

Meeting Women's Contraceptive Needs in the Philippines

Estimation Methodology

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The estimates of the costs and benefits of contraception in the Philippines cover many variables derived from multiple sources. They draw from the most recent available data, projected to 2008. The following outline covers the variables used, their sources and the analyses we performed.

1. Numbers of women in each region aged 15–49, by marital status

a. Total population of the Philippines, 2008

- Source: National Statistics Office (NSO), 2000 census-based population projections, Table 1, 2006, <http://www.census.gov.ph/data/sectordata/popproj_tab1r.html>, accessed Aug. 29, 2008.
- Note: Used medium projection.

b. Population for each region, 2008: We distributed the total 2008 population according to the 2007 census distribution of population by region.

- Source: NSO, Total population and annual population growth rates by region: population censuses 1995, 2000, and 2007, *2007 Census of Population*, April 2008, <<http://www.census.gov.ph/data/census2007/index.html>>, accessed June 26, 2008.
- Note: Population in areas disputed between regions (24,789 in areas disputed between the National Capital Region and CALABARZON and 4,555 in areas disputed between Davao and Caraga) was distributed evenly across the regions in dispute. Filipinos in Philippine embassies, consulates and missions abroad (2,279) were excluded.
- Note: In this and subsequent calculations, when regional data or estimates were available, the national number was computed as the sum of regional numbers to take into account changing population distribution across regions.

c. Women aged 15–49, by region, 2008: For each region, we applied the proportion of the total population represented by women aged 15–49 (from the 2000 census) to the estimated 2008 total population.

- 2000 total population, by region, as of May 1, 2000
 - Source: NSO, Total population, number of households, average household size, population growth rate and population density by region, province and highly urbanized city: as of May 1, 2000, *Census 2000*, 2005, <<http://www.census.gov.ph/census2000/index.html>>, accessed June 26, 2008.
- Women aged 15–49, by region, as of 2000

- Source: NSO, Women 15 to 49 years old (results from the 2000 Census Population and Housing), 2005, <http://www.census.gov.ph/data/sectordata/sr05161tx.html>, accessed June 26, 2008.
 - Note: We used the proportion of the population who were women aged 15–49 in Region IV-South Tagalog for women in Region IVA-CALABARZON and Region IVB-MIMAROPA, both of which were created after 2000.
- d. Women aged 15–49 in each region, by marital and household wealth status, 2008:** We applied the 2003 Philippines Demographic and Health Survey (DHS) distribution of women aged 15–49 in each region by marital status and by household population wealth quintile to the estimated numbers of women aged 15–49 in each region in 2008.
- Source: Audam S, Guttmacher Institute, special tabulations of data from the 2003 DHS.
 - Note: In the DHS, women are categorized according to the wealth of their household relative to other households in the Philippines. Wealth quintiles divide the total household population into fifths (see Rutstein SO and Johnson K, *The DHS Wealth Index*, DHS Comparative Reports, Calverton, MD, USA: ORC Macro, 2004, No. 6). However, women aged 15–49 make up smaller proportions of the household population in poorer wealth quintiles. As a result, only 35% of women aged 15–49 are in the poorest two quintiles (Table 1).

Table 1. Distribution of total household population aged six and older and of women aged 15–49, by wealth quintiles, and percentage of household population aged six and older in each quintile who were women aged 15–49, 2003

Wealth quintile	Total population aged ≥ 6	Women aged 15–49	Women 15–49 as % of household population ≥ 6
Lowest	19%	16%	23%
Second	20%	18%	25%
Middle	20%	20%	27%
Fourth	21%	22%	29%
Highest	21%	25%	33%
Total	100%	100%	27%

Source: NSO and ORC Macro, *National Demographic and Health Survey 2003*, Manila, Philippines: NSO; and Calverton, MD, USA: ORC Macro, 2004.

