

A Career Trap or Maternal Love? Misperceived Social Norms about Breastfeeding

Youngrok Kim, Chihiro Yagi



文部科学大臣認定 共同利用・共同研究拠点

関西大学ソシオネットワーク戦略研究機構

Research Institute for Socionetwork Strategies,
Kansai University

Joint Usage / Research Center, MEXT, Japan

Suita, Osaka, 564-8680, Japan

URL: <https://www.kansai-u.ac.jp/riss/index.html>

e-mail: riss@ml.kandai.jp

tel. 06-6368-1228

fax. 06-6330-3304

A Career Trap or Maternal Love? Misperceived Social Norms about Breastfeeding

Youngrok Kim* Chihiro Yagi †

July 26, 2025

Abstract

This study explores how pro-breastfeeding social norms shape women's infant-feeding decisions and their participation in the labor market. Although breastfeeding is widely promoted for its health benefits, it is a biologically female-specific activity that constrains women's economic choices. This study conducted a survey experiment on 400 mothers with a spouse and at least one child under the age of one year in Japan, where breastfeeding is more common compared to other developed countries. The results showed that mothers tend to overestimate the social expectations regarding breastfeeding. When exposed to corrected normative or empirical information, participants reported reduced perceived pressure to breastfeed, increased openness to formula feeding, and a higher likelihood of returning to work within a year. These behavioral shifts were particularly pronounced among mothers seeking greater paternal involvement in childcare. This study reveals a trade-off embedded in strong breastfeeding norms: the norms support child health but may reinforce traditional gender roles and suppress maternal labor supply. Recognizing this tension is critical for designing family and labor policies and interventions that promote child well-being and gender equity.

Keywords: Breastfeeding, Social norms, Social expectations, Japan

JEL Classification: D83, J16, J22, O15, Z13

*School of Economics and Management, University of Hyogo. Email: kim@em.u-hyogo.ac.jp

†Graduate School of Global Environmental Studies, Kyoto University. Email: yagichi1118@gmail.com

1 Introduction

Goldin (2014) argues that the gender wage gap has entered its “final chapter,” with the focus shifting from overt gender discrimination to the trade-offs between career and family life. Breastfeeding occupies a distinctive position in this context, as it is a biological function faced solely by women and may exacerbate existing gender disparities. Since breastfeeding responsibilities inevitably fall to women, mothers often bear a disproportionate share of childcare, leading to imbalances in the accumulation of human capital and constrained economic mobility in the labor market (Buzard et al., 2025).

Japan presents a salient case, combining relatively high breastfeeding rates with persistently low female labor rates in developed countries. According to a 2015 survey by the Ministry of Health, Labor, and Welfare, 54.7% of mothers exclusively breastfed their three-month-old infants; when including mixed feeding (35.1%), the overall breastfeeding rate approached 90%. This pattern may intersect with women’s labor market behavior, suggesting that prevailing expectations regarding breastfeeding contribute to the observed decline in employment during the early stages of motherhood. This is reflected in the so-called “M-shaped curve,” which describes the common mid-career exit of women due to marriage and childbirth—a pattern less commonly observed in the United States and Europe (Brinton and Mun, 2016; Brinton and Oh, 2019).

Does this imply breastfeeding is a career trap for women? Despite the challenges it entails, do high breastfeeding rates reflect maternal affection—or socially constructed expectations? This study explores how misperceived social norms surrounding breastfeeding can distort women’s decision making. The United Nations Children’s Fund (UNICEF) and World Health Organization (WHO) strongly advocate breastfeeding because of its well-documented health benefits for both infants and mothers. However, the decision to breastfeed has far-reaching implications, influencing not only the child’s health but also the timing of the mother’s return to work and her overall well-being.

This study aims to investigate whether providing accurate information about prevailing social norms could change mothers’ attitudes and behaviors related to breastfeeding. Our

hypothesis was that many women may misperceive the degree to which breastfeeding is expected by society, and that this misperception can create behavioral constraints. By correcting these misperceptions, the unnecessary social pressure can be alleviated, potentially increasing mothers' satisfaction with parenting and their overall lives. Moreover, reducing the perceived obligation to exclusively breastfeed may facilitate the introduction of formula-feeding, thereby enabling greater paternal involvement in childcare and expanding mothers' options to return to work.

