2025. In addition, South Korea is launching a new program that offers monthly payments of 200,000 won

to coworkers who take on the duties of employees on parental leave.

Let us denote the government subsidy rate for parental leave as θ , and reformulate the firm's profit function accordingly:

$$\pi_i = B(s_i) - q_i L - C(s_i) + \theta s_i, \quad (6)$$

where the fourth term on the right-hand side is newly added. Then the optimal subsidy rate would satisfy

$$\theta = \frac{L}{4s}, \quad (7)$$

suggesting that the optimal subsidy rate increases with the cost L that a firm incurs when a worker takes parental leave and decreases with the level of the parental leave program provided by the firm.

IV. Conclusion

This paper shows that the underutilization of parental leave systems in East Asian countries can be understood as the result of strategic interaction among firms, each of which has an incentive to free ride on the parental leave support provided by others. The probabilistic choice model developed here demonstrates that, in equilibrium, the level of support offered by firms falls short of the cooperative level, which may help explain why fertility outcomes remain below policymakers' objectives despite the formal availability of parental leave systems. By identifying this coordination failure, the analysis highlights the importance of policy intervention, particularly targeted subsidies, to better align private firm incentives with broader social goals. Narrowing this gap is essential for increasing parental leave uptake and strengthening the effectiveness of fertility-related policy measures.

A key policy implication of these findings is that stronger support should be directed toward firms that actively invest in expanding and improving their parental leave programs. In particular, the optimal subsidy rate derived in Equation (7) implies that greater incentives are warranted for firms facing higher marginal costs of parental leave and for firms with relatively low existing levels of institutional support. For the former, a reimbursement scheme that offsets part of the additional cost associated with an employee's leave, for example, the cost of hiring temporary replacements or paying extra allowances to coworkers covering the absence, would likely be effective. For the latter, performance-based subsidies tied to outcomes such as average leave duration or return-to-work rates could encourage firms to strengthen the substance of their programs. More broadly, improving the operational quality and transparency of parental leave systems is also important. Better auditing, faster benefit payments, and more efficient digital administration could increase the effectiveness of subsidies and promote more meaningful changes in firm behavior. Finally, as the evidence discussed in Section I suggests, women remain substantially more likely than men to take parental leave and to temporarily exit the labor force. If so, firms with predominantly male workforces may be benefiting from parental leave investments made by firms employing more women. This possibility suggests that childbirth and childcare support measures may need to account for

the gender composition of the workforce when policy is designed.

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