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## SUPPLEMENT ARTICLE

## Regional trends in the use of short-acting and long-acting contraception accessed through the private and public sectors

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## ABSTRACT

**Objective:** To examine trends in the source of modern contraception (public versus private sector); method choice (long-acting or permanent methods versus short-acting methods); and method and source combined. **Methods:** A retrospective analysis was conducted using data collected by national Demographic and Health Surveys and Reproductive Health Surveys during the period 1992–2012. The dataset included 18 low-income countries in Sub-Saharan Africa, 10 from Latin America and the Caribbean (LAC), and 8 from Asia. **Results:** A substantial proportion—between 40% and 49%—of modern contraceptive users relied on the private sector in Asia and LAC in the last 20 years, yet the proportion has been smaller in Sub-Saharan Africa, between 27% and 30%. Increased use of short-acting methods from both public and private sectors has driven the rise in contraceptive prevalence in Asia and LAC. Similarly, increased contraceptive prevalence in Sub-Saharan Africa reflected the increased use of short-acting methods obtained mainly through the public sector, with only limited use of long-acting or permanent methods through the private sector. **Conclusion:** The private sector has played a key role in the increase of modern CPR and the provision of modern contraceptives around the world, providing almost half of them in low-income countries. Yet, such increase was driven primarily by a more substantial role in the provision of short-acting methods than long acting and permanent methods.

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## 1. Introduction

The public and private sectors can each play critical roles in family planning provision among low-income countries. Nevertheless, the private sector (comprising both for-profit and nonprofit organizations) is often overlooked as a key resource. As a consequence, it is essential for policy makers—local, regional, and global—to understand the role of both sectors when they design and structure family planning programs. Where do women obtain their family planning products and services? Have these patterns evolved over time? Such information can illuminate the relative roles of public and private sectors in family planning and suggest strategies for program design.

Several studies have attempted to explore these issues. Ayad et al. [1] analyzed Demographic and Health Survey (DHS) and Reproductive Health Survey (RHS) data obtained from 1986 to 1990. These researchers found that the private sector was more important for the supply of products and services (i.e. pill, injection, condom, and vaginal methods) than for provision of clinical methods of contraception

(i.e. intrauterine device, implant, and female and male sterilization). Rosen and Conly [2] examined DHS data collected during the period 1986–1998 and found that almost half of all women using short-acting methods (SAM) that required regular resupply of commodities obtained their products from a commercial source. By contrast, this sector served less than 10% of all users of long-acting or permanent methods (LA/PM) during this time period. Ross et al. [3] reviewed data collected from 28 countries and concluded that the rate of private sector use had decreased in 13 countries, increased in 5 countries, and changed very little in 10 countries from 1985 to 2003. Khan et al. [4] analyzed the source mix for 29 countries, drawing on DHS data from 1986 to 2005. These investigators found that the proportion of women using the private sector in Sub-Saharan Africa had increased in approximately half of the countries evaluated but either decreased or remained the same in the other half. However, none of these studies analyzed the relative contribution of the private and public sectors by type of contraceptive method or method mix, across time and by geographic region.

The objective of the present study was to understand how family planning use has evolved over time, at both the country and regional level. The analysis aimed to address three broad questions. First, how has the source mix of modern contraceptive methods (public vs private sector) changed over time? Second, how has the method mix (LA/PMs vs SAM) changed over time? Third, what is the relative contribution of

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each method category, obtained through public and private sources, to increased rates of contraceptive use over time?

## 2. Material and methods

A retrospective analysis was performed using data from the DHS and RHS [5], limited to countries with three or more surveys conducted between 1992 and 2012. The DHS surveys that were conducted before 1992 could not be used as they did not include data on the type of provider. A full list of DHS and RHS surveys used in the present study is presented in [Supplementary Material S1](#) (Table 1A). Due to the nature of our study, neither ethics approval nor informed consent was required or necessary.

The data were grouped into three time periods: 1992–2000 (period 1), 1998–2006 (period 2), and 2005–2012 (period 3). These groupings were designed to yield the maximum number of countries for the sample with at least one survey during each of the time periods. Some overlap between time periods was unavoidable owing to the timing of surveys across the different countries. If more than one survey was available for a particular country in a given time period, the survey that provided the largest difference in years with the survey in the subsequent time period was selected. Countries were further subdivided into three regions: 18 from Sub-Saharan Africa; 8 from Asia (including South Asia, Southeast Asia, and Near East); and 10 from Latin America and the Caribbean.

