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RESEARCH BRIEF

Research Briefs

Declining Fertility and the Use of Cesarean Delivery: Evidence from a Population-Based Study in Taiwan

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Objective. To test the hypothesis that declining fertility would affect the number of cesarean sections (c-sections) on maternal demand, but not medically indicated c-sections.
Data Sources. The 1996–2004 National Health Insurance Research Database in Taiwan for all singleton deliveries.
Study Design. Retrospective population-based, longitudinal study. Estimation was performed using multinomial probit models.
Principal Findings. Results revealed that declining fertility had a significant positive effect on the probability of having a c-section on maternal request but not medically indicated c-section.
Conclusions. Our findings offer a precautionary note to countries experiencing a fertility decline. Policies to contain the rise of c-sections should understand the role of women's preferences, especially regarding cesarean deliveries on maternal request.
Key Words. Fertility, cesarean delivery, physician-induced demand, multinomial probit model, Taiwan

Over the last few decades, cesarean section (c-section) rates have grown steadily in both developed and developing countries. The growth has raised concerns about health care costs and reproductive health. Health service researchers cite financial incentives as a major explanation for the growth of c-sections (Stafford 1990; Finkler and Wirtschafter 1993; Epstein and Newhouse 1998; Gruber, Kim, and Mayzlin 1999; Spetz, Smith, and Ennis 2001). Another possible explanation is physician-induced demand (PID), when obstetricians and gynecologists (ob/gyns) generate demand for more generously reimbursed c-sections to increase their income because of their advantage in medical knowledge. Research has used the PID argument as the theoretical basis to examine the effect of physician financial incentives on c-section use (Finkler and Wirtschafter 1993; Keeler and Brodie 1993; Gruber, Kim, and

Mayzlin 1999; Grant 2009). However, the results are inconclusive because of endogeneity problems—that is, unobserved area characteristics correlated with preferences for medical interventions may cause both higher use and more physicians in the area, regardless of the extent of PID.

Assuming that ob/gyns have little control over fertility decisions, Dranove and Wehner (1994) suggested that changes in fertility represented an exogenous shock that would help identify the effects of PID on c-section use. Using this approach and expanding the theoretical model developed by McGuire and Pauly (1991), Gruber and Owings (1996) found that a 10 percent fertility drop in the United States corresponded to a 0.6 percentage increase in the probability of undergoing a c-section, suggesting that ob/gyns may induce patients' demand for higher-reimbursed c-sections over vaginal deliveries. While their study used identification strategies to mitigate the endogeneity problem, they failed to take into account a different but related problem. Although PID may play a part in selecting the mode of delivery, a distinction should be made between patient's and physician's choice regarding the delivery mode (Gonen, Tamir, and Degani 2002; Anderson 2004).

Women's preferences for the delivery mode—specifically the extent to which cesarean deliveries on maternal request (CDMR) are performed—may also change when the fertility rate declines (Paranjothy and Thomas 2001). In countries such as Taiwan where the fertility rate has declined significantly in recent decades, the increased use of c-sections may reflect a higher social value of newborns (Cai et al. 1998). C-sections are also believed to be more modern and more beneficial for a newborn's health and development in Chinese society (Wu 2000). Further, women now live longer and have fewer children, making quality-of-life issues such as the long-term risk of incontinence associated with vaginal delivery more prominent and the risks associated with having subsequent repeated procedures less important (Minkoff and Chervenak 2003). These reasons explain why women may change their personal choice about the delivery mode. The change may account for the observed correlation between declining fertility and increased c-section use, particularly for c-sections without medical complications or CDMR. Yet, to date, there has been no empirical analysis of the relationship between fertility and CDMR.

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This study examined whether increased c-section use is better explained by PID or changes in women's preference of the delivery mode, using longitudinal data from Taiwan. According to Taiwan government reports, the number of births dropped from 325,545 in 1996 to 216,419 in 2004 (Department of Household Registration 2009). The general fertility rate (GFR) dropped from 54 live births per 1,000 women aged 15–49 in 1996 to 34 in 2004 (Ministry of Interior 2009). The dramatic decline in fertility resulted in a significant and unanticipated negative income shock to ob/gyns whose obstetric practice revenue depends on fertility rates. The fertility decline in Taiwan provides a unique opportunity to verify the effect of physician financial incentives on c-section use. During the study period, the national c-section rate increased from 25.40 percent in 1996 to 30.56 percent in 2004. The rate of CDMR was 0.88 percent in 1996 and it peaked at 2.50 percent in 2002 (Appendix SA2).