Our research design is inspired by Bursztyn et al. (2020)'s study, which experimentally demonstrated that correcting misperceived social norms among young married men in Saudi Arabia led to increased support for women's participation in public life. Building on this framework, our study investigates whether addressing overestimated social expectations regarding breastfeeding among mothers of infants in Japan could influence women's decisions regarding career continuity and infant care.

We conducted a survey experiment targeting Japanese mothers with a spouse and at least one child under the age of one. Approximately 400 mothers were randomly selected across Japan to participate in this study. Respondents were divided into two treatment groups and one control groups. Regarding the treatment groups, one was exposed to normative information (e.g., the percentage of women who agree with the statement, "Mothers should practice breastfeeding"), while the other received empirical information (e.g., the percentage of mothers reporting, "What was your primary method of feeding during the first six months after the birth of your youngest child?"). Providing this information made participants aware of how their own beliefs might differ from prevailing social norms, potentially leading them to adjust their decision-making. We then compared the responses across the treatment and control groups to examine the effects of different types of social norm information.

The findings revealed a fundamental tension between prevailing breastfeeding norms and women's career aspirations. Participants substantially overestimated both how strongly society expects mothers to breastfeed and how common breastfeeding is. Once these misperceptions were corrected by the treatment, participants reported feeling less normative pressure and showed an increased willingness to introduce formula milk. Crucially, they were also more likely

to express their intentions to return to work within a year. These results suggest that exaggerated perceptions of breastfeeding norms may constrain women's labor force participation, —not because of personal preference alone, but due to socially reinforced expectations. By reshaping these perceptions, even modest informational interventions can help dismantle the normative forces that turn maternal care into a career trap.

This study contributes to several strands of the literature at the intersection of gender, social norms, health, and labor economics. First, it addresses the critical dilemma faced by women who breastfeed while seeking to remain active in the labor market. Breastfeeding is an exclusively female activity that requires a sustained and inflexible commitment. This can delay mothers' return to work and reinforce their traditional gender roles in caregiving. As Rippeyoung and Noonan (2012) argues, breastfeeding is not “free” in economic terms. This previous study reveals that mothers who breastfed for six months or longer experienced greater income losses over the five years following childbirth than those who did not breastfeed and those who breastfed for shorter durations. These findings, along with those from other studies, underscore the opportunity costs of breastfeeding for women (Chatterji and Frick, 2005; Kobayashi and Usui, 2017; Baker and Milligan, 2008; Kottwitz et al., 2016).

Second, regarding the formation and persistence of gender norms, while prior research highlights that gendered divisions of labor within households are perpetuated by deeply held social expectations (Bursztyn et al., 2023; Cortés et al., 2024; Dustan et al., 2022; Lee, 2024; Lago et al., 2025; Sakamoto and Kohara, 2025; Bertrand et al., 2021; Ichino et al., 2024), relatively few studies have examined breastfeeding as a site of norm-driven constraint. Bicchieri et al. (2022) explored the relationship between breastfeeding and social norms in the context of Mali, a low-income country with distinct sociocultural dynamics. Our study extends this line of inquiry by providing novel experimental evidence from Japan, a high-income country in which breastfeeding is both highly prevalent and normatively prescribed.

Third, this study contributes to the growing body of literature on social norms and health-related behaviors (Avitabile, 2021; Poutvaara and Siemers, 2008). Public health organizations such as UNICEF and the WHO strongly promote breastfeeding owing to its well-established medical benefits for both infants and mothers. Concurrently, recent studies have examined how

informational interventions can shift social expectations around health behaviors (Beatty and Katare, 2018; Amialchuk et al., 2019; Angerer et al., 2024). This current research can add to the literature regarding the influence of overestimated normative beliefs about breastfeeding and perceived social pressure on maternal behavior in domains such as infant feeding and labor force reentry.

Finally, this paper contributes to the broader discussion of female labor supply, particularly the persistence of the “M-shaped curve”—a pattern in which women’s employment declines sharply following childbirth and recovers only later in life. Although this pattern has diminished in countries such as the United States and Western Europe, it remains pronounced in Japan. The literature attributes this persistence to time availability within households (Brinton and Oh, 2019) and the burden of caregiving responsibilities (Stansbury et al., 2024). We suggest that entrenched social norms surrounding breastfeeding may also contribute to this phenomenon by reinforcing expectations that deter an early return to work. Therefore, our study provides insight into how cultural beliefs about motherhood can shape women’s labor market trajectories in advanced economies.