Country was set as the unit of analysis for the present study. Individual country estimates were obtained using the individual survey-based weights for all women of reproductive age, who were married or living in union. Regional means were then calculated by averaging the country estimates, assigning all countries equal weight.

In addition, regional averages were also estimated using another two-step process. First, individual country estimates were obtained using the appropriate weights built by DHS, defining all women of reproductive age, married or living in union as the unit of analysis. Second, regional means were calculated averaging the country estimates, but assigning year-specific population-based weights from the World Development Indicators [6].

The modern contraceptive prevalence rate (CPR) was defined as the percentage of women aged 15–49 years, either married or living in union, who reported that they were using one or more modern methods of contraception. The assessment of method mix divided CPR into two categories: LA/PM (male and female sterilization, intrauterine devices, and implants) and short-acting methods or SAM (injectables, contraceptive pills, male condoms, diaphragms, sponges, and spermicides).

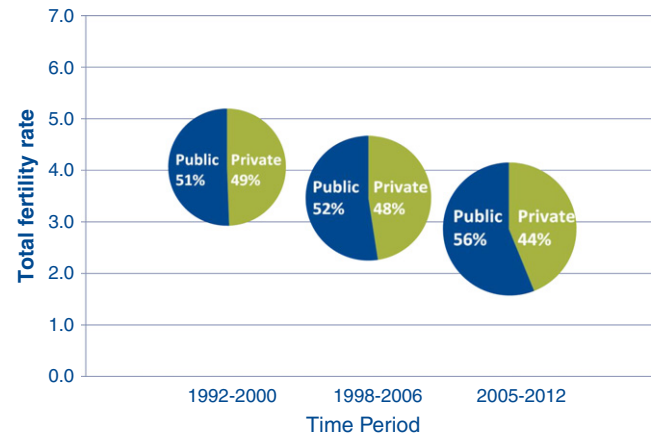
The source mix indicated whether the users of modern contraception obtained their methods from the private sector or the public sector. The private sector category included private clinics, private hospitals, private doctors, private pharmacies, and non-governmental organization facilities. Public sector providers included government clinics, government hospitals, government health centers, public family planning clinics, social security programs, and public field workers. The DHS also included “Other sources,” which comprised shops, churches, and friends, as well as some other options that varied by country. The present study used country-specific definitions of private and public sector from each of the main survey reports and datasets.

Data were analyzed using Stata version 12.1 (StataCorp, College Station, TX, USA). All statements regarding differences over time were tested for statistical significance at the 5% level using regular t-tests. Unless noted, the stated differences were statistically significant.

## 3. Results

### 3.1. Trends in source mix

As shown in [Figs. 1–3](#), the private sector represented the source for contraceptive methods for a large proportion of women in the Asia and LAC regions. 42% and 49% of women using family planning in

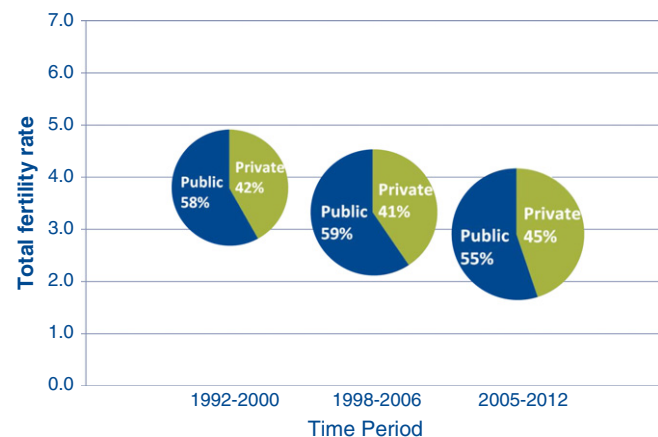


**Fig. 1.** Source mix for modern contraceptive methods in Latin America and the Caribbean region. The schematic shows the percentage of family planning users (aged 15–49 years, married or living in union) who obtained their methods from the private versus public sectors. The relative size of the circles indicates the modern contraception prevalence rates. Position of the circles refers to the total fertility rates (average number of children that would be born to a woman over her lifetime). Data sourced from the Demographic and Health Surveys and Reproductive Health Surveys, which were conducted in 10 Latin American and Caribbean countries, 1992–2012.

