Is Child Mortality Affected by Wantedness in Cambodia?

Savet Hong and Kanwar Supreet Jolly
saveth@demog.berkeley.edu

March 1, 2010

Abstract

Previous works have demonstrated that social and cultural practices play an important role in fertility and mortality levels, particularly in areas where there is a strong sex preference. This paper explores whether being wanted affects childhood mortality in the context of Cambodia using the 2005 Cambodia Demographic and Health Survey. A logistic regression is applied and the result is analyzed in the context of behavioral practices and interventions.

1 Introduction

In the literature, discussion on infant and child mortality has ranged from spacing and breastfeeding (Lulie Davanzo and Gausia 2004) among other proximate determinants of fertility, to imbalanced sex ratio (Arnold et al. 1998, Gupta 1987). The underlying premise of the latter may influence the practice of the former; that is, the undercurrent of sex selection is driven largely by the desirability of a particular sex. The desire of parents to have children of one sex instead of the other can translate into the conscious or unconscious preferential treatment of children, which in some instances may lead to dire consequences for children of the undesired sex.

If the preference for sons can lead to an excess of female child mortality, or preference for females to an excess of male child mortality, then this should provide should provide some indication of the risk of mortality for a child if the child is unwanted regardless of sex. Frenzen and Hogan (1982) among others (Bongaarts 1990, Luther and Thapa 1999, Scrimshaw 1978) have explored the relationship between parental desire for pregnancy and infant mortality, demonstrating that it is not an independent relationship.

This paper explores whether such results can be generalized or explained in the same manner for a country like Cambodia. We hypothesize that the risk of child mortality for an unwanted child is greater than the risk for a wanted child. And, for a child who is wanted later than at the time of conception, the relative risk of mortality would be greater than a child who is wanted at the time of conception but less than the risk for a child who is not wanted.

2 Data

This paper analyzes data from the 2005 Cambodian Demographic Health Survey (CDHS), a nationally representative sample survey designed to collect information on population and health issues–particularly women's reproductive health. This data was collected as part of a collaborative project involving international organizations and domestic agencies.

2.1 Sampling Design

For the 2005 CDHS, planning for the survey started in February-March of that year with the construction of the sampling list, using a multistage, stratied sampling design similar to what was used in the 2000 survey, Data collection occurred from September 2005 to March 2006. The survey included three forms of questionnaires: a Household Questionnaire, a Womens Questionnaire, and a Mens Questionaire, which were then administered to men and women aged 15-49.

The 2005 CDHS implemented a two-stage sampling design. This survey classified 24 provinces into 19 domains14 domains corresponded directly to individual provinces, and ve domains were groups of provinces. These domains formed 38 sampling strata with further stratification into urban and rural.

The sampling frame consisted of 13,505 villages and 557 primary sampling units (PSUs). The PSUs were clusters of villages or enumerated areas (EAs)large villages divided into smaller areasand each PSUs probability of being selected was proportional to its size.

From 557 clusters, households were selected. From each cluster, 24 households from urban areas and 28 households from rural areas were selected. Because of the oversampling or undersampling of certain areas, sampling weights were used to have representative estimates.

Furthermore, eligible participants, aged 15-49, were usual residents or visitors in the house the night prior to the survey interview. This survey had 14,243 completed household questionnaires, a response rate of 98 percent, and interviewed17,256 women.

3 Method

We applied a logisitic regression to analyze the risk of unwantedness on child mortality in Cambodia: whether or not the children who were alive at birth died before their fifth birthday was associated with being wanted or not. Of the 2890 children in the children records, there were 595 deaths. We understand that neonatal mortality–deaths within the first month of life–accounts for approximately 61 percent of these death, however, we do not separate our data to analyze it by neonatal mortality, and 1 to for the following reasons:

1. The purpose of this study is to develop a general understanding of child mortality conditions in Cambodia; and

2. We have concerns about sample size begin too small once we stratify by our independent variables.

The original measurement for the dependent variable came as either the child was alive at the time of interview or not–from which variables such as child's age at death were calculated–and there are only two possible responses: "no" or "yes" which are coded as o or 1, respectively. This information is recoded as a new variable "Dead" with 1 as yes and 0 as no.