- Note: When possible, subsequent regional calculations were carried out for marital- and wealth-status subgroups in each region and then summed to regional totals.
 - Note: Data beyond risk for unintended pregnancy and contraceptive method use (see next section) were not available according to women’s marital status and household wealth category. In these cases, we assumed that national or regional outcomes applied equally to all women within a region, regardless of their marital status or household wealth.
2. **Risk for unintended pregnancy and contraceptive use status:** The estimated numbers of women aged 15–49 in each region in 2008 were distributed by marital and household wealth status and according to the risk and contraceptive use status distribution for the respective subgroups in the 2003 DHS.
- a. **Current (2008) risk for unintended pregnancy and method use:** Region-specific percentage distributions of women aged 15–49, by risk for unintended pregnancy and contraceptive use, were tabulated according to marital status and household wealth quintile (lowest quintile, second lowest quintile, top three quintiles) from the 2003 DHS.
- Source: Audam S, Guttmacher Institute, special tabulations of data from the 2003 DHS.
 - Note: Women aged 15–49 in each regional, marital-status and wealth-quintile subgroup were classified as being
 - 1) not at risk for unintended pregnancy (not sexually active or infecund or wanting a child within the next two years);

- 2) at risk for unintended pregnancy and seeking to space future births (married or unmarried and sexually active, fecund and wanting a(nother) child, but not within the next two years); or
 - 3) at risk for unintended pregnancy and seeking to limit future births (married or unmarried and sexually active, fecund and not wanting a(nother) child).
- Note: Definitions of risk for unintended pregnancy:
 - All currently married women were assumed to be sexually active. Women who were not married were classified as sexually active if they reported having had intercourse in the last three months. Because of stigma attached to nonmarital sex, the level of sexual activity—and therefore risk for unintended pregnancy—is likely to be underestimated among unmarried women.
 - Sexually active women were classified as infecund based on their report of their status.
 - Intention for future childbearing was defined according to women’s desire for a(nother) child. Among pregnant women, intention was based on whether their current pregnancy was wanted at that time or earlier, mistimed (too early) or unwanted (women already had all the children they had wanted).
 - Women who were amenorrheic were classified according to the intention status of their last birth.
 - Women at risk who were spacing or limiting births were further classified according to contraceptive use status, as follows:
 - 1) Modern method users
 - Limiters only: tubal ligation (among women) and vasectomy (among male partners)
 - Spacers and limiters: IUD, injectable, pill, condom and other supply methods and “modern” fertility awareness-based methods
 - Note: Fertility awareness-based, periodic abstinence and natural family planning (NFP) are terms used for some or all of a variety of methods for identifying women’s fertile period during her menstrual cycle, during which the couple should abstain from intercourse or use another method.
 - Note: In the Philippines, “modern NFP” is the term used for the mucus or Billings Ovulation, Standard Days, symptothermal, basal body temperature and lactational amenorrhea methods.
 - 2) Traditional method users: periodic abstinence (other than modern NFP methods), withdrawal and other nonsupply methods
 - 3) At risk but using no contraceptive method.
 - Note: We used data from the 2003 DHS rather than the Philippines Family Planning Survey.
 - Using the DHS data, we tabulated women’s risk and contraceptive use status by region and according to marital and household wealth status.

- Recent Family Planning Surveys do not provide this level of information but do confirm that overall levels of contraceptive use have changed little since 2003 (Table 2).

Table 2. Percentage distribution of married women by current family planning method, 2004–2006 Family Planning Surveys and 2003 DHS

	Family Planning Surveys			DHS
	2006	2005	2004	2003
Any method	50.6	49.3	49.3	48.9
Modern method	35.9	36.0	35.1	33.4
Pill	16.6	17.1	15.6	10.5
IUD	4.1	3.9	3.9	4.1
Injectable	2.8	3.2	3.6	3.1
Condom	1.6	1.9	2.1	1.9
Tubal ligation	10.4	9.4	9.4	10.5
Vasectomy	0.1	0.1	0.1	0.1
NFP methods*	0.3	0.4	0.5	0.4
Other	0.0	0.0	0.0	0.0
Traditional methods	14.8	13.2	14.2	15.5
Periodic abstinence	7.0	6.5	6.9	6.7
Withdrawal	7.3	6.3	6.8	8.2
Other	0.5	0.4	0.5	0.6
No method	49.4	50.7	50.7	51.1
Total	100.0	100.0	100.0	100.0

*Mucus or Billings Ovulation, Standard Days, symptothermal, basal body temperature and lactational amenorrhea methods.