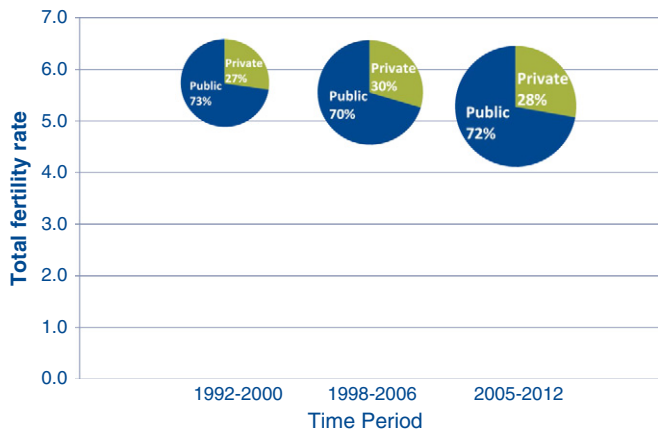
these two regions, respectively, had obtained their method from the private sector during the period 1992–2000, a pattern that remained relatively stable over the study period. In LAC, 49% of all women using family planning methods sourced their method from the private sector in 1992–2000, although the proportion declined to 44% in 2005–2012 ([Fig. 1](#)). In Asia, the rate of private sector use increased from 42% to 45% over the same period ([Fig. 2](#)). In Sub-Saharan Africa, fewer women relied on the private sector to obtain family planning as compared to the other two regions, with rates of 27% to 30% recorded during the present study period ([Fig. 3](#)); however, the observed range was not statistically significant.

### 3.2. Trends in method mix

The use of LA/PM versus SAM was almost evenly split in both Asia and LAC, albeit with some changes in use over time ([Figs. 4 and 5](#)). In LAC, the proportion of women using LA/PM declined from 58% in period



**Fig. 2.** Source mix for modern contraceptive methods in Asia. The schematic shows the percentage of family planning users (aged 15–49 years, married or living in union) who obtained their methods from the private versus public sectors. The relative size of the circles indicates the modern contraception prevalence rates. Position of the circles refers to the total fertility rates (average number of children that would be born to a woman over her lifetime). Data sourced from the Demographic and Health Surveys and Reproductive Health Surveys, which were conducted in eight Asian countries, 1992–2012.



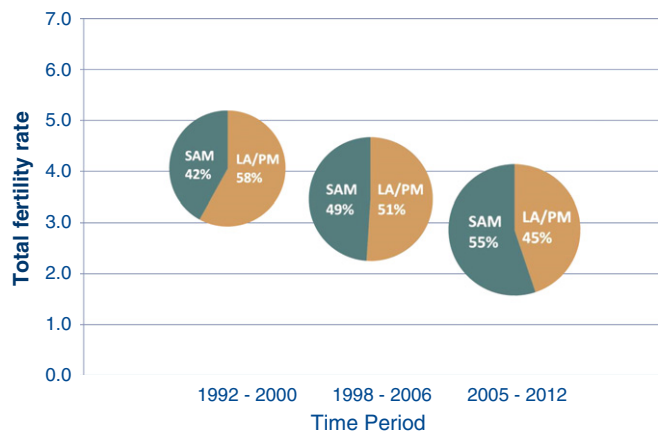
**Fig. 3.** Source mix for modern contraceptive methods in the Sub-Saharan Africa region. The schematic shows the percentage of family planning users (aged 15–49 years, married or living in union) who obtained their methods from the private versus public sectors. The relative size of the circles indicates the modern contraception prevalence rates. Position of the circles refers to the total fertility rates (average number of children that would be born to a woman over her lifetime). Data sourced from the Demographic and Health Surveys and Reproductive Health Surveys, which were conducted in 18 Sub-Saharan African countries, 1992–2012.

1 to 45% in period 3. Use of LA/PM in Asia showed similar levels and trends to LAC. By contrast, the use of LA/PM in Sub-Saharan Africa represented a much smaller percentage of the methods mix than the use of SAM (Fig. 6). Similar to the other two regions, the use of LA/PM fell over time, from 20% in 1992–2000 to 16% in 2005–2012.