3.1 Exposure of Interest

The exposure of interest is *wantedness*. The questionnaire asked the mother at the time she was pregnant if she wanted the pregnancy then, later or did not want any more children. This information is recoded as indicator variables.

3.2 Covariates

In parts of Southeast Asia, such as Vietnam, where there are strong Chinese influences, then there are cultural and financial incentives for a woman to bear sons for boys. Though China once had a foothold in Southeast Asia, its influence in Cambodia is not as extensive as it was in Vietnam. Still, there is still a degree of bias towards male children. Therefore, preferences for sons could translate into differential treatments of infants or children in a way that results in higher female child mortality. Consequently, sex will be an important variable that must controlled for.

In the literature on fertility and infant/child mortality, there is an emphasis on the association between child survival and breast-feeding, birth weight, birth order, and age of the mother at birth. In the data, breast-feeding is a continuous variable on the length of time the mother spent, in months, breast-feeding the child. Birth order and the age of the mother at birth are also continuous variables–the variable for age of the mother at birth had to be generated from the current age of the mother and the year the child was born.

Birth weight, however, is not a continuous variable. Because these children died prior to the interview, there are no biological measurements for them. The closest indication of the health status of the child is the report by the mother of the size of the child at birth. Thus, this variable is categorical with the following possibilities: very low, low, normal, and large.

Other variables discussed as important factors in the literature are related to social and economic status, such as wealth, education and whether the family lives in an urban or rural area. These factors are important to consider for the following reasons:

- They are an indication of the resources that families have or are able to obtain. The lack of resources, or lack of access to resources, can have a negative health outcome especially for infants and children.
- Increased education can lead to delayed marriage and first birth. Higher education is associated with higher wealth, and also with better-informed parents.
- Living in urban areas is associated with wealth, and access to resources.

To avoid using every variable, regarding possessions, income, housing, and so forth to determine the wealth status of the family, the variable used to obtain information on social economic status is the wealth index created by DHS. This index is a categorical variable, with the possible classifications of poorest, poorer, middle, richer, richest.

The data come with two educational variables; one as categorical with four levels of education (none, primary, secondary, and higher education), and the other is a continuous variable of the highest year of education completed which ranged from none to 17 years of education. The functional form of the continuous education variable was tested, and used to created indicator variables–no education, primary, and secondary and beyond (see appendix for the functional form test). The urban or rural variable is used as an indicator variable that has been coded as 1 for urban and 0 for rural.

3.3 Interaction

From all of the exposures in the model, we are concerned about the effect modification that our primary exposure may have with the covariates. Therefore, interaction terms were created for wanting the child later and not wanting the child with:

- female–the sex of the child may have a different affect given the presence of one of the levels of wantedness of the pregnancy/child;
- both the breast-feeding and breast-feeding squared terms–wanting the pregnancy can affect willingness to breeast-feed once a child is born, so that the duration and frequency of breastfeeding may differ depending on the level of wantedness;
- birth order and birth order squared–children of lower birth order may be more desirable than children of higher birth order;
- age of the mother at birth–the mother's desire to be pregnant can be dependent upon her age;
- education–the level of education can influence how much a mother wants child.

These are the only interactions that were considered in the model. It is possible to have other combinations of interaction terms; however, we did not consider other possible combinations to be significant nor could we find research that has proposed that they are important.

4 Modeling

During the initial phase of model building, we built models more relevant from a clinical perspective with some controls for social factors. This included variables such as antenatal visits, delivery by caesarian section, birth weight, having immunization, having bed nets, smoking, and known proximate determinants of fertility–(including breast-feeding, birth order, birth spacing, age of the mother at birth) as well as social economic status (wealth index and living in an urban area).

Later, we attempted to approach our modeling of child mortality from three angles. The first aspect considered the biological factors that may affect the risk of mortality, the second aspect considered the health and behavior of the mother, and the third aspect accounted for the peripheral factors such as social economic status. However, we could not apply this approach; as we discovered, there were no measurements for the children who died. The closest biological risk factor in the data for these children was the self report by the mother on their perception of the weight of babies at birth. Moreover, we realized that we could not include every possible risk factors in the model.