2 Experimental Design

2.1 Survey Overviews

We conducted an online survey using Rakuten Insight, a major Japanese survey firm, with a respondent panel of approximately 2.2 million individuals. The survey was administered in December 2024 in two phases: a screening phase and the main questionnaire conducted ten days later.

During the screening phase, 400 mothers were randomly selected from an online panel stratified to represent households across all regions of Japan. The eligibility criteria included having a spouse, having a child under the age of one year, and currently breastfeeding. This sample allowed us to capture women who were actively navigating infant-feeding decisions and potentially facing trade-offs between caregiving and workforce reentry. The structure of the survey ensured that the subsequent experimental treatment could directly influence the

respondents' current decision-making environment.

2.2 Perceived Social Norms and Treatment

To establish baseline perceptions, we collected data on normative and empirical breastfeeding norms. The normative norm was derived from an external survey administered to approximately 2,000 women aged 20–69 years, who were sampled from across Japan to ensure national geographic representation. Respondents were asked whether they agreed with the statement “Mothers should breastfeed.” Thus, the normative norm is defined as the proportion of respondents who agree with this statement.

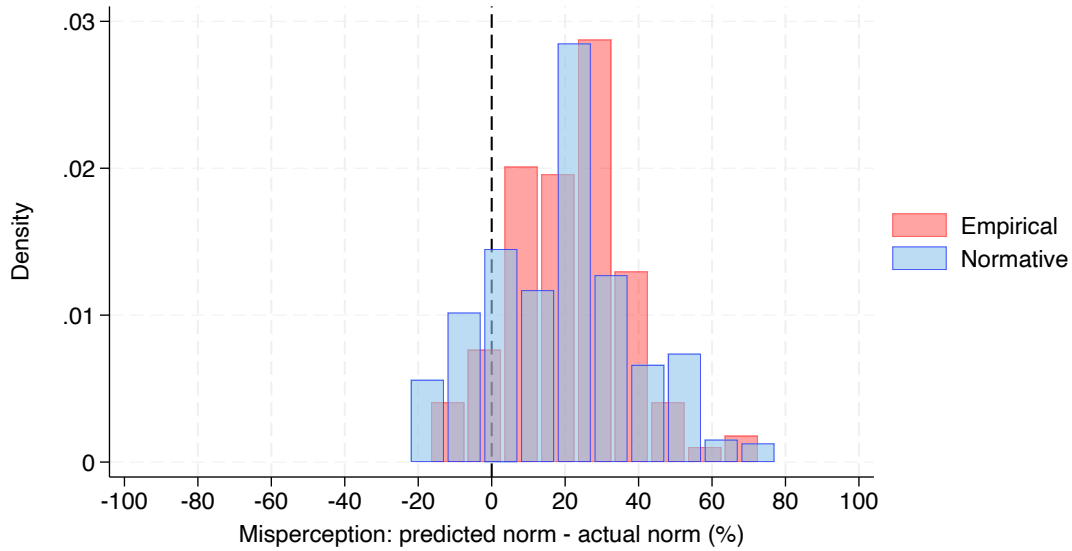
The empirical norm was calculated using the data from our screening survey. Specifically, it is defined as the proportion of women with a spouse and a child aged under one year old who reported exclusive breastfeeding as their primary feeding method during the first six months postpartum.¹

Based on these established norms, the participants in the main survey were randomly assigned to one of three groups: a normative treatment group, an empirical treatment group, or a control group. The normative treatment group received accurate information about the prevailing normative belief (“Mothers should breastfeed”), while the empirical treatment group was informed of the actual prevalence of exclusive breastfeeding among similar mothers. The control group received no additional information.

The intervention was designed to test whether correcting misperceptions of social norms would affect respondents' beliefs, behaviors, and work-related intentions. If participants significantly overestimated the prevalence or social approval of breastfeeding, such corrections could reduce internalized pressure. Figure 1 illustrates the distribution of misperceptions, showing that many mothers tend to overestimate both the normative and empirical norms related to breastfeeding.

¹Although the control group was not expected to change their answers to the same question before and after treatment in the absence of any intervention, some respondents did so. To address this inconsistency, we employed the pre-treatment answers in cases with illogical response patterns.

Figure 1: Misperception of Social Norms



2.3 Outcomes

Our analysis focused on attitudinal, behavioral, and work-related outcomes. First, we assessed whether correcting misperceived social norms influenced participants' attitudes toward breastfeeding. Specifically, we examined whether exposure to normative or empirical information led to a significant shift in the belief that mothers should breastfeed. We also tested whether reducing perceived social pressure translated into improved well-being. To this end, we evaluated changes in self-reported life satisfaction and parenting satisfaction.

