

Sterilization and LARC Use during the Great Recession: Variation by Economic Conditions

Mieke Eeckhaut & Christine Percheski

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Short Abstract:

Birth rates in the United States declined during the Great Recession with a greater decrease in areas with the highest unemployment rates. Previous research has not identified the role of changes in contraceptive use or contraceptive method type in these declines. We use data from female respondents to the National Survey of Family Growth (ages 15-44) for the period of 2006-15 merged with data on unemployment rates at the state and county-level to investigate the associations between economic conditions and contraceptive method use. Specifically, we investigate whether higher unemployment is associated with increased reliance on female sterilization, male sterilization (of women's partners), or long-acting reversible contraceptives (LARCs), including intrauterine devices (IUDs), and implants. Additionally, we examine whether these associations vary by race/ethnicity and by educational attainment. Our research fills an important gap in the scholarly literature on the impacts of recessions on fertility and contributes to a richer understanding of racial/ethnic and socioeconomic disparities in women's sexual and reproductive health.

BACKGROUND

The “Great Recession”—which officially began in December 2007 and ended in June 2009—was associated with reduced fertility in the United States (Cherlin et al. 2013; Morgan et al. 2011). As economic conditions worsened, fertility dropped, but the extent of these changes varied considerably by geographic area.

Recent U.S. studies have confirmed that state-level economic conditions were associated with general fertility rates (Schneider 2015) and with unplanned and planned pregnancy (Percheski & Kimbro 2017) during the Great Recession, yet the mechanisms linking economic conditions with fertility remain insufficiently understood. Previous research has reported that the Great Recession did not impact the share of women who were sexually active or whether a sexually-active woman used contraception in the prior year (Percheski & Kimbro 2017). In addition, national estimates showed a decline—rather than an increase—in abortion rates for 2008-2009, as compared to the early 2000s (Pazol et al. 2012). Finally, while stress-induced miscarriage could have worked to decrease fertility levels, the magnitude of fertility declines appears to be much larger than would be expected from this mechanism only. All in all, this suggests that another ‘proximate determinant of fertility,’ *effectiveness* of contraceptive methods used, was the key mechanism linking economic conditions and fertility.

To our knowledge, there is no research on how economic conditions are associated with reliance on highly effective contraception, including female sterilization, male sterilization, or long-acting reversible contraceptives (LARCs). These contraceptive methods are associated with much lower rates of unintended pregnancy, compared to other popular methods such as hormonal pills and condoms, because their high efficacy is not dependent on user compliance (Grimes 2009).

Of these methods, female sterilization has long been the most commonly used in the United States (Chandra 1998). Previous research has shown that disadvantaged and racial/ethnic minority women are more likely to rely on female sterilization *and* they are more likely to express post-sterilization regret (Chandra 1998; Eeckhaut & Sweeney 2016). If worsening economic conditions led an increasing number of women to rely on tubal ligation, perhaps because they prioritized lowering their short-term risk of pregnancy over their future ability for childbearing, this could mean that 1) the fertility-reducing effect of the Great Recession could extend to the post-recession period, and 2) the Great Recession could lead to an increase in the already high level of post-sterilization regret among U.S. women (Eeckhaut et al. 2018). Because of their familiarity with the method, and their often constrained contraceptive choice set, we hypothesize that disadvantaged and minority women, in particular, may have increased their reliance on tubal ligation in response to worsening economic conditions.

Male sterilization (vasectomy) is similar to tubal ligation in terms of permanency and effectiveness, but it is much less commonly used in the contemporary United States, despite it being simpler, more economical, and it having lower rates of minor and major complications (Eeckhaut & Sweeney 2016). Interestingly, patterns of male and female sterilization by race/ethnicity and education differ considerably. Disadvantaged and minority women are more likely to rely on tubal ligation, whereas advantaged and white women are more likely to rely on vasectomy (Eeckhaut & Sweeney 2016).

Intrauterine devices (IUDs) and implants, often referred to as long-acting reversible contraceptives (LARCs), are equally effective as tubal ligation (Grimes 2009). LARCs were much less commonly used in the period immediately before the Great Recession, but use of these methods has increased considerably over the last decade, particularly among highly-educated women (Kavanaugh & Jerman 2018). Previous research has not examined whether take-up of this method varied by economic conditions.

RESEARCH QUESTION

Our research investigates changes in sterilization and use of long-acting reversible contraceptives (LARCs) as a possible mechanism linking poor economic conditions with lower fertility rates in the Great Recession. We also examine if poor economic conditions are associated differently with contraceptive use for economically disadvantaged women and racial and ethnic minority women.