Instead, our third approach was to consider the literature on the topic, learn what previous researchers identified as important risk factors for infant and child mortality and reconsider using a simpler model. Consequently, we derived the models for Cambodia that is presented here.

4.1 Final Models

In the first two phases of building the model, we learned from the correlation testthere are a few variables that have strong correlation so that STATA automatically remove one of the variables. Thus, we learned to set these as part of the baseline. Therefore, in model 1 the baseline reference group has the following characteristics: wanted then (at the time of pregnancy), male, no breast-feeding,birth weight low, and the family wealth index is poor. We did not set a baseline for the continuous variable birth order nor mother's age at birth. However, we should have considered this and set a baseline for a more meaningful interpretation.

$$\begin{aligned}\hat{y} &= \beta_0 + \beta_1 want\_later + \beta_2 want\_no + \beta_3 female + \beta_4 breastfed + \beta_5 breastfed\_sq \\ &+ \beta_6 bord + \beta_7 bord\_sq + \beta_8 age\_B + \beta_9 b\_weight\_vlow + \beta_{10} b\_weight\_norm \\ &+ \beta_{11} b\_weight\_large + \beta_{12} wealth\_vp + \beta_{13} wealth\_m + \beta_{14} wealth\_r + \beta_{15} wealth\_vr \\ &+ \beta_{16} wantl\_breast + \beta_{17} wantno\_breast + \beta_{18} wantl\_breast\_sq + \beta_{19} wantno\_breast\_sq \\ &+ \beta_{20} wantl\_age + \beta_{21} wantno\_age + \beta_{22} wantl\_female + \beta_{23} wantno\_female \\ &+ \beta_{24} wantl\_bord + \beta_{25} wantno\_bord + \beta_{26} wantl\_bord\_sq + \beta_{27} wantno\_bord\_sq\end{aligned} \tag{1}$$

Model 1 is the "full model" for the logistic regression on child mortality, whereby the interaction terms, appears to be insignificant. A WALD test is used to determine under the null hypothesis if all the βs for the interaction terms are equal to zero, using a cut off point at $p = 0.20$. Under the F distribution with twelve variables and 508 degrees of freedom, the p-value is 0.2441. Therefore, there is no evidence to reject the null hypothesis and the interaction terms can be removed from the model.

$$\begin{aligned}\hat{y} &= \beta_0 + \beta_1 want\_later + \beta_2 want\_no + \beta_3 female + \beta_4 breastfed + \beta_5 breastfed\_sq \\ &+ \beta_6 bord + \beta_7 bord\_sq + \beta_8 age\_B + \beta_9 b\_weight\_vlow + \beta_{10} b\_weight\_norm) \\ &+ \beta_{11} b\_weight\_large + \beta_{12} wealth\_vp + \beta_{13} wealth\_m + \beta_{14} wealth\_r + \beta_{15} wealth\_vr\end{aligned} \tag{2}$$

The formula for the first restricted model is given in equation 2. This does not contain any of the interaction terms. Because birth order squared was not significant it was also removed from the model. However, the education is now introduced to the model, this result in model 3. Now the baseline also includes no education.

$$\begin{aligned}\hat{y} &= \beta_0 + \beta_1 want\_later + \beta_2 want\_no + \beta_3 female + \beta_4 breastfed + \beta_5 breastfed\_sq \\ &+ \beta_6 bord + \beta_7 age\_B + \beta_8 b\_weight\_vlow + \beta_9 b\_weight\_norm) + \beta_{10} b\_weight\_large \\ &+ \beta_{11} wealth\_vp + \beta_{12} wealth\_m + \beta_{13} wealth\_r + \beta_{14} wealth\_vr + \beta_{15} edu\_prim \\ &+ \beta_{16} edu\_sec\_high\end{aligned} \tag{3}$$

From the logistic regression, neither the education nor the birth weight variables were significant. When using the WALD test for these variables, the null hypothesis was not rejected. Therefore they were removed from the model, leaving 4 as the final model.

$$
\begin{aligned}
\hat{y} \;=\; & \beta_0 + \beta_1 want\_later + \beta_2 want\_no + \beta_3 female + \beta_4 breastfed \\
& + \beta_5 breastfed\_sq + \beta_6 bord + \beta_7 bord\_sq + \beta_8 age\_B + \beta_9 wealth\_vp \\
& + \beta_{10} wealth\_m + \beta_{11} wealth\_r + \beta_{12} wealth\_vr
\end{aligned} \tag{4}
$$

Although the urban variable was discussed under the Exposure section of this paper, it is not in the models above. During phases (1) and (2) of model building, the variable was not significant and even when added to the “final” model (4) above, it still was not a significant factor in explaining childhood mortality.