Second, we analyzed whether correcting social norms affected actual or intended breastfeeding practices. If normative pressure is a key driver of exclusive breastfeeding, adjusting misperceptions may reduce the psychological burden and increase openness to incorporating formula feeding.

Finally, we examined the implications regarding mothers' labor market behaviors. Exclusive breastfeeding often necessitates prolonged maternal involvement in childcare, which may delay returning to work. Therefore, we investigated whether corrected perceptions reduced the expected duration of parental leave or increased the stated willingness to return to employment within one year after childbirth.

Table 1: Balance Test

	Normative Treatment	Empirical Treatment	Control	P-value
Age	33.2	33.3	33.0	0.796
Education	3.48	3.37	3.51	0.362
Having Worked after Birth	0.084	0.11	0.12	0.643
Household Income	2.93	2.85	2.91	0.876
Number of Children	1.90	1.96	1.92	0.859
Agree for Breastfeeding	0.48	0.41	0.50	0.331
Feel Guilty with Milk	0.056	0.024	0.016	0.149
Willing to Work after Birth	0.82	0.85	0.86	0.656
Period Childcare Leave	476.1	506.0	558.4	0.708
Return to Workplace in One Year	0.42	0.37	0.48	0.234
Life Satisfaction	0.27	0.24	0.19	0.269
Parenting Satisfaction	0.20	0.15	0.13	0.291
Observations	143	123	127	

Note: The p-values are based on ANOVA tests under the null hypothesis that the mean values are equal across the three groups.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

3 Results

3.1 Descriptive Statistics

Table 1 presents the average values of pre-treatment characteristics across the two treatment groups and the control group, along with p-values indicating the statistical significance of the differences across groups. The results confirmed that the randomization was successful, as none of the variables showed statistically significant differences at conventional levels. We included the first five variables as control variables in our regression models to account for any remaining imbalances and strengthen the validity of the randomization.

Table 1 also provides descriptive insights into the demographic and behavioral characteristics of our sample. Detailed definitions of the variables are provided in the Appendix. Notably, only about 10% of mothers in the sample returned to work after childbirth, and the average duration of childcare leave exceeded one year. These figures underscore the tension that many Japanese mothers face between fulfilling breastfeeding and childcare expectations and re-entering the labor force.

Table 2: The perceptual impact

	(1)	(2)	(3)	(4)
	Agree for Breastfeeding	Life satisfaction	Parenting satisfaction	Future Breastfeeding
Treatment: Empirical Norm	-0.0822* (0.0459)	0.113*** (0.0392)	0.151*** (0.0412)	-0.189*** (0.0377)
Treatment: Normative Norm	-0.203*** (0.0377)	0.137*** (0.0383)	0.199*** (0.0382)	-0.133*** (0.0298)
Controls	Yes	Yes	Yes	Yes
Observations	380	380	380	364

Note: Heteroskedasticity-robust standard errors are in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

3.2 Attitudes and Behavior: How Do They Affect Breastfeeding?

Columns (1)–(3) of Table 2 report the impact of the treatment on participants’ attitudes toward breastfeeding. Column (1) shows whether the provision of normative or empirical information changes mothers’ beliefs that they should breastfeed. The results indicate that exposure to either treatment significantly reduces agreement with this belief, suggesting that corrected social norm perceptions mitigate the internalized pressure to breastfeed. Table A2 further presents the heterogeneity of the treatment effects based on the wedge size between the perceived and actual norms. The results showed that participants who initially overestimated the normative pressure to breastfeed exhibited larger attitudinal shifts in response to treatment. This finding supports the hypothesis that prior misperceptions drive belief updating.