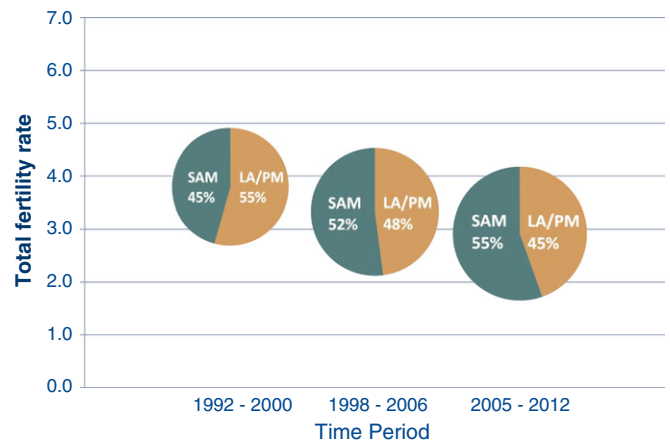
### 3.3. Combining method mix and source mix

The modern CPR for each region and time period by both the category of method and source was calculated (Table 1 and Supplementary Material S1 [Table 2A, 3A – 3C]).

The modern CPR for LAC increased from 36.2% to 46.6% during the present study period (Table 1). Most of this change reflected an increased use of SAM: the public and private sectors showed increases of 5.7 and 3.7 percentage points respectively. The use of LA/PM showed a very different pattern. In the public sector, the proportion of women obtaining LA/PM increased from 12.2% to 14.7%, whereas the proportion of users in the private sector declined from 9.9% to 7.2%.



**Fig. 4.** Modern method mix in Latin America and the Caribbean region. The schematic shows the percentage of family planning users (aged 15–49 years, married or living in union) who used long-acting or permanent methods (LA/PM) versus short-acting methods (SAM). The relative size of the circles indicates the modern contraception prevalence rates. Position of the circles refers to the total fertility rates (average number of children that would be born to a woman over her lifetime). Data sourced from the Demographic and Health Surveys and Reproductive Health Surveys, which were conducted in 10 Latin American and Caribbean countries, 1992–2012.

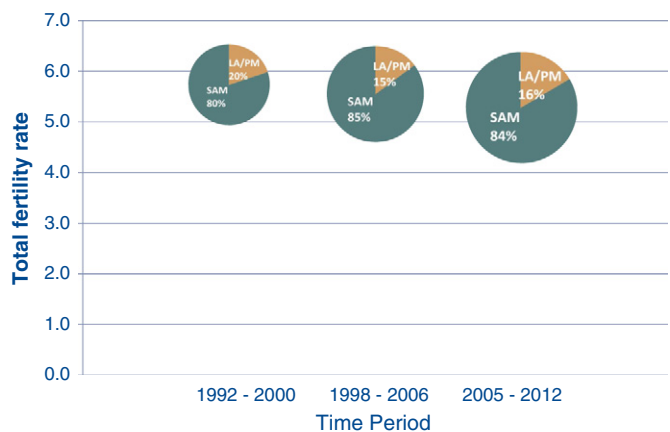


**Fig. 5.** Modern method mix in the Asia region. The schematic shows the percentage of family planning users (aged 15–49 years, married or living in union) who used long-acting or permanent methods (LA/PM) versus short-acting methods (SAM). The relative size of the circles indicates the modern contraception prevalence rates. Position of the circles refers to the total fertility rates (average number of children that would be born to a woman over her lifetime). Data sourced from the Demographic and Health Surveys and Reproductive Health Surveys, which were conducted in eight Asian countries, 1992–2012.

Asia exhibited an overall increase in modern CPR similar to that of LAC, but with somewhat different trends and differentials in the source mix and method mix (Table 1). The largest growth was observed in the use of SAM obtained through the private sector, which increased from 8.6% to 14.1% over the present study period. The proportion of women using the private sector for LA/PM remained fairly constant.

In Sub-Saharan Africa, the modern CPR increased from 13.4% to 26.1% between periods 1 and 3. This increase was driven primarily by substantial growth in the use of SAM sourced from the public sector, which increased from 7.8% to 15.5%. The percentage of women using a SAM obtained from the private sector increased from 2.4% to 4.6%. Use of LA/PM remained low but stable within this region, particularly as sourced from the private sector, which was estimated at just 0.8% in period 1 and 1.1% in period 2 (not statistically significant).