4.2 Output

For the output of all the models above please see Appendix. Figure 1 is the result of the logistic regression using GLM. Figure 2 is the relative risk using the poisson distribution of GLM.

Figure 1: GLM: Logistic regression for Model 4

```
Survey: Generalized linear models

Number of strata   =        38                Number of obs      =       7957
Number of PSUs     =       557                Population size    = 7464.5998
                                              Design df          =        519

------------------------------------------------------------------------------
             |             Linearized
        Dead |     exp(b)   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  want_later |   .6105692   .1723214    -1.75   0.081     .3507019    1.062996
     want_no |   .6939223   .1275486    -1.99   0.047     .4836011    .9957135
      female |   .7798143   .1077047    -1.80   0.072     .5945003    1.022893
   breastfed |   .6626981   .0150576   -18.11   0.000     .6337674    .6929496
breastfed_sq |   1.006018   .0003927    15.37   0.000     1.005247     1.00679
        bord |   .8110032   .0368897    -4.61   0.000     .7416754    .8868114
       age_B |   1.170166   .0169609    10.84   0.000     1.137315    1.203965
   wealth_vp |   1.104267   .1791558     0.61   0.541     .8028842    1.518782
    wealth_m |   .9433644   .1817092    -0.30   0.762     .6461589    1.377272
    wealth_r |     .54986   .1395259    -2.36   0.019     .3340077    .9052067
   wealth_vr |    .061981   .0245718    -7.01   0.000     .0284458    .1350513
------------------------------------------------------------------------------
```

Figure 2: GLM: Poissson regression for Model 4

Survey: Generalized linear models

Number of strata =	38	Number of obs =	7957
Number of PSUs =	557	Population size =	7464.5998
		Design df =	519

Dead	exp(b)	Linearized Std. Err.	t	P>|t|	[95% Conf.	Interval]
want_later	.6939247	.1395135	-1.82	0.070	.4674965	1.030022
want_no	.8228868	.0967374	-1.66	0.098	.6531909	1.036669
female	.8389134	.080485	-1.83	0.068	.6948041	1.012913
breastfed	.7296942	.0106801	-21.53	0.000	.7090115	.7509803
breastfed_sq	1.004582	.0003032	15.15	0.000	1.003987	1.005178
bord	.9030791	.0215363	-4.27	0.000	.8617458	.9463949
age_B	1.092685	.0072137	13.43	0.000	1.078605	1.106949
wealth_vp	1.096989	.1193575	0.85	0.395	.885872	1.358418
wealth_m	1.04959	.1300404	0.39	0.696	.822834	1.338835
wealth_r	.6779508	.1225896	-2.15	0.032	.4752488	.9671089
wealth_vr	.1373716	.0433008	-6.30	0.000	.0739543	.2551706

5 Result

Contrary to our hypothesis, the results from Figure 1 show the odds of death in childhood for a child wanted later or not wanted is 0.61 and 0.69, respectively, of the odds for a child that is wanted, adjusting for other factors. That is, unwanted children are actually more likely to survive the first five years of childhood than wanted children One possibility for why children from undesired pregnancy have a lower odds of mortality is that there is a social network in place that is helping to keep and protect the child. For instance, instead of the parent, older siblings might be responsible for the care of younger siblings. Family support could be strongly in place to share the responsibility of rearing. Another possibility is that parents can offer their unwanted child to close friends to raise. Compared to the relative risk shown in Figure 2, being an unwanted child remains as a protective effect but is no longer significant. Because the odds ratio overestimate the risk compared to the relative risk, then this puzzling result implies that wantedness is not a public health issue. Instead public health professionals should focus on other aspect of preventable factors.