Sources: NSO, Prevalence rate for modern methods unchanged at 36 percent (results from the 2006 Family Planning Survey), press release, Manila, Philippines: NSO, May 3, 2007, No. 2007-30; NSO, Contraceptive prevalence rate remains at 49 percent: results from 2005 Family Planning Survey (FPS), press release, Manila, Philippines: NSO,

May 16, 2006, No. 2006-32; NSO, One in three Filipino women is using a modern contraceptive method (final results from the 2004 Family Planning Survey), press release, Manila, Philippines: NSO, Aug. 12, 2005, No. 2005-51; and NSO and ORC Macro, *National Demographic and Health Survey 2003*, Manila, Philippines: NSO; and Calverton, MD, USA: ORC Macro, 2004.

- b. ***Alternative contraceptive use scenarios:*** We examined four alternative contraceptive-use scenarios for women at risk of unintended pregnancy. All of these scenarios assume that other variables are unchanged, including the number of women aged 15–49 and their distributions by region, marital status, household wealth, fecundity, intention to space or limit births, and sexual activity (among unmarried women).
- No contraceptive use: This scenario assumes that none of the women at risk for unintended pregnancy would practice contraception.
 - Note: Differences in outcomes (pregnancies, costs, mortality and morbidity; see sections below) between this nonuse scenario and current contraceptive use are measures of the impact of current use.
 - Modern NFP methods used by 100% of women at risk: This scenario assumes all women at risk for unintended pregnancy would use modern NFP methods.
 - Current method mix used by 100% of women at risk: This scenario assumes that the method distribution of current contraceptive users (of both modern and traditional methods) would also apply to women at risk currently using no contraceptive. Women using no method were distributed across contraceptive methods using the method-use distribution of current users in the same region and household wealth quintile and with the same marital status and intention for spacing or limiting births. Under this scenario, 68% of women at risk would use modern contraceptives and 32% would use traditional methods.
 - Full use of modern contraceptive methods: This scenario assumes that all women at risk for unintended pregnancy in 2008 would use modern methods. For this scenario, the contraceptive use distributions of current modern-method users were applied to the numbers of women using traditional methods or no method while at risk in 2008, who live in the same region and have the same marital status, level of household wealth and intention to space or limit births.
 - Note: Differences in outcomes (pregnancies, costs, mortality and morbidity; see sections below) between this full use scenario and current contraceptive use illustrate the added costs and benefits that could be achieved by expanding use of modern contraception to all women at risk for unintended pregnancy.

3. **Current numbers and intention status of births, and outcomes of pregnancy**

- a. ***Total pregnancies:*** The sum of conceptions ending in birth, induced abortion and miscarriage.

- b. Numbers of births, by region, 2008:** We applied the adjusted regional general fertility rates from the 2003 DHS to the 2008 numbers of women aged 15–44 in each region to estimate number of births in 2008 by region.
- We estimated the proportion of women in each region aged 15–44 by multiplying the number of women aged 15–49 in each region by the proportion of 15–49-year-old women in 2000 who were aged 15–44.
 - Source: NSO, Women 15 to 49 years old (results from the 2000 Census Population and Housing), 2005, <http://www.census.gov.ph/data/sectordata/sr05161tx.html>, accessed June 26, 2008.
 - The general fertility rate is the number of births in each region in the three years preceding the 2003 DHS per 1,000 women aged 15–44.
 - Source: MEASURE DHS, STATcompiler, 2008, <http://www.statcompiler.com/>, accessed Aug. 30, 2008.
 - Adjusted general fertility rates in 2008 for each region were estimated by deflating the 2003 regional DHS general fertility rate by the ratio of the estimated total fertility rate in the Philippines for 2005–2010 (3.18) from the NSO’s Quikstat to the 2003 DHS total fertility rate (3.5).
 - Sources: Quickstat, A monthly update of NSO’s most requested statistics, Manila, Philippines: NSO, 2008, <http://www.census.gov.ph/data/quickstat/index.html>, accessed Sept. 15, 2008; and MEASURE DHS, STATcompiler, 2008, <http://www.statcompiler.com/>, accessed Aug. 30, 2008.
- c. Intention status of births:** We distributed the estimated numbers of births in each region in 2008 according to the intention-status distribution of births reported in the 2003 DHS.
- Source for percentage distribution of births in the five years preceding the 2003 DHS survey by fertility planning status: MEASURE DHS, STATcompiler, 2008, <http://www.statcompiler.com/>, accessed Sept. 15, 2008.
 - Note: The fertility planning status variable categorizes births according to whether women reported wanting a pregnancy then, wanting a pregnancy later, not wanting any (more) births or being unsure. Births to women who had wanted the pregnancy later are called “mistimed.” Births that resulted from pregnancies that were not wanted at all are called “unwanted.” All other births are called “intended.”
- d. Numbers of induced abortions by region, 2008:** We applied the regional number of induced abortions per 1,000 women aged 15–49 in 2000 (the most recent data available) to the numbers of women aged 15–49 in 2008.
- Sources: Singh S et al., *Unintended Pregnancy and Induced Abortion in the Philippines: Causes and Consequences*, New York: Guttmacher Institute, 2006; and The Alan Guttmacher Institute (AGI), *Sharing Responsibility: Women, Society and Abortion Worldwide*, New York: AGI, 1999.

