

Online Supplementary Material

McGovern PM, Dowd B, Gjerdingen D, et al. Mothers' health and work-related factors at 11 weeks postpartum. *Ann Fam Med*. 2007;5(6):519-527.

<http://www.annfammed.org/cgi/content/full/5/6/519/DC1>

**Supplemental Appendix 1. Analytic Model for Estimating Maternal Postpartum Health**

Our analysis is based on a structural form equation for maternal health (MH) at 11 weeks, equation (1) below. The maternal health equation is 1 of 4 structural form equations. The other 3 structural form equations are for the explanatory variables in the maternal health equation that are treated as endogenous variables in the analysis: breast feeding (BF), health services use (HSU), and employment status (ES), all measured at 11 weeks after childbirth, denoted by the subscript 2. The subscript 1 refers to 5 weeks after childbirth, and the subscript 0 refers to enrollment in the study or childbirth.

Two-stage least squares (2SLS) estimation of the maternal health equation requires at least 1 instrument for each of the endogenous explanatory variables: BF, HSU and ES. The requirement for a good instrument is that it must be correlated with the endogenous explanatory variable, but uncorrelated with the error term in the maternal health equation ( $u_{MH}$ ). Estimation proceeds by estimating the *reduced form* equations for BF, HSU and ES. The reduced form equations have all the predetermined variables in all equations as the explanatory variables. Then the predicted values of BF, HSU and ES are used as instruments in the structural form maternal health equation. The estimator is  $\hat{\beta}_{IV} = [X'Z]^{-1}[X'Y]$ , where X is a vector of explanatory variables in the structural form maternal health equation, and Z is the same vector with predicted values of BF, HSU, and ES substituted for the actual values of those variables.

The identifying variable for breastfeeding was a single-item measure collected at 5 weeks' postpartum that asked whether the mother had family or friends that breastfed their babies (BFFF). The identifying variable for health services used since childbirth was a measure collected at 5 weeks postpartum that asked the mother about her employer's status ([EMPRS] ie, private sector, government, nonprofit, self-employment) as a proxy for scope of health benefit coverage. The identifying variable for employment status at 11 weeks' postpartum was a measure collected at 5 weeks' postpartum that asked the mother the total number of days of job-protected leave she had available through leave policy (LP<sub>1</sub>) that applied to the year of this childbirth. All of these instruments were highly significant in their respective structural form equations (2, 3, and 4).

**Structural form equations**

1.  $MH_2 = f(MC_0, PC_0, PC_1, SS_2, P_0, PCC_0, PMD_0, IG_0, CB_1, CB_2, BF_2, HSU_2, ES_2, JS_1, JSat_1, SSppt_1, CSppt_1, JStrain_2, OC_2, u_{MH})$
2.  $BF_2 = f(MC_0, PC_0, PC_1, SS_2, P_0, PCC_0, PMD_0, IG_0, CB_1, CB_2, JS_1, JSat_1, SSppt_1, CSppt_1, JStrain_2, OC_2, BFFF, u_{BF})$
3.  $HSU_2 = f(MC_0, PC_0, PC_1, SS_2, P_0, PCC_0, PMD_0, IG_0, CB_1, CB_2, JS_1, JSat_1, SSppt_1, CSppt_1, JStrain_2, OC_2, EMPRS, u_{HSU})$
4.  $ES_2 = f(MC_0, PC_0, PC_1, SS_2, P_0, PCC_0, PMD_0, IG_0, CB_1, CB_2, JS_1, JSat_1, SSppt_1, CSppt_1, JStrain_2, OC_2, LP_1, u_{ES})$

where:

## Online Supplementary Data

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MH ( $T_2$ ) = Maternal health at 11 weeks' postpartum

MC ( $T_0$ ) = Maternal characteristics (age, race, education, marital status, poverty status in the year before childbirth)

PC ( $T_0, T_1$ ) = Perceived control

SS ( $T_2$ ) = Available social support

P ( $T_0$ ) = Primiparous

PCC ( $T_0$ ) = Preconception general health

PMD ( $T_0$ ) = Prenatal mood disturbances

IG ( $T_0$ ) = Infant girl

CB ( $T_1, T_2$ ) = Colicky baby

***BF ( $T_2$ ) = Breastfeeding***

***HSU ( $T_2$ ) = Health services used***

***ES ( $T_2$ ) = Employment status***

JS ( $T_1$ ) = Job stress

JSat ( $T_1$ ) = Job satisfaction

SSppt ( $T_1$ ) = Supervisor support

CSppt ( $T_1$ ) = Coworker support

JStrain ( $T_2$ ) = Job strain (psychological demands, decision latitude)

OC ( $T_2$ ) = Occupational class

$u_{MH}$  = unobserved error