Compared to a male child, it is protective to be female with an odds of 0.78 and a relative risk of 0.84, adjusting for all factors. However, this protective effect is not significant: the p-values are 0.072 and 0.068 for the odds and relative risk, respectively.

The role of breastfeeding is a significant factor in the risk of mortality. The odds of mortality are 0.67 and the relative risk is 0.73 for an increase in one month of breastfeeding compared to no breastfeeding and adjusting for other factors. From a public health perspective, this is an risk factor that can be improved upon by encouraging mothers to breastfeed their children as a means to lower the risk of mortality.

Birth order is a significant protective effect. The odds of mortality are 0.81 and relative risk is 0.91 per increase in birth order. That is the odds of mortality for the fourth child are 0.53 compared to the first child, if everything else is constant. A possible explanation for this inverse relationship is that older sibling help care for younger siblings.

Another significant factor is age of the mother at birth. For a difference of one year, the odds ratio are 1.17 and the relative risk is 1.09, adjusting for everything else. This is a small difference, yet for a difference in ten years, the odds increase to 4.8, a dramatic increase in the risk of death for the child.

Relative to being poor, the effect of being very poor or of medium wealth is marginal with no significance. However, being rich or very rich is significant. For children in rich families, the odds of mortality is .54 and the relative risk is .68 compared to children from poor families. The effect is even stronger for children from very rich families, where the odds is .06 and risk is .14 relative to children from poor family.

6 Discussion

Here we would like to explain the possibilities of why some of the variables are excluded or removed from the final model.

- Biological–As mentioned above, there are no biological data collected on the dead children in the dataset. If information on this were available, controlling for it would reveal more accurate associations between the exposure of interest and the outcome. Not controlling for this may distort the association and/or the magnitude of the effect.

- Urban–Unlike India, this is not significant. Relative to India, Cambodia is at the early stages of development. After the genocide in the 1970s followed by the Vietnamese occupation, the development of the country was delayed. Cambodia began to rebuild itself in the 1990s when it regained autonomy.

- Education–As a consequence of the genocide there are few people in Cambodia who have more than an 8^{th} grade education. As a result, there is relatively no statistical difference between the educational levels of people regarding child mortality in this country.

- Birthweight–Even though there has been much literature written on the important risk factor of low birth weight, this factor is nonetheless not significant in the model. It is possible that there is no association because this factor is correlated with a variable for which we have yet to adjust for, or that other risk factors are more prominent in determining the association with child mortality.

- Interactions–There is no additional risk associated with wantedness and another covariates. It is still possible that there are other interactions that exist but have yet to be adjusted for.

7 Conclusion

Wantedness can be an important aspect in how parents treat their children, although, such treatments may not necessarily result in death. As the data for Cambodia suggest, wantedness is not a significant risk factor for child mortality, nor is gender, education and birth weight. Instead, breastfeeding, birth order, mother's age at birth and SES are the dominant indicators for child mortality. This analysis and the strength of association for all these factors may change if we have information on biological factors that may be causing most of the early death.

Considering that the hazard of mortality differs for prenatal or neonatal children, and children from 1-5 years of age, the association and magnitude of the affect may differ for the different stages of life. Therefore, further analysis is needed to evaluate the relationship between these risk factors for infants and children of the different age groups, to determine if the important risk factors hold for all young age ranges. If they differ, then to what extent? Moreover, it is possible that wantedness may affect infants moreso than toddlers. Yet, hopefully, it is not significant even after evaluation for the different age ranges.

References

Arnold, F., M. K. Choe, and T. K. Roy (1998). Son preference, the family-building process and child mortality in india. *Population Studies 52*(3), 301–315.

Bongaarts, J. (1990). The measurement of wanted fertility. *Population and Development Review 16*(3), 487–506.

Frenzen, P. D. and D. P. Hogan (1982). The impact of class, education, and health care on infant mortality in a developing society: The case of rural thailand. *Demography 19*(3), 391–408.

Gupta, M. D. (1987). Selective discrimination against female children in rural punjab, india. *Population and Development Review 13*(1), 77–100.