- Note: We assumed that all pregnancies ending in induced abortion had been unintended.
- e. Numbers of miscarriages:* These are estimated to be equivalent to 20% of pregnancies ending in birth and 10% of those ending in induced abortion. These proportions attempt to account for pregnancies that miscarry after lasting long enough to be noted by the woman (6–7 weeks after the last menstrual period).
- Source: Leridon H, *Human Fertility: The Basic Components*, Chicago: University of Chicago Press, 1977, Table 4.20.
- f. Intended pregnancies:* The sum of intended births and estimated miscarriages of intended conceptions, i.e., 20% of intended births.
- g. Unintended pregnancies:* The sum of all unintended births and induced abortions and the estimated miscarriages following unintended conceptions (i.e., 20% of unintended births plus 10% of induced abortions).
4. **Unintended pregnancies among women at risk for unintended pregnancy:**
Annual pregnancy rates among women using contraceptive methods and among women at risk for unintended pregnancy who were using no method were multiplied by the estimated numbers of women in the Philippines in 2008 (according to current contraceptive use patterns) to estimate the number of unintended pregnancies. Four alternative scenarios were examined.
- a. Initial pregnancy rates*
- For reversible contraceptive methods, we used the average of annual failure rates from the 1998 and 2003 Philippines DHS.
 - Sources: NSO, Department of Health (DOH) and Macro International, *National Demographic and Health Survey 1998*, Manila, Philippines: NSO; and Calverton, MD, USA: Macro International, 1999, Table 4.14; NSO and ORC Macro, *National Demographic and Health Survey 2003*, Manila, Philippines: NSO; and Calverton, MD, USA: ORC Macro, 2004, Table 5.16.
 - Note: The initial average failure rates were:
 - IUD: 0.9%
 - Injectable: 1.6%
 - Pill: 4.6%
 - Condom: 8.2%
 - Modern NFP: 15.5%
 - Periodic abstinence: 15.5%
 - Withdrawal: 19.8%
 - Other nonsupply methods (used average of rates for periodic abstinence and withdrawal): 17.5%
 - Note: The same use-failure rate, 15.5%, was used for all methods of NFP/periodic abstinence.
 - The periodic abstinence use-failure rate from the Philippines DHS surveys do not distinguish between methods of periodic abstinence.

- Perfect-use failure rates of methods for determining women's fertile period are estimated at 1–9 pregnancies in the first year of use.
 - Sources: World Health Organization Department of Reproductive Health and Research (WHO/RHR), *Medical Eligibility Criteria for Contraceptive Use, 2004*, third ed., Geneva: WHO, 2004; WHO/RHR and Johns Hopkins University Bloomberg School of Public Health/Center for Communication Programs (CCP) and INFO Project, *Family Planning: A Global Handbook for Providers (2008 Update)*, 2008, <<http://www.infoforhealth.org/globalhandbook/remindersheets/Word-AppendixA.doc>>, accessed Feb. 14, 2009; and Georgetown University Institute for Reproductive Health, Effectiveness of natural family planning methods, no date, <<http://www.irh.org/nfp.htm#Effectiveness>>, accessed Feb. 14, 2009.
- However, the greatest probability of accidental pregnancy for periodic abstinence users results not from the method of determining the fertile period, but from having intercourse during the fertile period, when the chance of becoming pregnant is greatest.
 - Sources: Trussell J and Grummer-Strawn L, Contraceptive failure of the ovulation method of periodic abstinence, *Family Planning Perspectives*, 1990, 22(2):65–75; Trussell J and Grummer-Strawn L, Further analysis of contraceptive failure of the ovulation method, *American Journal of Obstetrics and Gynecology*, 1991, 165(6.2):2054–2059.
- First-year use-failure rates have been estimated to range from 12% to 22% for the Standard Days, symptothermal and ovulation methods.
 - Sources: Jennings VH, Arevalo M and Kowal D, Fertility awareness-based methods, in: Hatcher RA, et al., eds., *Contraceptive Technology: Eighteenth Revised Edition*, New York: Ardent Media, 2004, pp. 317–329; Georgetown University Institute for Reproductive Health, Effectiveness of natural family planning methods, no date, <<http://www.irh.org/nfp.htm#Effectiveness>> , accessed Feb. 14, 2009.
- However, the most comprehensive and recent assessment concludes that the methodological quality of available trial data is so poor that the comparative efficacy of fertility awareness-based methods of contraception remains unknown.
 - Sources: Grimes DA et al., Fertility awareness-based methods for contraception, Cochrane Database of Systematic Reviews, 2004, Issue 4, No. CD004860; and Grimes DA et al., Intervention review: fertility awareness-based methods for contraception, Cochrane Database of Systematic Reviews,