Our study has three strengths. First, inclusion of virtually all singleton deliveries in Taiwan and use of a national dataset with comprehensive clinical information for deliveries alleviates selection bias. Second, universal health insurance and the single-payer system make Taiwan a favorable research setting that reduces the confounding effects of health insurance coverage. Third, our dataset included a code for CDMR that allowed us to accurately estimate the effect of physician financial incentives by discounting c-sections that were attributable to patient requests.

METHODS

Our empirical approach was built on prior work (Dranove and Wehner 1994; Gruber and Owings 1996), but it also included the GFR as an aggregate measure of women's preferences for childbirth and the delivery mode as well as the number of ob/gyns per 100 births as an indication of PID. Women's preference for c-sections and PID both predict that a falling fertility rate will lead to increased c-section use. However, the former is only related to fertility decline and the preference of pregnant women, whereas the latter operates through the ratio of ob/gyns to births and the decision belongs largely to ob/gyns.

We hypothesize that a decline in GFR would increase the probability of having a CDMR, ceteris paribus, because low GFR increases the social value of newborns and increases women's preference for c-sections over vaginal deliveries. On the other hand, an increase in ob/gyns per 100 births would increase the probability of women having a c-section, ceteris paribus, because ob/gyns per 100 births measured negative income shock to ob/gyns. In other words, the coefficient on GFR captures the effect of fertility decline on women's preference of the delivery mode holding constant ob/gyns per 100 births; this coefficient is expected to be negative. The coefficient on ob/gyns per 100 births, holding constant GFR, is an estimate of PID and is expected to be positive.

Considering the dynamics of ob/gyns market entry or exit, the variable ob/gyns per 100 births is not a perfect measure of ob/gyn financial pressure. Because a physician's decision to start a practice depends on market conditions, identification of financial pressure solely by ob/gyn density may cause bias and inconsistency in estimations (Gaynor 1994; McGuire 2000). Thus, we used the 1-year lagged number of ob/gyns per 100 births. The lagged number of ob/gyns per 100 births should be highly correlated with the number of ob/gyns, but it is unlikely to be correlated with unmeasured demand factors. This should reduce the reverse causality problem.

The other main explanatory variable was GFR, an age-adjusted birth rate, defined as GFR = [number of live births/females aged $15 - 49$] $\times$ 1000. GFR is better than gross fertility rates because it accounts for the age composition.

We estimated the multinomial probit model because it provided a general framework to study a discrete choice and it allowed correlation between all alternatives (Bolduc, Lacroix, and Muller 1996). In the model, the dependent variable was a mutually exclusive discrete choice of the delivery mode: vaginal delivery, c-section, or CDMR. The model had the choice of the delivery mode as a function of the logarithm of GFR and the logarithm of the lagged number of ob/gyns per 100 births. These two explanatory variables were logged because we were interested in finding the absolute change in the probability of choosing different delivery modes for a percent change in GFR and the lagged number of ob/gyns per 100 births. We assumed that the choice of the delivery mode would also be influenced by clinical indicators and nonclinical factors (Dubay, Kaestner, and Waidmann 1999). Clinical factors included previous c-section, fetal distress, dystocia, breech, and other complications (Appendix SA3). Nonclinical individual-level variables included woman's age and insurable wage. Nonclinical institutional factors included ownership, teaching status, accreditation status, and bed size. Ob/gyn factors included the attending ob/gyn's age and gender.

The primary data were from the National Health Insurance Research Database (NHIRD), which contains comprehensive information on the enrollment history and medical care use of all National Health Insurance (NHI) beneficiaries. Fertility and population size were from the 1996 to 2004 *Taiwan-Fuchien Demographic Fact Book* (Ministry of Interior 1996–2004) and were merged with NHIRD by institutional area codes. Delivery modes were determined based on the NHI diagnosis-related groups (DRG) code in the NHIRD (Lin and Xirasagar 2004; Xirasagar and Lin 2004): vaginal delivery (DRG = 0373A), medically indicated c-section (DRG = 0371A), and CDMR (DRG = 0373B, maternal request c-section and no conditions in the International Classification of Diseases, 9th revision, Clinical Modification (ICD-9-CM) required).