Lulie Davanzo, Abdur Razzaque, M. R. L. H. K. A. M. A. K. G. M. and K. Gausia (2004). The effect of birth spacing on infant and child mortality, pregnancy outcomes, and maternal morbidity and mortality in matlab, bangladesh. working paper.

Luther, N. Y. and S. Thapa (1999). Infant and child mortality in nepal.

National Institute of Public Health, N. I. o. S. and O. Macro (2006, December). *Cambodia Demographic and Health Survey 2005*. #2, Kim II Sung Blvd, Phnom Penh, Cambodia: National Institute of Public Health, National Institute of Statistics and ORC Macro.

Scrimshaw, S. C. M. (1978). Infant mortality and behavior in the regulation of family size. *Population and Development Review 4*(3), 383–403.

8 Appendix

The following figures are from the functional form test for the continuous variables.

8.1 Functional form

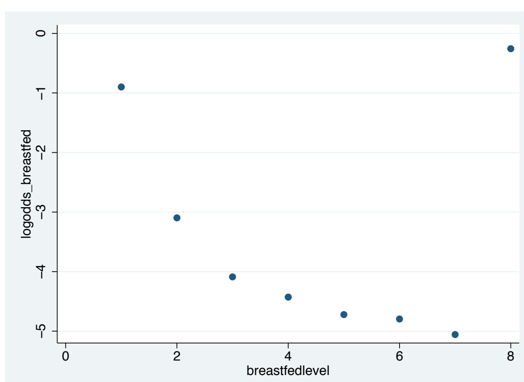

Figure 3: Logodds of breastfeeding by category

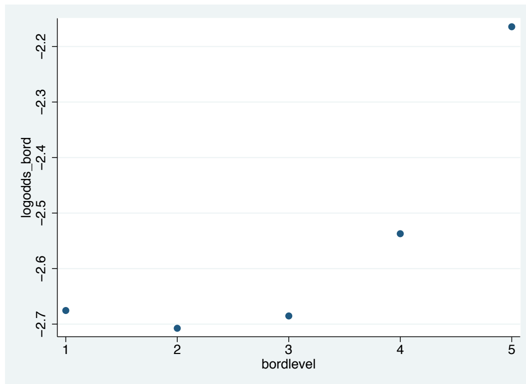

Figure 4: Logodds of birh order by category

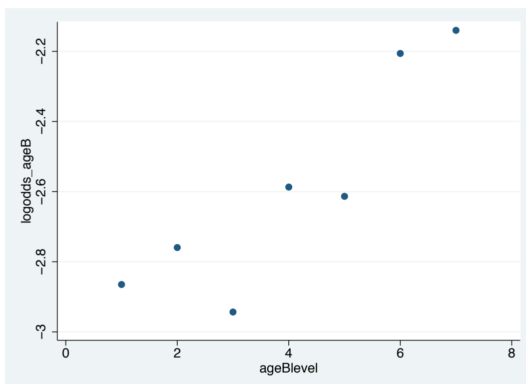

Figure 5: Logodds of mother's age by category

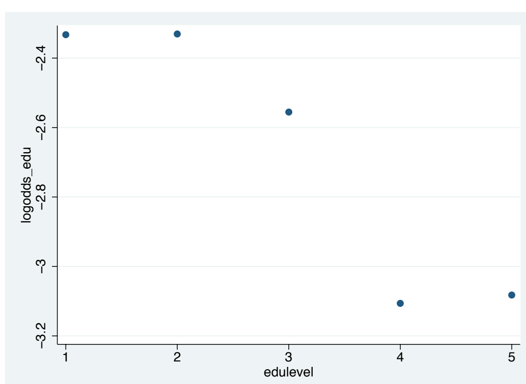

Figure 6: Logodds of eudcation by category

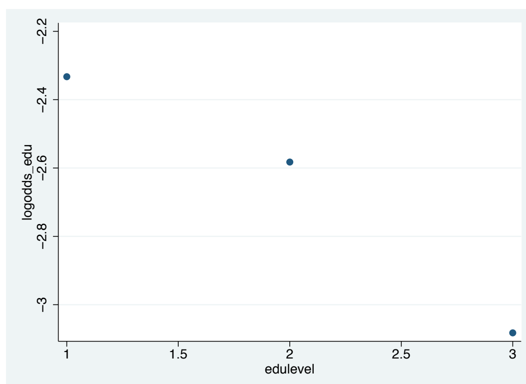

Figure 7: Logodds of eudcation by three category

8.2 Model Output

Survey: Logistic regression

Number of strata = 38		Number of obs	=	7957
Number of PSUs = 557		Population size	=	7464.5998
		Design df	=	519
		F(27, 493)	=	16.52
		Prob > F	=	0.0000