2009, Issue 1, No. CD004860pub2. (Status in this issue:
Unchanged.)

- For tubal ligation and vasectomy, we assumed initial use-failure rates of 0.5% and 0.2%, respectively.
 - Source: Trussell J et al., Contraceptive failure in the United States: an update, *Studies in Family Planning*, 1990, 21(1):51–54.
- For women at risk for unintended pregnancy using no method, we assumed an annual pregnancy rate of 40%.
 - Sources: Singh S et al., *Adding It Up: The Benefits of Investing in Sexual and Reproductive Health Care*, New York: AGI and United Nations Population Fund (UNFPA), 2003; and Vlassoff M et al., Assessing costs and benefits of sexual and reproductive health interventions, *Occasional Report*, New York: AGI, 2004, No. 11.
 - Note: The 40% estimate is much lower than the 85% annual pregnancy rate that Trussell et al. estimate for couples who are continually sexually active. Some studies have suggested, however, that couples at risk for unintended pregnancy who are using no contraceptive method are not continually sexually active.
 - Sources: Blanc AK and Grey S, Greater than expected fertility decline in Ghana: untangling a puzzle, *Journal of Biosocial Science*, 2002, 34(4):475–495; and Grady WR, Hayward MD and Yagi J, Contraceptive failure in the United States: estimates from the 1982 National Survey of Family Growth, *Family Planning Perspectives*, 1986, 18(5):200–204 & 207–209.

b. Failure rate adjustment: The number of pregnancies based on current contraceptive use among women at risk for unintended pregnancy and the initial failure rates for each method differed in most regions from the number of unintended pregnancies estimated for 2008 for each region (see section 3, “Current numbers and intention status of births, and outcomes of pregnancy”). This is likely due, in part, to the fact that many unintended pregnancies that end in induced abortion are not reported in the DHS or other surveys of women. Therefore, the initial failure rates for each method were adjusted so that the number of unintended pregnancies calculated in each region equaled the number estimated for 2008. This adjustment multiplied the initial failure rates by the ratio for each region of the estimated 2008 number of unintended pregnancies to the number of unintended pregnancies calculated using the failure rates.

- Note: The same regional adjustment was applied to the initial use–failure rates for all methods and the nonuse pregnancy rate used for all women in the same region, regardless of their marital status or household wealth. The adjustment ratio ranged from 0.785 to 1.420 across the regions and averaged 1.050.

c. Outcomes of unintended pregnancies: Unintended pregnancies in 2008 and in the alternate scenarios were distributed according to outcome (birth, induced abortion or miscarriage) based on the regional distribution estimated from the

2003 DHS birth rates and intention status information, 2000 induced abortion rates and model-based miscarriage rates.

5. Pregnancy-related mortality and morbidity

a. Pregnancy-related deaths among women, by outcome:

- Philippines maternal mortality ratio (MMR; maternal deaths per 100,000 live births)
 - Source: WHO, Maternal mortality in 2000: estimates developed by WHO, UNICEF and UNFPA, Geneva: WHO, 2004.
 - Note: We used WHO 2000 estimates, rather than 2005 estimates, because they appear more in line with Philippines DHS estimates. The 2000 estimate of 200 adjusts the DHS-reported maternal mortality ratio of 172, based on the direct sisterhood method, for estimated underreporting. The MMR estimated from the 2006 Philippines Family Planning Survey, 162 maternal deaths per 100,000 births, was also calculated by the sisterhood method and the difference between the estimates of 162 and 172 is not statistically significant.
 - Source: NSO, Maternal mortality slightly declined, MDG target may not be achievable (preliminary results from the 2006 Family Planning Survey), press release, Mar. 13, 2007, <<http://www.census.gov.ph/data/pressrelease/2007/pr0718tx.html>>, accessed Jan. 28, 2009.
 - Note: We assumed that the WHO 2000 MMR applied to births in 2008 in all regions and subgroups.
- Deaths per 100,000 induced abortions: We applied the number of deaths per 100,000 induced abortions in the Philippines in 2000 to the total number of induced abortions in 2008 in each region.
 - Sources: Singh S et al., *Unintended Pregnancy and Induced Abortion in the Philippines: Causes and Consequences*, New York: Guttmacher Institute, 2006; and Juarez F et al., Incidence of induced abortions in the Philippines: current level and recent trends, *International Family Planning Perspectives*, 2005, 31(3):140–149.
 - Note: The abortion-related mortality rate is estimated at the national level and the same rate was used for all regions and subgroups.
 - Note: We assumed that the 2000 abortion mortality rate applied to abortions in 2008.
- Pregnancy-related mortality rate among women whose pregnancies end in birth or miscarriage.
 - Note: We calculated the number of nonabortion pregnancy-related deaths as total maternal deaths minus abortion-related deaths and expressed the nonabortion pregnancy-related deaths as a ratio (deaths per 100,000 live births).

b. Pregnancy-related infant deaths: We applied adjusted regional infant mortality rates from the 2003 DHS to the regional numbers of births in 2008.

- Source of regional average annual infant mortality rates for the 10-year period before 2003 DHS: MEASURE DHS, STATcompiler, 2008, <<http://www.statcompiler.com/>>, accessed Nov. 10, 2008.
 - We adjusted regional infant mortality rates from the DHS by the ratio of estimated 2008 Philippines infant mortality rate from CME Info, Child mortality estimates, no date, <<http://www.childmortality.org/>>, accessed Nov. 10, 2008, to that from the 2003 DHS.
- c. Neonatal deaths:** We classified infant deaths as neonatal (occurring during the first month after birth) according to the ratio of the neonatal to infant mortality rates for the 10-year period preceding the 2003 DHS.
- Source: NSO and ORC Macro, *National Demographic and Health Survey 2003*, Manila, Philippines: NSO; and Calverton, MD, USA: ORC Macro, 2004, Table 3.8, p. 109).
- d. Pregnancy-related disability-adjusted life years (DALYs) incurred by pregnant women and infants, 2008:** No recent national estimates are available; therefore, we used estimated DALYs from 2004 and 2002 and assumed they applied to the Philippines in 2008.
- We estimated the ratio of pregnancy-related DALYs among women in the Philippines in 2002 from the number of maternal DALYs and the average annual number of births in the Philippines, 2000–2005.
 - Sources: WHO, Death and DALY estimates for 2002 by cause for WHO Member States, 2004, Table 2, <http://www.who.int/healthinfo/global_burden_disease/estimates_country/en/index.html>, accessed Nov. 23, 2008; and Population Division, Department of Economic and Social Affairs, United Nations Secretariat, World population prospects: the 2006 revision and world urbanization prospects: the 2005 revision, 2007, <<http://esa.un.org/unpp>>, accessed Dec. 9, 2008.
 - We estimated the ratios of pregnancy-related DALYs among women circa 2004, by pregnancy outcome, in the Western Pacific Region, as follows:
 - Took the number of DALYs due to maternal conditions among women in low- and middle-income countries in the Western Pacific Regions, according to outcome of pregnancy as induced abortion or other outcomes from WHO, *The Global Burden of Disease: 2004 Update*, Geneva: WHO, 2008.
 - Took the number of births in 2004 and induced abortions in 2003 in the low- and middle-income countries of the Western Pacific Region from Singh S et al., *Adding It Up: The Benefits of Investing in Sexual and Reproductive Health Care*, New York: AGI and UNFPA, 2003; and Vlassoff M et al., *Assessing costs and benefits of sexual and reproductive health interventions, Occasional Report*, New York: AGI, 2004, No. 11.
 - Calculated the number of nonabortion-related maternal DALYs per 100,000 live births and the number of abortion-related DALYs per

100,000 induced abortions in low- and middle-income countries in the Western Pacific Region circa 2004.

