Reported patterns of pregnancy termination from Demographic and Health Surveys

Authors

David A. Sánchez-Páez[1*], José Antonio Ortega[2]

[1] Doctoral program in Economics, Department of Economics and Economic History, University of Salamanca. Salamanca, Spain.

[2] Department of Economics and Economic History and Instituto Multidisciplinar de Empresa (IME), University of Salamanca. Salamanca, Spain.

[*] Corresponding author: dasanchezp@usal.es.

Author contributions

Conceptualization: DASP, JAO.

Data curation: DASP.

Formal analysis: DASP.

Investigation: DASP, JAO.

Methodology: DASP, JAO.

Software: JAO.

Supervision: JAO.

Visualization: DASP, JAO.

Writing - Original draft preparation: DASP.

Writing - Review and editing: JAO.

Abstract

Introduction: Demographic and Health Surveys, widely used for estimation of fertility and reproductive health indicators in developing countries, remain underutilized for the study of pregnancy termination. This is partly due to most surveys not reporting the type of pregnancy termination, whether spontaneous or induced. Reproductive calendar data makes it possible to examine termination patterns according to contraceptive use at the time of pregnancy. Contraceptive failure is expected to increase the likelihood of induced abortion helping in the interpretation of reported termination patterns.

Materials and methods: We use individual-level calendar data regarding 623,966 pregnancies to analyze levels and differentials in reported patterns of pregnancy termination by age, union status, and contraceptive use in 107 DHS surveys from 50 countries. From the estimates of the probability of pregnancy termination, we compute derived reproductive health indicators providing an assessment of what is driving the differences by comparison to the few surveys reporting the type of pregnancy termination.

Results: Reported pregnancy termination is higher among women using contraceptives, consistent with expectations, but levels of reported termination are very low in most DHS surveys indicating that most reported terminations are spontaneous. Differential patterns emerging from cluster analysis and regional rates indicate high rates of pregnancy termination driven by induced abortion in countries from the Former Soviet Union and Asian countries with liberal laws. Most countries with restrictive abortion laws have low levels of reported termination. While the probabilities of pregnancy termination are higher at older ages, termination rates generally peak at younger ages due to higher conception rates.

Discussion: This is the first large comparative study of the patterns of reported pregnancy termination in DHS surveys. While we have explored the extent to which differences arise from spontaneous terminations or induced abortion, more research is needed regarding the determinants of reported pregnancy termination.

1 Introduction

Demographic analysis of fertility focuses on live births, but not all pregnancies are carried to term. A pregnancy ending before live-birth, regardless of the reason, is associated with a pregnancy termination (PT). PT includes both spontaneous terminations (ST) —miscarriage and stillbirth— and induced abortions (IA). The incidence of PT affects fertility levels. For instance, in a sample from 20 low- and middle-income countries, the proportion of PT ranged between 4.9% and 52.0%, mostly depending on the levels of IA [1].

Much of what is known regarding fertility levels in developing countries is based on nationally representative demographic surveys. In particular, Demographic and Health Surveys (DHS) are, since 1985, a significant source of information regarding fertility and its proximate determinants like union formation, contraceptive use, and sterility. However, they are rarely used for the estimation of IA or ST [2–5]. There are several reasons for this. The first one is connected with data coverage: the majority (but not all) of DHS surveys only classify pregnancy outcomes as live-births or PT without further differentiation. Therefore, some sources only use those surveys reporting the type of termination [6]. A second one is a concern regarding the completeness of coverage and possible misclassification of outcomes. The only comparative survey of PT according to outcome based on retrospective survey data dates back to the World Fertility Survey [7]. It showed significant differences in the reported incidence of ST among countries and according to sociodemographic variables and generally low reported rates of IA. A recent DHS technical report has analyzed comparative levels of PT to check the consistency of reporting according to time since the interview [8]. This research finds signs of underreporting of PT when going back in time, particularly in some countries such as in sub-Saharan Africa. Probably due to these concerns and, in particular, low levels of reported IA in countries where abortion is illegal or heavily restricted, international monitoring efforts that use DHS and related surveys in monitoring reproductive health outcomes, prefer to use regional and subregional estimates derived from other indirect

sources to impute the incidence of IA at the country-level in those countries [3,6,9]. In the period 2010-2014, subregional estimates of IA ranged between 12% and 39% of pregnancies [3].