NHI pays the full cost of a c-section if the delivery mode is medically indicated. During our study period, the NHI reimbursement rate for medically indicated c-sections is twice that of a CDMR or a vaginal delivery. If the c-section is not medically indicated, then the patient must pay out-of-pocket the cost difference between a c-section and a vaginal delivery. Because of this regulation, ob/gyns may classify a c-section as medically indicated for the financial benefit of the patient. However, the coding system is quite accurate because the government regularly audits claims. Fines for fraud are 100 times the amount of the false claims charged to the National Health Insurance Bureau (BNHI) (Xirasagar and Lin 2007; Liu, Chen, and Lin 2008; Liu et al. 2008).

The study population was all singleton deliveries in Taiwan. Multiple births were excluded because those deliveries may require different obstetric considerations in terms of the choice of delivery mode (Lin et al. 2004). To be consistent with previous research, we excluded women above 50 and below 15 years of age, and attending ob/gyn's age below 25 and above 75. In total, 2,241,980 singleton deliveries were identified and analyzed in the study.

RESULTS

Table 1 displays the descriptive statistics of the study sample by delivery modes from 1996 to 2004 (N= 2,241,980). Overall, there are 693,492 (30.93 percent) cases of c-sections and 40,726 (1.82 percent) cases of CDMR. Women who had medically indicated c-sections and CDMR were generally older (29.07 versus 28.15) and earned a higher wage (NT$17,947.48 versus NT$17,229.22; U.S.$578.95 versus U.S.$555.78). Fourteen percent of the sample had one or more c-sections; 43.87 percent of c-section cases and 8.23 percent of CDMR cases had a prior c-section history. In general, CDMR was more likely to be performed in clinics and district hospitals (as opposed to regional hospitals and medical centers), proprietary institutions (as opposed to nonprofits), and nonteaching facilities (as opposed to teaching).

We estimated the effect of declining fertility on the use of medically indicated c-sections and CDMR by calculating the marginal effects of the

Table 1: Summary Statistics of Patients by Delivery Modes, 1996–2004*

Variables	*All Births*	*Vaginal Delivery (DRG = 0373A)*	*C-Section (DRG = 0371A)*	*CDMR (DRG = 0373B)*
Social demographic variables				
Age (SD)	28.15 (4.86)	27.55 (4.73)	29.63 (4.81)	29.07 (5.16)
Wage (SD)	17,229.22 (16,301.26)	17,071.82 (16,182.48)	17,353.54 (16,350.62)	17,947.48 (17,446.45)
Institutional characteristics				
Bed size (SD)	489.21 (756.45)	474.53 (741.26)	482.69 (755.18)	391.82 (658.89)
Ownership				
Public (%)	307,572 (13.72%)	203, 280 (13.48%)	100,074 (14.43%)	4,218 (10.36%)
Private nonprofit (%)	632,443 (28.21%)	430,669 (28.56%)	192,341 (27.74%)	9,433 (23.16%)
Proprietary (%)	1,301,965 (58.07%)	873,813 (57.96%)	401,077 (57.83%)	27,075 (66.48%)
Accreditation status				
Medical center (%)	311,422 (13.89%)	206,992 (13.73%)	98,912 (14.26%)	5,518 (13.55%)
Regional hospital (%)	484,075 (21.59%)	334,758 (22.20%)	142,808 (20.60%)	6,509 (15.98%)
District hospital (%)	632,326 (28.20%)	419,879 (27.85%)	199,946 (28.83%)	12,501 (30.70%)
Clinic (%)	814,157 (36.32%)	546,133 (36.22%)	251,826 (36.31%)	16,198 (39.77%)
Teaching status				
Teaching (%)	987,515 (44.05%)	661,572 (43.88%)	309,998 (44.70%)	15,945 (39.15%)
Nonteaching (%)	1,254,465 (55.95%)	846,190 (56.12%)	383,494 (55.30%)	24,781 (60.85%)
Ob/gyn characteristics				
Ob/gyn gender (SD) (0 if female; 1 if male)	0.94 (0.24)	0.93 (0.25)	0.94 (0.25)	0.95 (0.22)
Ob/gyn age (SD)	39.49 (1.88)	39.47 (1.88)	39.52 (1.91)	39.53 (1.74)
Complications in c-section				
Fetal distress (%)	54,670 (2.44%)	5,761 (0.38%)	48,276 (6.81%)	633 (1.55%)
Dystocia (%)	194,877 (8.69%)	15,430 (1.02%)	176,918 (25.51%)	2,529 (6.21%)
Breech (%)	136,817 (6.10%)	2,614 (0.17%)	133,516 (19.25%)	687 (1.69%)
Others (%)	203,273 (9.07%)	87,837 (5.83%)	112,592 (16.24%)	2,844 (6.98%)
Previous c-section (%)†	313,812 (14.00%)	6,197 (0.41%)	304,262 (43.87%)	3,353 (8.23%)
Observations	2,241,980	1,507,762	693,492	40,726