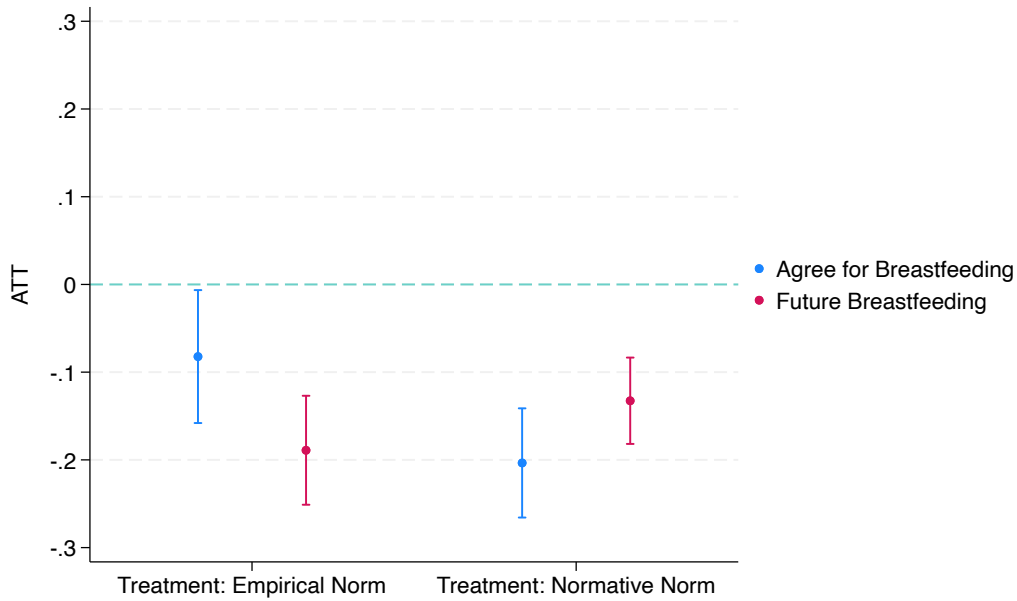
Next, we examined the mental well-being implications of norm correction. Columns (2) and (3) of Table 2 show that both treatments significantly increased reported life and parenting satisfaction. These results are consistent with the notion that relieving normative pressure can improve maternal wellbeing.

Finally, we assessed behavioral intentions related to breastfeeding. Column (4) of Table 2 focuses on mothers who breastfed exclusively at the time of the survey. The results revealed that these participants were less likely to report plans to continue exclusive breastfeeding after treatment. This suggests that exposure to corrected norms increases openness to incorporating formula feeding, potentially enabling greater flexibility in parenting.²

Figure 2 presents the point estimates and confidence intervals for the two treatment effects. We found that both empirical and normative treatments reduced the social pressure related to

²We conducted a robustness check in Table A3 by excluding all control variables. The results are similar to those of our main analysis, suggesting that our findings are robust after excluding controls.

Figure 2: Estimates of the treatment effects



Note: The plots illustrate the point estimates of the treatment effects and the 90% confidence intervals.

breastfeeding, leading to improvements in attitudes and behaviors toward it. Moreover, we found that individuals adjust their internalized empirical and normative beliefs more substantially when exposed to corresponding treatments. This suggests that the interventions have a greater impact on attitudes and behaviors when the associated social norms are corrected, whereas the alternative treatment has a comparatively smaller effect.

3.3 Labor Market Outcomes: Does It Influence Work Decisions?

The main findings indicate that exposure to corrected social norm information reduces the belief that mothers are obligated to breastfeed. Furthermore, participants who were exclusively breastfeeding at baseline were more open to incorporating formula feeding after treatment. This behavioral adjustment may help mothers reconcile the competing demands of breastfeeding and returning to work.

We examine whether the treatment affected the participants' work-related intentions, particularly their willingness to return to employment after childbirth. Table 3 presents the results. Column (1) reports the effect on the likelihood of returning to the workplace within one year. The coefficient of the empirical norm treatment is positive and statistically significant, suggest-

ing that exposure to accurate information about others' behavior increased mothers' willingness to shorten their childcare leave and reenter the labor market sooner. This effect was not observed in the control group.

Column (2) reports the effect on the expected duration of childcare leave. The non-treatment group exhibited a statistically significant change in this outcome. This may reflect institutional or financial constraints that limit flexibility in formal leave-taking even when attitudes or intentions shift.

Table 3: The impact on work

	(1)	(2)
	Return to Workplace in One Year	Period Childcare Leave
Treatment: Empirical Norm	0.0511* (0.0304)	42.73 (41.52)
Treatment: Normative Norm	-0.00514 (0.0310)	63.32 (55.77)
Controls	Yes	Yes
Observations	380	258

Note: Heteroskedasticity-robust standard errors are in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

3.4 Channel Analysis

The previous section showed that the treatments led mothers who exclusively breastfed to become more open to using formula milk and to consider returning to work earlier. Consequently, we investigated the mechanisms underlying these effects by considering two potential channels: (1) a reduction in maternal guilt associated with using formula and (2) an increase in paternal involvement in childcare.