Use of short-acting injectable contraceptives increased substantially over the study period. The prevalence of injectables use increased in Sub-Saharan Africa from 32% in period 1 to 50% in period 3 (data not shown). In Asia and LAC, the share of injectables grew from 23% to



**Fig. 6.** Modern method mix in the Sub-Saharan Africa region. The schematic shows the percentage of family planning users (aged 15–49 years, married or living in union) who used long-acting or permanent methods (LA/PM) versus short-acting methods (SAM). The relative size of the circles indicates the modern contraception prevalence rates. Position of the circles refers to the total fertility rates (average number of children that would be born to a woman over her lifetime). Data sourced from the Demographic and Health Surveys and Reproductive Health Surveys, which were conducted in 18 Sub-Saharan African countries, 1992–2012.

**Table 1**  
Modern contraceptive prevalence rates among 36 low-income countries by method and source, Demographic and Health Surveys and Reproductive Health Surveys, 1992–2012.<sup>a,b</sup>

Region by time period	Modern contraceptive prevalence rate	Private sector		Public sector		Other sources <sup>c</sup>	TFR
		LA/PM	SAM	LA/PM	SAM		
Latin America and the Caribbean							
1992–2000	36.2	9.9	8.7	12.2	4.8	0.6	4.1
1998–2006	41.1	8.9	10.1	12.8	8.4	0.9	3.5
2005–2012	46.6	7.2	12.4	14.7	10.5	1.8	2.9
South Asia, Southeast Asia, and Near East							
1992–2000	35.7	6.3	8.6	12.1	5.5	3.2	3.8
1998–2006	42.2	6.4	10.4	12.8	9.0	3.7	3.3
2005–2012	46.2	6.1	14.1	13.9	9.7	2.4	2.9
Sub-Saharan Africa							
1992–2000	13.4	0.8	2.4	1.8	7.8	0.6	5.7
1998–2006	19.0	0.9	3.9	1.7	10.6	1.9	5.6
2005–2012	26.1	1.1	4.6	3.1	15.5	1.9	5.3

Abbreviations: LA/PM, long-acting and permanent methods; SAM, short-acting methods; TFR, total fertility rate (average number of children that would be born to a woman over her lifetime).

<sup>a</sup> Values given as percentage, unless otherwise indicated.

<sup>b</sup> Simple regional mean percentages were estimated using a two-step process. First, individual country estimates were obtained using the appropriate weights built by the Demographic and Health Surveys for all women of reproductive age, married or living in union as the unit of analysis. Second, regional means were calculated by averaging the country estimates but assigning all countries the same weight. See [Supplementary Material S1](#) (Table 3A) for a full list of the countries and estimates.

<sup>c</sup> All modern contraceptive methods obtained from any other source, such as shops, church, and friends.

30% and from 21% to 43%, respectively. In all regions, the source for injectable contraception was largely the public sector. Among users of injectables, only 18% in Sub-Saharan Africa, 40% in Asia, and 30% in LAC obtained them from the private sector during period 3.

#### 4. Discussion

The present study identified trends in regional and country-level estimates of both source mix and method mix, thus allowing an assessment of the relative contributions of the private and public sectors in meeting family planning needs, through the use of short-acting methods and LA/PM.

In all three regions analyzed, the private sector share of the contraceptive market had remained stable over the 20-year period. In Asia and LAC, the private sector remained the source for almost half of all users of family planning for at least 15 years. In Sub-Saharan Africa, almost one-third of family planning users obtained their method from the private sector.

The overall method mix in the three regions also remained constant over time. In Asia and LAC, the proportions of SAM versus LA/PM were roughly equivalent. In Sub-Saharan Africa, the rate of LA/PM use remained at less than 20% throughout the study period. Many factors could explain the observed low uptake of LA/PM in Sub-Saharan Africa versus Asia and LAC. A large proportion of the population in Sub-Saharan Africa lives in rural areas. In addition, only a small percentage of women in this region express an interest in limiting births as opposed to spacing them. By contrast, women in Asia and LAC tend to be focused on limiting rather than spacing births [7]. Another possibility, however, is that women in Sub-Saharan Africa have limited financial or physical access to LA/PM. If this proves to be the case, such barriers might be addressed with specific interventions that include ensuring adequate supplies and training (through both the public and private sectors); task shifting and mobile outreach; and mechanisms to increase financial access (such as insurance or vouchers).