*Following Lin and Xirasagar (2004), Lin et al. (2004), Xirasagar, Lin, and Liu (2006), Lin, Xirasagar, and Liu (2007), Xirasagar and Lin (2007), Liu, Chen, and Lin (2008), Lin, Hu, and Lin (2008), and Liu et al. (2008), deliveries without a DRG code in NHIRD (totally 38,507 cases) were excluded in all analyses.

†History of previous c-section was reported only for women who had had more than one delivery.

CDMR, cesarean deliveries on maternal request; c-section, cesarean section; DRG, diagnosis-related groups; NHIRD, National Health Insurance Research Database; Ob/gyn, obstetrician and gynecologist.

logarithm of GFR and the logarithm of the lagged number of ob/gyns per 100 births in the multinomial probit model (Table 2). We found that a decline in the logarithm of GFR was associated with an increase in the probability of CDMR ($p < .01$), but it had no significant association with the probability of medically indicated c-sections. An increase in the lagged number of ob/gyns per 100 of births was not associated with any significant change in the probability of medically indicated c-sections or CDMR, as opposed to vaginal delivery. The coefficients of a multinomial probit model must be translated into marginal effects for interpretation. Using the average-of-the probability method, we found that each 10 percent decrease in GFR was associated with 0.087 percentage points increase in the probability of CDMR as opposed to vaginal delivery. The effect was sizable because the 37 percent drop in GFR during our study period can explain about 37 percent of the rise in CDMR rate (0.88 percent points).

We performed several robustness tests (see Table 3). We first replaced regional fixed effects with institutional fixed effects and ob/gyn fixed effects to control for unobserved patient, physician, and organizational conditions (tests 1 and 2). We then excluded women with previous c-section in test 3 because those women normally receive c-section as a result of their prior history. In test 4, we limited our sample to women aged ≥ 34 because prior studies indicated that women aged 34 and older were more likely to have CDMR (Lin and Xirasagar 2005). Finally, test 5 included CDMR cases with codes of obstetric complications (Appendix SA3 except previous c-section) to examine the effect of coding errors on the results.

The signs and significance levels of coefficients for the main explanatory variables in Table 3 remain unchanged from those in Table 2. Because institutional and ob/gyn characteristics change little over time, including the hospital or ob/gyn fixed effects in robustness tests 1 and 2 reduced the explanatory power of hospital-level variables. Thus, empirical specifications with only regional and time fixed effects were preferred. In robustness test 3 that included only women with primary c-sections and vaginal delivery, the effect of the logarithm of GFR on the probability of having CDMR was greater, corroborating the finding that women preference for c-section increased as a result of the fertility decline. The robustness test 4 is akin to an age-stratified analysis. It showed a greater effect of the logarithm of GFR on the probability of having CDMR in women aged 34 and older, indicating those women were more likely than younger women to have CDMR as a result of declining fertility. The robustness test 5 showed that errors in obstetric complication coding had little effect on the results.