First, we tested whether correction of perceived social norms reduced feelings of guilt regarding formula feeding. If this were the case, we would expect the treatment to have a stronger effect on mothers who initially reported high levels of guilt. To test this, we included the interaction terms between the treatment variables and a dummy variable for reported guilt in our regression model. As shown in Column (2) of Table 4, the interaction effects are statistically insignificant, suggesting that alleviating guilt is not the primary pathway through which the treatments operate.

Table 4: The channel analysis

	Future Breastfeeding		
	(1)	(2)	(3)
	Baseline		
Treatment: Empirical Norm	-0.187*** (0.0371)	-0.212*** (0.0427)	-0.139*** (0.0377)
Treatment: Normative Norm	-0.132*** (0.0294)	-0.122*** (0.0332)	-0.105*** (0.0297)
Treatment: Empirical Norm $\times$ Feel Guilty with Milk		0.140 (0.0862)	
Treatment: Normative Norm $\times$ Feel Guilty with Milk		-0.0302 (0.0706)	
Treatment: Empirical Norm $\times$ More Fathering			-0.237** (0.106)
Treatment: Normative Norm $\times$ More Fathering			-0.130 (0.0834)
Controls	Yes	Yes	Yes
Observations	369	369	369

Note: Heteroskedasticity-robust standard errors are in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Second, we examined whether the treatments encouraged greater reliance on fathers by reducing exclusive breastfeeding. The treatment variables were interacted with a dummy that captured mothers who wanted more paternal involvement in parenting. Column (3) of Table 4 shows a significant negative interaction effect for the empirical norm treatment, indicating that mothers who wished for more involvement from their partners were more likely to adopt formula feeding when presented with corrected empirical norms. This finding suggests that enabling shared feeding responsibilities is a key mechanism through which social norm correction supports behavioral changes.

4 Discussion

The findings revealed a fundamental tension between prevailing breastfeeding norms and women's career aspirations. The participants substantially overestimated both how strongly society expects mothers to breastfeed and how common breastfeeding is. Once these misper-

ceptions were corrected by treatment, the women reported feeling less normative pressure and showed a greater willingness to introduce formula milk. Crucially, they were more likely to express their intention to return to work within one year. These results suggest that exaggerated perceptions of breastfeeding norms may constrain women's labor force participation, not because of personal preference alone, but due to socially reinforced expectations. By reshaping these perceptions, even modest informational interventions can dismantle the normative forces that turn maternal care into a career trap.

The channel analysis provides evidence that paternal involvement in childcare plays an enabling role in mitigating the influence of misperceived social norms on maternal feeding behavior. While we found no evidence that correcting social norms allowed mothers to incorporate formula milk by reducing the guilt of formula feeding—suggesting that the guilt reduction channel did not substantially contribute to the treatment effect—the analysis revealed that the increase in formula feeding was concentrated among mothers who demanded that their partners more actively engage in childcare. This finding underscores how structural support within a household, particularly from fathers, alleviates the career constraints imposed by the exaggerated expectations of exclusive breastfeeding.

Social expectations regarding breastfeeding should be considered in the design of gender-sensitive family and labor market policies. Our results show that maternal behavior, specifically, the choice between exclusive breastfeeding and mixed feeding with formula milk, is shaped by perceptions of social norms. In Japan, high breastfeeding rates are not only supported by institutional recommendations but also reinforced by widespread beliefs that equate breastfeeding with good parenting and maternal devotion. This cultural configuration allows us to examine how descriptive and injunctive norms jointly influence behavior in a developed country setting. These insights have broader relevance for global policy debates on how health norms interact with labor market dynamics and women's autonomy.

5 Conclusion

This study examined how the overestimation of social norms surrounding breastfeeding shapes maternal decision-making and labor market behavior. Drawing on a survey conducted in Japan, we showed that mothers systematically overestimate both the societal expectations of breastfeeding and prevalence of exclusive breastfeeding. Providing corrective information modestly reduces exclusive breastfeeding while increasing women's willingness to return to work within one year postpartum. These findings contribute to our understanding of how inflated beliefs about infant feeding norms may constrain maternal autonomy and delay labor market re-entry.