While we share the concern regarding the completeness of coverage, we feel that data on PT has been dismissed as useless before studying it and we pretend to fill this data gap by analyzing the available information on DHS surveys on PT in order to identify patterns in reported PT. In particular, we make use of the information contained in DHS surveys on contraceptive use at the time of pregnancy. Since pregnancies arising from contraceptive failure are unintended, they are more likely to end in an IA [1,10–12]. We use the few surveys that include details on the type of PT to highlight that differences across surveys in PT are, for the most part, connected to different levels of IA, but also that there remain important differences in levels of reported ST in countries with low reported IA. Previous studies on the incidence of IA highlight, among others, the effect of age and union status [13–17]. The likelihood of IA increases with age to the extent that it is used to limit family size. Pregnancies occurring outside of unions, on the other hand, might be more likely to be aborted irrespective of family size. Age is also a relevant predictor of the medical risk of ST with a U-shaped age-gradient [18–20]. For these reasons, we identify patterns of pregnancy termination according to age, union-status, and contraceptive use at the time of pregnancy.

Regarding the interpretation of differences in reported PT, little is known regarding the drivers of reported ST. It is recognized that cultural factors are important both as drivers of self-perception of ST and recall patterns [7,21]. Despite a relevant share of pregnancies ending in miscarriage, a cultural norm of silence surrounds them [22,23]. This could be related to grief after facing a loss and possible stigma [24,25]. Moreover, memory could be affected after traumatic experiences so that events related to grief are forgotten [26,27]. On the other hand, while it might be true that some part of differences in reporting might be due to forgetting in some cultural settings, and that for these reasons we should not expect annual

time series derived from DHS to be reliable [8], that is only a small part of the variability in reported termination rates. Reported levels of ST tend to be relatively stable over time [21] and reported differentials according to socio-demographic characteristics tend to agree with medical knowledge [7,21]. What remains poorly understood is the connection between reported levels, biological determinants of ST, cultural elements behind self-awareness and recall and the functioning of public health systems. In order to advance in this direction, it is necessary first to put the estimates on the table. Prospective cohort studies of ST and IA are often seen as an alternative, more objective way to measure PT. While large scale prospective cohort studies from developing countries are rare, detected levels of ST and IA in a recent comparative study are much lower than those reported in DHS surveys [28]. In the case of IA, intentional underreporting is even more likely than for ST [2]. In particular, we can fear that women are more reluctant to report an IA in a context where it is illegal. We will, therefore, look at differences in reported PT according to the legal status of IA [9]. However, women, particularly those from more deprived settings, might not be aware of changes in the law [29], and, in any case, we cannot be sure to what extent a relationship between reported PT and abortion-legality status is due to increased levels of underreporting or to a lower probability of IA. Problems in understanding concepts such as termination or induced abortion can also be at stake [30].

Regarding the implications of the study, universal access to Sexual and Reproductive Health by 2030 is part of the Sustainable Development Goals [31]. Also, the Family Planning 2020 global partnership includes as goals, among others, increasing contraceptive prevalence, reducing unintended pregnancies, and averting unsafe abortions [32]. Differences in PT according to contraceptive use highlight the consequences of contraceptive failure. The use of more effective methods of family planning can prevent unintended pregnancies and avoid IA. In this respect, it is important to differentiate between the conditional probability of pregnancy termination that will be of relevance in a medical context, and the underlying termination rates that have public health implications. While we find that the conditional

probabilities increase with age, termination rates are generally higher for women at peak reproductive ages given their higher risk of conception [13]. Combining our estimates of the Total Termination Rate with fertility estimates, we can detect the relationship between modern contraceptive prevalence and the Total Pregnancy Rate.

Our research is also relevant regarding fertility estimation based on the proximate determinants framework [33,34] at the core of aggregate models of reproductive health such as the Spectrum model [35]. This model is based on independence among proximate determinants such as union formation, contraceptive use, and abortion. In contrast, we explicitly measure differences in PT according to union status and contraceptive use.