Table 2: Multinomial Probit Model (Reference Group: Vaginal Delivery)[†,‡]

	C-Section with Complications		C-Section on Maternal Request	
Variables	*Coefficient*	*Robust SE*	*Coefficient*	*Robust SE*
Main explanatory variables				
Log of general fertility rate	−0.196	0.174	−0.421**	0.086
Log of lagged ob/gyns per 100 births	0.387	0.520	0.238	0.182
Patients' characteristics				
Age	0.052**	0.001	0.061**	0.004
Insurable wage ($\div 10^2$)	−0.0004**	0.00004	−0.0005**	0.0001
Previous c-section	5.778**	0.023	3.016**	0.034
Fetal distress	4.694**	0.015	—[§]	—[§]
Dystocia	5.522**	0.097	—[§]	—[§]
Breech	6.761**	0.021	—[§]	—[§]
Other complications	2.521**	0.007	—[§]	—[§]
Institutional characteristics				
Private nonprofit	−0.412**	0.021	0.138**	0.068
Proprietary	0.252**	0.030	1.041**	0.087
(reference: public)				
Medical center	0.108*	0.049	0.246**	0.085
Regional hospital	−0.431**	0.029	0.009**	0.003
District hospital	−0.171**	0.018	0.263**	0.092
(reference: clinic)				
Teaching hospital	0.090**	0.015	0.048	0.073
(reference: nonteaching)				
Bed size ($\div 10^2$)	−0.029**	0.003	−0.0005	0.002

continued

Table 2. *Continued*

	C-Section with Complications		C-Section on Maternal Request	
Variables	*Coefficient*	*Robust SE*	*Coefficient*	*Robust SE*
Ob/gyn characteristics				
Ob/gyn age	−0.004	0.004	−0.003	0.011
Ob/gyn gender (reference: female)	−0.003	0.022	0.148**	0.024
Constant	−4.323**	0.190	−5.126**	0.573
Log likelihood	−4,001,293.35			
Marginal effect of log of general fertility rate (SE)	−0.0005 (0.0019)		−0.0087 (0.0023)**	
Marginal effect of log of lagged ob/gyns per 100 births (SE)	0.0011 (0.0024)		0.0014 (0.0062)	

† $N = 2{,}235{,}627$ (6,353 CDMR cases with obstetric complications were excluded).

‡ The multinomial probit regression includes a full set of time and regional dummies and is clustered by city/county.

§ Coefficients and SEs were not estimated because CDMR by definition does not have medical complications.

*$p<.05$,

**$p<.01$.

CDMR, cesarean deliveries on maternal request; c-section, cesarean section; Ob/gyn, obstetrician and gynecologist.

Table 3: Results of Robustness Tests

	C-Section with Complications		*CDMR*	
Specifications	*Coefficient*	*Robust SE*	*Coefficient*	*Robust SE*
Test 1: Ob/gyn fixed effects				
Log of general fertility rate	– 0.223	0.253	– 0.341**	0.068
Log of lagged ob/gyns per 100 births	0.426	0.718	0.225	0.279
Test 2: Institutional fixed effects				
Log of general fertility rate	– 0.171	0.232	– 0.169**	0.079
Log of lagged ob/gyns per 100 births	0.471	0.801	0.282	0.301
Test 3: Excluding women with prior history of c-section				
Log of general fertility rate	– 0.291	0.285	– 0.681**	0.084
Log of lagged ob/gyns per 100 births	0.363	0.518	0.310	0.189
Test 4: Excluding women < 34				
Log of general fertility rate	– 0.207	0.231	– 0.588**	0.089
Log of lagged ob/gyns per 100 births	0.409	0.319	0.314	0.449
Test 5: Including CDMR with obstetric complications				
Log of general fertility rate	– 0.205	0.121	– 0.454**	0.075
Log of lagged ob/gyns per 100 births	0.392	0.641	0.256	0.206

Notes. All multionominal probit regressions included a full set of time dummies.

Coefficients and robust SEs for other explanatory variables are available from the authors.

All estimations were clustered by city/county.

When hospital fixed effects or ob/gyn fixed effects were included in the model (tests 1 and 2), regional fixed effects were all dropped out because most providers did not move in the short run.

Tests 3–5 included a full set of regional dummies.

N = 2,235,627 in tests 1 and 2.

N = 1,921,815 in test 3 (313,812 cases excluded).

N = 232,673 in test 4 (2,002,954 cases excluded).

N = 2,241,980 in test 5.

**$p < .01$.

CDMR, cesarean deliveries on maternal request; c-section, cesarean section; Ob/gyn, obstetrician and gynecologist.

To summarize, our findings indicate that maternal requests contributed significantly to the increased use of c-sections in Taiwan during a period marked by a rapid fertility decline. The finding was independent from the effect of PID, indicated by the lagged number of ob/gyns per 100 births, which was not statistically significant in the analysis.