Dead	Coef.	Linearized Std. Err.	t	P>|t|	[95% Conf.	Interval]
want_later	-.4071321	1.536772	-0.26	0.791	-3.42619	2.611926
want_no	-1.065037	1.175139	-0.91	0.365	-3.373651	1.243578
female	-.1952762	.1631772	-1.20	0.232	-.5158452	.1252929
breastfed	-.397931	.0248562	-16.01	0.000	-.4467622	-.3490998
breastfed_sq	.0057008	.0004352	13.10	0.000	.0048458	.0065558
bord	-.1939318	.1433691	-1.35	0.177	-.4755869	.0877234
bord_sq	-.0055036	.0131665	-0.42	0.676	-.0313698	.0203625
age_B	.15443	.0166573	9.27	0.000	.121706	.187154
b_weight_v~w	.5370688	.3169805	1.69	0.091	-.0856539	1.159791
b_weight_n~m	.0977921	.2212392	0.44	0.659	-.3368424	.5324266
b_weight_l~e	.1530668	.2183214	0.70	0.484	-.2758355	.581969
wealth_vp	.1202816	.1650207	0.73	0.466	-.2039089	.4444722
wealth_m	-.0462459	.2022978	-0.23	0.819	-.4436691	.3511773
wealth_r	-.6022859	.2607166	-2.31	0.021	-1.114475	-.0900963
wealth_vr	-2.756309	.4018466	-6.86	0.000	-3.545755	-1.966864
wantl_breast	.1095907	.5614944	0.20	0.845	-.9934905	1.212672
wantno_bre~t	-.0185717	.0552463	-0.34	0.737	-.1271056	.0899621
wantl_brst~q	-.0613693	.0679071	-0.90	0.367	-.1947759	.0720373
wantn_brst~q	.0005735	.0009319	0.62	0.539	-.0012573	.0024042
wantl_age	.0710803	.0949728	0.75	0.455	-.1154982	.2576587
wantno_age	.0100449	.0395654	0.25	0.800	-.0676832	.087773
wantl_female	-.9625629	.8089417	-1.19	0.235	-2.551765	.6266397
wantno_fem~e	-.0257611	.3393464	-0.08	0.940	-.6924225	.6409002
wantl_bord	-.475389	.7591649	-0.63	0.531	-1.966803	1.016025
wantno_bord	.0700884	.3435579	0.20	0.838	-.6048467	.7450235
wantl_bordsq	.0412576	.0672965	0.61	0.540	-.0909495	.1734646
wantno_bor~q	.004017	.0267869	0.15	0.881	-.048607	.056641
_cons	-3.272879	.369948	-8.85	0.000	-3.999658	-2.546099

```
Survey: Logistic regression

Number of strata   =        38                  Number of obs      =      7957
Number of PSUs     =       557                  Population size    = 7464.5998
                                                Design df          =       519
                                                F(  15,    505)    =     24.99
                                                Prob > F           =    0.0000
```