- We assumed the 2008 Philippines ratio of abortion-related DALYs was equal to the 2004 Western Pacific Region ratio.
- We estimated the 2008 Philippines ratios of pregnancy-related nonabortion DALYs as being equal to the 2002 Philippines total maternal DALYs per 100,000 births multiplied by the proportion of total pregnancy-related DALYs in 2004 in the Western Pacific Region that were not related to abortion.
- We assumed the 2002 Philippines ratio of perinatal DALYs (perinatal DALYs per 100,000 live births) applied to 2008, as well. We estimated the perinatal DALYs ratio in 2002 from the number of perinatal DALYs in the Philippines and the average annual number of births in the Philippines in 2000–2005.
 - Sources: WHO, Death and DALY estimates for 2002 by cause for WHO Member States, 2004, Table 2, <http://www.who.int/healthinfo/global_burden_disease/estimates_country/en/index.html>, accessed Nov. 23, 2008; Population Division, Department of Economic and Social Affairs, United Nations Secretariat, World population prospects: the 2006 revision and world urbanization prospects: the 2005 revision, 2007, <<http://esa.un.org/unpp>>, accessed Dec. 9, 2008.

e. Regional rates of pregnancy-related DALYs in the Philippines in 2008

- We assumed that national rates of nonabortion- and abortion-related maternal DALYs applied across all regions and groups of women.
- We estimated regional ratios of perinatal DALYs as the product of the 2008 Philippines DALYs ratio times regional infant mortality rates, divided by the Philippines total infant mortality rate from the 2003 DHS.

6. Costs of providing contraceptive and pregnancy-related care: Costs are based on public-sector cost estimates.

a. Costs for obtaining tubal ligation and vasectomy, as well as costs for normal delivery, cesarian-section deliveries and normal newborn care: From current 2008 reimbursement levels in the national health insurance program, PhilHealth.

- Sources:
 - *Sterilization* (P4,000 per procedure): Fajardo LO, Implementation of PhilHealth package for voluntary surgical contraception procedures, PhilHealth Circular, 2008, No. 16, <http://www.philhealth.gov.ph/circulars/2008/circ16_2008.pdf>, accessed Dec. 10, 2008 .
 - *Normal deliveries* (P4,500 per delivery, including prenatal care, normal delivery, postpartum care and family planning counseling; also includes newborn care, which is separately claimed): Duque FT, The new PhilHealth maternity care package for normal spontaneous delivery (NSD) performed in accredited hospitals, PhilHealth Circular, 2003, No. 15, <http://www.philhealth.gov.ph/circulars/2003/circ15_2003.pdf> , accessed Dec. 11, 2008.