DISCUSSION

While previous studies revealed that elective c-sections contributed heavily to the rise in the number of cesarean births (Gregory et al. 2002; Meikle et al.

2005), our study further suggests that a significant share of CDMR can be explained by declining fertility. Moreover, our finding is consistent with the prior literature that decreasing parity (i.e., most women have less than two pregnancies) contributes to the decision of delivery modes (Amu, Rajendran, and Bolaji 1998; Paterson-Brown 1998; Aelvoet et al. 2008). As fertility declines, a larger fraction of births would be first births and a smaller fraction would be of a higher order (Department of Household Registration 2009). As the first, and possibly the only, child is highly cherished and valued in a family, this trend may explain the relationship between declining fertility and increased use of CDMR. However, we are unable, due to data limitations, to identify that those women with lower fertility were in fact the same women who were requesting c-sections. A further analysis of women's complete fertility history and delivery mode choice would be needed to verify the explanation.

There are several other explanations for the relationship between declining fertility and increased use of CDMR. First, as women age, complications in labor are more common, as is the use of artificial reproductive technologies. As an increasing number of women choose to delay their first delivery in Taiwan, the relative benefits of CDMR may outweigh the risks. Second, cultural beliefs and practices influence the perception and desire about labor and delivery mode. Several studies have reported that the desire to have a child born on an auspicious date and time may be one major reason for CDMR in Taiwan (Lo 2003; Hsu et al. 2007; Hsu, Liao, and Hwang 2008). If the fertility rate continues to decline, it is plausible that parents would be more inclined to request c-sections at an auspicious time to bestow their baby a bright future and to bring harmony to both the family and the baby. Third, many Chinese women prefer c-sections over vaginal deliveries because they believe that c-sections would improve the health and intelligence of their newborn (Lee, Holroyd, and Ng 2001). As the fertility rate drops, women have fewer children and a higher expectation on the health and well-being of their children. Therefore, CDMR may provide women an assurance, whether medically justifiable or perceived, for better infant health outcomes.

Several additional caveats of the study are worth noting. First, the study lacked data on parity and birth weight, which may affect the choice of delivery type (Parrish et al. 1994). Second, we were unable to explicitly account for physician and institutional factors, such as physician's demand for leisure, tax benefits, and hospital/clinic staffing constraints (Burns, Geller, and Wholey 1995; Brown 1996; Dickert-Conlin and Chandra 1999), which may confound the findings, although robustness check with fixed effects showed that these are unlikely to matter. Third, information inaccuracies are likely in an administrative dataset. Ob/gyns, clinics, and hospitals may up-code clinical complications to help patients seek full reimbursement for c-sections. To the extent up-coding exists, the number of CDMR would be under-reported and our estimation of the effect of fertility decline on CDMR would be conservative. To prevent up-coding, the BNHI has exercised close oversight and imposed a severe financial penalty on transgressions. We suspected that the oversight of the BNHI may partly explain the redundant reporting of medical complications for a small number of CDMR cases (e.g., CDMR with obstetric complications). Whether those cases were included in the analysis did not affect the findings of the study.

We propose that more future research (e.g., longitudinal studies and well-designed clinical as well as questionnaire surveys) will be needed to understand the use of CDMR versus vaginal delivery and to inform policies. Against the background of rapidly declining fertility, women may play a more important role in determining the mode of delivery than ever before. Financial incentives designed specifically for physicians may not have the desired effect (Lo 2008). Our study also illustrates that health policies aimed at altering physician and patient behaviors should consider the social context. Recent statistics showed that CDMR rates have maintained an upward trend (Appendix SA2). Moreover, two studies (Lin, Hu, and Lin 2008; Liu, Chen, and Lin 2008) based on NHIRD showed that c-sections (including CDMR) lead to higher postpartum health care use and poorer health outcomes. Such research would be useful in initiating evidence-based policies to reduce CDMR rates and for educating physicians and patients that CDMR could be costly and harmful for mothers and their babies. Our findings offer a precautionary note to countries experiencing a fertility decline. Policies to contain the rise of c-sections should understand the role of women's preferences, especially regarding CDMR.

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Supporting Information

Additional supporting information may be found in the online version of this article:

Appendix SA1: Author Matrix.

Table SA2. Trends of Fertility and Delivery Modes in Taiwan, 1996 to 2007.

Table SA3. List of Obstetric Complications for C-sections.

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