Our findings highlight important policy considerations. First, the fact that women tend to overestimate societal expectations of breastfeeding highlights the value of informational interventions that clarify the diversity of socially accepted feeding practices. Rather than promoting or discouraging a specific choice, such interventions should reduce perceived social pressure and support mothers in making informed and context-appropriate decisions. Second, the observed role of paternal involvement underscores the importance of policies that actively encourage fathers' participation in early childcare—such as paid paternity leave, flexible work arrangements, and public messaging—and normalize shared caregiving. By addressing both normative and structural constraints, these measures can help ensure that breastfeeding remains a genuine choice rather than a perceived obligation, thereby reducing the risk of the choice to breastfeed becoming a career trap.

Public health campaigns that promote exclusive breastfeeding without acknowledging the diversity of maternal circumstances may inadvertently reinforce traditional gender roles and restrict flexibility in work–care arrangements. While breastfeeding has well-documented health benefits, promoting it as a singular ideal risks framing deviation as a failure, intensifying the psychological and economic burdens placed on mothers. Therefore, it is essential to support women in making informed choices regarding breastfeeding that align with their values and constraints.

Acknowledgement: The authors declare that they have no conflict of interest.

Ethics approval: Ethics approval was obtained from Institutional Review Board, Faculty of Economics & Graduate School of Economics, Kobe University.

Funding: This study was financially supported by JSPS KAKENHI grant numbers 22K01528.

Author Contribution declaration : All authors contributed to the design and implementation of the research, to the analysis of the results and to the writing of the manuscript.

References

- Amialchuk, A., Ajilore, O., and Egan, K. (2019). The influence of misperceptions about social norms on substance use among school-aged adolescents. *Health economics*, 28(6):736–747.
- Angerer, S., Glätzle-Rützler, D., Lergetporer, P., and Rittmannsberger, T. (2024). Beliefs about social norms and gender-based polarization of covid-19 vaccination readiness. *European Economic Review*, 163:104640.
- Avitabile, C. (2021). Spillovers and social interaction effects in the demand for preventive healthcare: evidence from the progesa program. *Journal of Health Economics*, 79:102483.
- Baker, M. and Milligan, K. (2008). Maternal employment, breastfeeding, and health: Evidence from maternity leave mandates. *Journal of health economics*, 27(4):871–887.
- Beatty, T. K. and Katare, B. (2018). Low-cost approaches to increasing gym attendance. *Journal of health economics*, 61:63–76.
- Bertrand, M., Cortes, P., Olivetti, C., and Pan, J. (2021). Social norms, labour market opportunities, and the marriage gap between skilled and unskilled women. *The Review of Economic Studies*, 88(4):1936–1978.
- Bicchieri, C., Das, U., Gant, S., and Sander, R. (2022). Examining norms and social expectations surrounding exclusive breastfeeding: Evidence from Mali. *World Development*, 153:105824.
- Brinton, M. C. and Mun, E. (2016). Between state and family: Managers’ implementation and evaluation of parental leave policies in japan. *Socio-Economic Review*, 14(2):257–281.
- Brinton, M. C. and Oh, E. (2019). Babies, work, or both? highly educated women’s employment and fertility in east asia. *American Journal of Sociology*, 125(1):105–140.
- Bursztyn, L., Cappelen, A. W., Tungodden, B., Voena, A., and Yanagizawa-Drott, D. (2023). How are gender norms perceived? *Quarterly Journal of Economics*, 138(2):969–1017.

- Bursztyn, L., González, A. L., and Yanagizawa-Drott, D. (2020). Misperceived social norms: Women working outside the home in Saudi Arabia. *American Economic Review*, 110(10):2997–3029.
- Buzard, K., Gee, L. K., and Stoddard, O. (2025). Who you gonna call? gender inequality in external demands for parental involvement. *The Quarterly Journal of Economics*, page qjaf027.
- Chatterji, P. and Frick, K. D. (2005). Does returning to work after childbirth affect breastfeeding practices? *Review of Economics of the Household*, 3:315–335.
- Cortés, P., Koşar, G., Pan, J., and Zafar, B. (2024). Should mothers work? how perceptions of the social norm affect individual attitudes toward work in the US. *Review of Economics and Statistics*, pages 1–28.
- Dustan, A., Koutout, K., and Leo, G. (2022). Second-order beliefs and gender. *Journal of Economic Behavior & Organization*, 200:752–781.
- Goldin, C. (2014). A grand gender convergence: Its last chapter. *American Economic Review*, 104(4):1091–1119.
- Ichino, A., Olsson, M., Petrongolo, B., and Skogma-Thoursie, P. (2024). Taxes, childcare and gender identity norms. *Journal of Labor Economics*.
- Kobayashi, M. and Usui, E. (2017). Breastfeeding practices and parental employment in Japan. *Review of Economics of the Household*, 15:579–596.
- Kottwitz, A., Oppermann, A., and Spiess, C. K. (2016). Parental leave benefits and breastfeeding in Germany: effects of the 2007 reform. *Review of Economics of the Household*, 14:859–890.
- Lago, M. E., Samahita, M., and Doyle, O. (2025). Unraveling gender norms: Social and personal norms in the preferential promotion of women. *Journal of Behavioral and Experimental Economics*, 115:102336.
- Lee, J. H. (2024). Changing gender norms and household resource allocation. *Oxford Economic Papers*, 76(3):686–707.