Dead	Coef.	Linearized Std. Err.	t	P>|t|	[95% Conf.	Interval]
want_later	-.4889234	.2828283	-1.73	0.084	-1.044552	.0667055
want_no	-.370304	.1861618	-1.99	0.047	-.7360273	-.0045807
female	-.2463609	.1383026	-1.78	0.075	-.5180626	.0253407
breastfed	-.4122127	.0229956	-17.93	0.000	-.4573887	-.3670368
breastfed_sq	.0060005	.0003931	15.27	0.000	.0052283	.0067727
bord	-.2700776	.1177566	-2.29	0.022	-.5014159	-.0387394
bord_sq	.0057986	.0096519	0.60	0.548	-.0131629	.0247602
age_B	.1591556	.0151837	10.48	0.000	.1293265	.1889848
b_weight_v~w	.5600914	.3076733	1.82	0.069	-.0443468	1.16453
b_weight_n~m	.0952712	.222858	0.43	0.669	-.3425434	.5330859
b_weight_l~e	.1529686	.2168795	0.71	0.481	-.273101	.5790383
wealth_vp	.120667	.1609349	0.75	0.454	-.1954969	.436831
wealth_m	-.0298459	.1922674	-0.16	0.877	-.407564	.3478721
wealth_r	-.5974528	.2579146	-2.32	0.021	-1.104138	-.0907679
wealth_vr	-2.774738	.4006463	-6.93	0.000	-3.561826	-1.987651
_cons	-3.243295	.3371836	-9.62	0.000	-3.905707	-2.580882

Survey: Logistic regression

```
Number of strata   =        38                  Number of obs      =      7957
Number of PSUs     =       557                  Population size    = 7464.5998
                                                Design df          =       519
                                                F(  16,    504)    =     22.47
                                                Prob > F           =    0.0000
```

Dead	Coef.	Linearized Std. Err.	t	P>|t|	[95% Conf.	Interval]
want_later	-.5073318	.2838758	-1.79	0.074	-1.065019	.0503552
want_no	-.3764311	.1830454	-2.06	0.040	-.7360321	-.0168302
female	-.2529717	.1383531	-1.83	0.068	-.5247726	.0188293
breastfed	-.4125473	.0229655	-17.96	0.000	-.4576641	-.3674304
breastfed_sq	.006005	.0003943	15.23	0.000	.0052303	.0067797
bord	-.213552	.0454481	-4.70	0.000	-.3028368	-.1242671
age_B	.157489	.0146126	10.78	0.000	.1287818	.1861962
b_weight_v~w	.5784271	.3087491	1.87	0.062	-.0281246	1.184979
b_weight_n~m	.0904203	.2243778	0.40	0.687	-.35038	.5312206
b_weight_l~e	.1516899	.2170861	0.70	0.485	-.2747856	.5781654
wealth_vp	.1210564	.1603699	0.75	0.451	-.1939975	.4361104
wealth_m	-.0292891	.1924329	-0.15	0.879	-.4073323	.3487541
wealth_r	-.5847276	.2577348	-2.27	0.024	-1.091059	-.0783959
wealth_vr	-2.719544	.4016808	-6.77	0.000	-3.508665	-1.930424
edu_prim	.2072473	.2067098	1.00	0.317	-.1988434	.6133379
edu_sec_high	.1914164	.1913587	1.00	0.318	-.1845164	.5673492
_cons	-3.380927	.3464325	-9.76	0.000	-4.06151	-2.700345

Survey: Logistic regression

Number of strata = 38	Number of obs = 7957
Number of PSUs = 557	Population size = 7464.5998
	Design df = 519
	F(11, 509) = 33.10
	Prob > F = 0.0000

Dead	Coef.	Linearized Std. Err.	t	P>|t|	[95% Conf.	Interval]
want_later	-.4933637	.2822306	-1.75	0.081	-1.047819	.0610912
want_no	-.3653953	.1838082	-1.99	0.047	-.7264947	-.0042958
female	-.2486994	.1381157	-1.80	0.072	-.5200341	.0226352
breastfed	-.4114357	.0227216	-18.11	0.000	-.4560733	-.3667981
breastfed_sq	.0060003	.0003903	15.37	0.000	.0052335	.0067671
bord	-.2094833	.0454865	-4.61	0.000	-.2988436	-.120123
age_B	.1571453	.0144945	10.84	0.000	.1286702	.1856203
wealth_vp	.0991821	.1622395	0.61	0.541	-.2195447	.4179089
wealth_m	-.0583026	.1926182	-0.30	0.762	-.4367098	.3201046
wealth_r	-.5980916	.2537481	-2.36	0.019	-1.096591	-.099592
wealth_vr	-2.780928	.3964409	-7.01	0.000	-3.559754	-2.002102
_cons	-3.155816	.282866	-11.16	0.000	-3.711519	-2.600113