- *Newborn screening and care* (P1,000 per child, including eye prophylaxis, umbilical cord care, Vitamin K, thermal care, administration of BCG tuberculosis vaccine and resuscitation of the newborn, first dose of Hepatitis B immunization and newborn screening tests): PhilHealth, Newborn care package, 2008, <http://www.philhealth.gov.ph/members/sponsored/ncp_benefits.htm>, accessed Jan. 13, 2009.
 - *Cesarian sections* (P1,7826, the average value per claim on payments from 2005 to 2007): Diaz GS, Corporate Planning Department, PhilHealth, Manila, Philippines, personal communication, Dec. 17, 2008.
 - *Abortion cases* (P4,974, the average value per claim on payments from 2005 to 2007): Diaz GS, Corporate Planning Department, PhilHealth, Manila, Philippines, personal communication, Dec. 17, 2008.
 - Note: An estimated 73% of the Philippines population is enrolled in PhilHealth and the program's goal is to cover the full population by 2010. Those who are poor are eligible for government-paid enrollment in PhilHealth.
 - Source: PhilHealth, PhilHealth set to launch new benefits, Oct. 6, 2008, <http://www.philhealth.gov.ph/media/news/2008/new_bnfths.htm>, accessed Nov. 17, 2008.
- b. Commodity costs for IUDs, injectables and pills:** We used the lowest current prices from pharmaceutical suppliers for IUDs (P180 per unit), injectables (P65 per 150 mg. vial) and pills (P24.50 per cycle).
- Source: Aquino VM, *Completing the Family Planning Equation to Achieve Contraceptive Self-Reliance*, Manila, Philippines: Philippines Legislators' Committee on Population and Development Foundation, 2008.
 - Note: The lowest costs for injectables and pills are from DKT-Philippines, the government's usual source of supplies.
- c. Commodity costs for condoms:** We used the current DKT price of P18 for a pack of three condoms, reflecting an increase from the figure used by Aquino.
- Source: Marquez MPN, University of the Philippines Population Institute, Manila, Philippines, personal communication, Dec. 17, 2008.
- d. Delivery and related infrastructure costs for reversible contraceptives:** Estimated at 30% of commodity costs.
- Delivery and related service provision costs for modern supply methods were estimated at 30% of commodity costs.
 - Note: We lack data on contraceptive delivery and related infrastructure costs, out-of-pocket payments required for PhilHealth services and costs of services obtained in the private sector. The method costs presented here are underestimates of the total costs to the public sector and individuals in the Philippines. Following a suggestion by Aquino, we estimated the costs

related to provision of reversible contraceptives to be 30% of the commodity costs.

- Source: Aquino VM, *Completing the Family Planning Equation to Achieve Contraceptive Self-Reliance*, Manila, Philippines: Philippines Legislators' Committee on Population and Development Foundation, 2008.
- For periodic abstinence, withdrawal and other nonsupply methods, no service delivery costs were estimated.
- Service costs for modern NFP methods were based on the 2009 DOH budget for Responsible Parenthood and National Family Planning. The budgeted cost for classes for 580,000 couples was P164 million, an average of P283 per couple.
 - Source: DOH Commission on Population, Proposed Budget FY 2009, Manila, Philippines: DOH, 2008.

e. Annual costs of method use

- Costs for sterilization and IUD were annualized, estimating an average of 10 years of contraceptive coverage for sterilization and 3.5 years for the IUD.
 - Source: Bertrand JT and Escudero G, Compendium of indicators for evaluating reproductive health programs, *Measure Evaluation Manual Series*, 2002, Vols. 1& 2, No. 6.
- Average use was estimated at one year for couples learning NFP.
 - Source: Stover J, Bertrand JT and Shelton JD, Empirically based conversion factors for calculating couple-years of protection, *Evaluation Review*, 2000, 24(1):3–46.
- We assumed one year of contraceptive coverage requires 13 cycles of oral contraceptive pills, 96 condoms or four injections.
 - Source: Vlassoff M et al., Assessing costs and benefits of sexual and reproductive health interventions, *Occasional Report*, New York: AGI, 2004, No. 11.
 - Note: We used the average amount of injectables, pills and condoms needed for one year of contraceptive coverage rather than the couple-year of protection (CYP) amount because CYP figures take contraceptive effectiveness into account, while we estimated use-effectiveness separately. Also, we assume that the independent estimate of service delivery and infrastructure costs includes factors such as wastage, which also are taken into account in the CYP figures. See Bertrand JT and Escudero G, Compendium of indicators for evaluating reproductive health programs, *Measure Evaluation Manual Series*, 2002, Vols. 1& 2, No. 6.

f. Estimation of costs for normal and cesarian births

- We estimated the cost of current births from the PhilHealth costs of deliveries and 2003 DHS regional proportions of deliveries in the prior three years that were cesarian, rather than normal, deliveries.
 - Source: MEASURE DHS, STATcompiler, 2008, <http://www.statcompiler.com/>, accessed Nov. 18, 2008.

- To estimate delivery costs if all women had received facility care, we assumed that the proportion of deliveries by cesarian-section would be at least 10.2%.
 - Note: In the 2003 DHS, 10.2% of urban and 5.0% of rural births in the last three years were cesarian deliveries. Source: MEASURE DHS, STATcompiler, 2008, <<http://www.statcompiler.com/>>, accessed Jan. 19, 2009.
 - We used the 2003 DHS proportions for the National Capital Region (11.9%) and Central Luzon (12.8%) because they exceeded 10.2%.