The increase in the use of modern contraceptives in Asia and LAC observed in the present study primarily reflected an increased use of SAM, from both the private and the public sectors. In Sub-Saharan Africa, much of the increase in contraceptive prevalence was similarly due to a rise in the use of SAM, particularly injectables, which were obtained primarily through the public sector. The use of LA/PM sourced from the private sector was low in all three regions but particularly so in Sub-Saharan Africa.

The composition of the modern CPR in Sub-Saharan Africa was skewed heavily toward the public sector and short-acting methods, a situation that was in stark contrast to Asia and LAC (even in period 1). Whether this trend will continue to be the pattern in Sub-Saharan Africa remains unclear; however, it is possible that with increasing economic development this region will start to resemble the other two regions.

Several implications can be drawn from the findings of the present study. The analysis highlighted the critical but fairly constant contributions of both the private and public sectors in the provision of family planning. In this context, there is a clear need to continue to find ways to engage the private sector in the dialogue related to national family planning programs, to ensure that these providers have access to training opportunities, commodities, and the benefits of information campaigns. Failing to engage with the private sector represents a missed opportunity to improve access to quality family planning information and services for a large number of women in low-income countries.

One potential limitation of the present study might be the definitions used for private and public sector. However, while the definitions provided a good approximation of the presence of each sector within individual countries, categorization was not consistent across countries or over time. In some cases, definitions had changed in successive years for the same country [2–4]. In addition, the boundary between the public and private sectors might be unclear to the survey respondents, such as those in mobile outreach programs.

Addressing the desire of women to space or limit their pregnancies, thereby reducing the unmet need for family planning, continues to be a challenge among low-income countries worldwide. Understanding trends in source mix and method mix can provide important information to donors, policy makers, and program implementers, thereby helping to clarify the historical and prospective trends in family planning, so that program strategies and resources can be deployed to respond most effectively to women's needs.

Supplementary data to this article can be found online at <http://dx.doi.org/10.1016/j.ijgo.2015.03.021>.

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### Conflict of interest

The authors have no conflicts of interest to declare.

### References

- [1] Ayad M, Wilkinson M, McNiff M. Demographic and Health Surveys Comparative Studies No. 11: Sources of Contraceptive Methods. <http://dhsprogram.com/pubs/pdf/CS11/CS11.pdf>. Published 1994. Accessed March 5, 2015.
- [2] Rosen JE, Conly SR. Getting Down to Business: Expanding the Private Commercial Sector's Role in Meeting Reproductive Health Needs. [http://pai.org/wp-content/uploads/2012/01/Getting\\_Down\\_to\\_Business\\_Full\\_Report.pdf](http://pai.org/wp-content/uploads/2012/01/Getting_Down_to_Business_Full_Report.pdf). Published 1999. Accessed March 5, 2015.
- [3] Ross J, Stover J, Adajaja D. Profiles for Family Planning and Reproductive Health Programs 116 Countries 2nd Edition. <http://www.policyproject.com/pubs/generalreport/Profiles116FP2ed.pdf>. Published 2005. Accessed March 5, 2015.
- [4] Khan S, Mishra V, Arnold F, Abderrahim N. Demographic and Health Surveys Reports No. 16: Contraceptive Trends in Developing Countries. <https://dhsprogram.com/pubs/pdf/CR16/CR16.pdf>. Published 2007. Accessed March 5, 2015.
- [5] DHS Program website. Demographic and Health Surveys. Available datasets. <http://dhsprogram.com/data/available-datasets.cfm>. Accessed March 5, 2014.
- [6] The World Bank. World Development Indicators. <http://databank.worldbank.org/data/views/variableselection/selectvariables.aspx?source=World-Development-Indicators>. Accessed March 5, 2015.
- [7] Population Research Bureau. Family Planning Worldwide 2013 Data Sheet. [http://www.prb.org/pdf13/family-planning-2013-datasheet\\_eng.pdf](http://www.prb.org/pdf13/family-planning-2013-datasheet_eng.pdf). Published 2013. Accessed March 5, 2015.