Specifically, we investigate 1) how economic conditions (at the state and county) are associated with female sterilization; 2) how economic conditions (at the state and county) are associated with sterilization of male partners; 3) how economic conditions (at the state and county) are associated with the use of LARCs; 4) whether the associations between economic conditions and sterilization and LARC use vary by race/ethnicity; and 5) whether the associations between economic conditions and sterilization and LARC use vary by women's educational attainment.

METHODS AND DATA

To answer our research questions, we use a methodology similar to that used by Percheski and Kimbro (2017), which investigated the associations between economic conditions at the state-level and the likelihood of pregnancy. In this project, we merge individual-level survey data from the **National Survey of Family Growth** (2006-2015) with data on "local" employment conditions. We then model contraceptive method started (female sterilization; male sterilization; LARC; no long-acting method started, used another method; no long-acting method started, used no contraception) in the year prior to the survey interview with "local" (state or county) employment indicators, controlling for an extensive set of demographic covariates. We include state and county-level fixed effects to better isolate the effect of employment conditions and to account for the substantial variability in sterilization and LARC use by state. Additionally, we include indicators of state uninsurance rates and Medicaid coverage rates. We see insurance coverage as a potential mediating factor, given the high upfront expense of LARCs and that a high proportion of tubal ligations in the United States is paid for by Medicaid.

We restrict our sample to women ages 15 to 44 who were potentially at risk of pregnancy, that is women who had ever had sexual intercourse and were fecund as of 12 months prior to the survey interview. We excluded women who reported that they or their husband/cohabiting partner had had a surgical sterilization, or who reported relying on a LARC for fertility control at the start of our observation period (i.e., 13 months prior to the survey interview).

Our "local" employment indicators are employment-to-population ratios and unemployment rates at both the state and county level.

DESCRIPTIVE STATISTICS

Table 1 shows the distribution of method type for the population of women at risk of a pregnancy at the start of the observation period. Of women ages 14-44, on average 1.9 percent underwent sterilization each year during our study period, 1.1 percent had a coresident partner who underwent vasectomy, 3.3 percent initiated LARC use, 74.2 percent did not initiate a long-acting method but used at least one short-acting method of contraception, and 19.5 percent did not use any contraception.

The biggest change in contraceptive use over the time period is the rapid increase in the uptake of LARCs, from 0.7 percent of women ages 14-44 starting a LARC method in the 12-month period beginning in 2005, to 5.5 percent in 2014.

Table 2 shows the wide variation in annual unemployment rates by state and county for the years of 2005-2014. County-level unemployment rates varied from a low of 1.2% of the labor force unemployed to a high of 28.9% unemployed. State-level variation is less extreme but still substantial, with a range of 2.6% to 13.7%. The mean change in unemployment rate from 2005 to 2010 was 3.6 with a full quarter of counties changing by more than 5 percentage points. Thus, we have sufficient variation in economic conditions to estimate the impact of meaningful changes in economic conditions.

Table 1. Percent Distribution of Outcome Variable for the Total Population and By Start Year of Observation Period ($N = 14,763$)

	Female Sterilization	Male Sterilization	LARC	Other Method	No Method
All women	1.9	1.1	3.3	74.2	19.5
By year					
2005	1.3	0.8	0.7	77.8	19.4
2006	1.8	1.8	1.4	77.4	17.6
2007	0.9	2.1	2.2	77.2	17.7
2008	2.4	1.4	3.9	73.7	18.7
2009	2.6	1.3	2.4	76.5	17.3
2010	3.0	0.4	3.7	74.0	18.8
2011	2.2	0.6	3.3	74.3	19.7
2012	1.7	1.6	4.1	71.1	21.6
2013	2.0	0.7	3.0	71.8	22.5
2014	1.3	0.8	5.5	75.6	16.7

Source: National Survey of Family Growth

Table 2. Annual Unemployment Rates by State and County, 2005-2014

	County			State		
	Mean	Range		Mean	Range	
2005	5.6	2.1	20.9	4.9	2.9	7.5
2006	5.1	1.7	20.8	4.5	2.6	7.0
2007	5.1	1.5	20.4	4.4	2.6	7.0
2008	6.0	1.3	22.6	5.4	3.1	8.0
2009	9.3	2.1	27.4	8.5	4.1	13.7
2010	9.6	2.1	28.8	8.8	3.8	13.5
2011	9.0	1.4	28.9	8.2	3.5	13.0
2012	8.1	1.1	27.4	7.4	3.1	11.2
2013	7.6	1.2	27.4	6.8	2.9	9.6
2014	6.5	1.2	26.4	5.8	2.7	7.9

Source: Bureau of Labor Statistics

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