- Poutvaara, P. and Siemers, L.-H. (2008). Smoking and social interaction. *Journal of Health Economics*, 27(6):1503–1515.
- Rippeyoung, P. L. and Noonan, M. C. (2012). Is breastfeeding truly cost free? income consequences of breastfeeding for women. *American Sociological Review*, 77(2):244–267.
- Sakamoto, R. and Kohara, M. (2025). Why gender norms matter. *Economica*, 92(365):150–172.
- Stansbury, A., Kirkegaard, J. F., and Dynan, K. (2024). Gender gaps in south korea’s labour market: children explain most of the gender employment gap, but little of the gender wage gap. *Applied Economics Letters*, 31(17):1726–1731.

Appendix

Table A1: Description of Variables

Variable Name	Type	Description	Options on the Survey
Age	continuous	Age of the respondent	–
Education	discrete	Educational background of the respondent	1: junior high, 2: high, 3: two or three-year college, 4: four-year college, 5: graduate school, 6: others
Having Worked after Birth	dummy	Having Worked after the birth of the respondent's last child (answering "1" in the question)	1: has worked at least once, 2: has not worked yet but will, 3: has not worked and won't
Household Income	discrete	Household income of the respondent	1: under 4 million yen, 2: 4-6 million yen, 3: 6-8 million yen, 4: 8-10 million yen, 5: 10-12 million yen, 6: 12-15 million yen, 7: above 15 million yen
Number of Children	discrete	Number of children of the respondent	–
Agree for Breastfeeding	dummy	Social normative norm of breastfeeding. Agree with the statement: mothers should do breastfeeding (answering "1" in the question)	1: yes, 2: no
Feel Guilty with Milk	dummy	Feeling guilty when giving babies milk (answering "1" or "2" in the question)	"1: very much, 2: yes, 3: not sure, 4: not very much, 5: not at all"
Return to Workplace in One Year	dummy	Having less than one year of childcare leave	–
Period Childcare Leave	continuous	duration of the period of childcare leave from the workplace	–
Life Satisfaction	dummy	Degree of life satisfaction (answering "1" in the question)	1: satisfying, 2: somewhat satisfying, 3: not sure, 4: not very satisfying, 5: not satisfying at all
Parenting Satisfaction	dummy	Degree of satisfaction of parenting	1: satisfying, 2: somewhat satisfying, 3: not sure, 4: not very satisfying, 5: not satisfying at all

Table A2: Heterogeneity with wedge

	Should Breastfeed		Future Breastfeeding	
	(1) Wedge (Normative) > 0	(2) Wedge (Normative) ≤ 0	(3) Wedge (Empirical) > 0	(4) Wedge (Empirical) ≤ 0
Treatment: Empirical Norm	-0.0989* (0.0512)	0.00396 (0.107)	-0.177*** (0.0398)	-0.251* (0.129)
Treatment: Normative Norm	-0.215*** (0.0433)	-0.148** (0.0661)	-0.123*** (0.0305)	-0.222* (0.130)
Controls	Yes	Yes	Yes	Yes
Observations	316	64	322	42

Note: Heteroskedasticity-robust standard errors are in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A3: Robustness Check

	(1) Agree for Breastfeeding	(2) Life satisfaction	(3) Parenting satisfaction	(4) Future Breastfeeding
Treatment: Empirical Norm	-0.0770* (0.0467)	0.0981*** (0.0371)	0.150*** (0.0396)	-0.191*** (0.0368)
Treatment: Normative Norm	-0.193*** (0.0378)	0.123*** (0.0376)	0.191*** (0.0372)	-0.129*** (0.0293)
Controls	No	No	No	No
Observations	390	390	390	374

Note: Heteroskedasticity-robust standard errors are in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$