2 Materials and methods

2.1 Data

DHS surveys are a rich source of information, especially regarding fertility and family planning. For most countries, DHS surveys collect information using monthly calendar data going back up to 72 months [36]. Our goal is to analyze the patterns of pregnancy termination according to contraceptive use at the time of pregnancy and according to age and union status. For this purpose we use three different calendars: The contraceptive use and reproductive history calendar (`cal1`), registers pregnancies, pregnancy outcomes, and contraceptive methods used. It identifies when a pregnancy begins and whether it ends in a live-birth or not. The second calendar (`cal2`) identifies the reasons for discontinuing or changing the contraceptive method used. Among others, `cal2` indicates when a woman "became pregnant while using" so that contraceptive use at the time of pregnancy can be perfectly identified. The third calendar (`cal3`) records marital status. From `cal3` we know if women were in-union or not-in-union at the time of pregnancy.

Unfortunately, not every survey includes the three calendars we need. In surveys where `cal2`

is absent, we assume a pregnancy occurred while using when a contraceptive method was being used in the month preceding the pregnancy. For surveys not including `cal3`, we impute union status based on the date of the first union and the duration of that union. On the other hand, some DHS surveys only represent women in union. We use all DHS surveys that include all women irrespective of union status and reporting at least `cal1`. After screening for these conditions, our database consists of 107 DHS surveys from 50 low- and middle-income countries, collected between 1990 and 2017, and includes individual-level information for 1,468,524 women aged 15-49 at the time of the interview (see S-table 1). These surveys belong to Africa, Central and West Asia & Europe, Latin America and South and Southeast Asia.

We analyze all pregnancies that started in the 45 to 9 months preceding the interview. Pregnancies in the eight months preceding the interview are excluded to avoid right censoring. In this way, except for a small number of premature births, we capture all births occurring in the 3-years before the interview. That is the same framework used for fertility estimation in DHS. This allows us to move from probabilities of termination to age-specific termination rates. To ensure that the age-groups are comparable, we assign age according to imputed age at birth. This is equal to age at birth for pregnancies carried to term, and age at pregnancy plus nine months for the rest of pregnancies. We use standard five-year age-groups except for the 40-49 age-group due to the small number of pregnancies at age 40 and above. A few pregnancies with an imputed age at birth of less than 15 are excluded in line with DHS fertility estimation. Our sample includes 623,966 pregnancies, of which 555,908 are live-births (outcome `B`) and 68,058 pregnancy terminations (outcome `PT`) (see S-table 1). Most DHS surveys do not collect the type of PT. In our case, only 16 DHS surveys identifying the type of PT meet our requirements, mostly from countries where abortion is legal. We use these surveys to assess specific patterns of IA and ST according to contraceptive use, and, most importantly, to shed light on the likely distribution of PT in the surveys not reporting the type of termination.

Pregnancies are further classified according to union status and contraceptive use at the time of pregnancy. According to DHS definitions, married women and those in consensual unions are grouped as `in-union`. Women that are never married, divorced, widowed, or separated are grouped as `not-in-union`. Regarding contraceptive use at pregnancy, users of any method at the time of pregnancy are classified as using. The reason is that, irrespective of the efficacy of the contraceptive method used, the use of any method hints at a desire to avoid pregnancy.

Age-specific termination rates (ASTR) and general termination rates (GTR) for all women are derived from the age-specific probabilities of PT and age-specific fertility rates (ASFR) computed by the DHS program for the three years before the survey. We obtain ASFR, general fertility rates (GFR) and contraceptive prevalence rates from the DHS API webpage using the R package `rdhs` [37].

2.2 Methods

2.2.1 Probability of pregnancy termination

We estimate separate conditional probabilities of PT (T) for each combination of age-group, union status, and contraceptive use at the time of pregnancy at the survey level. DHS surveys are complex surveys representative at the national level with a stratified two-stage cluster design. Given unequal probabilities of selection we use women weights (w_i) so that the conditional probability is computed as the ratio of the weighted number of pregnancies ending in termination to the total weighted number of pregnancies irrespective of outcome (p):

$$T_{s,a,m,u} = \frac{\sum w_i \cdot (p = PT)_{s,a,m,u}}{\sum w_i \cdot (p = PT)_{s,a,m,u} + \sum w_i \cdot (p = B)_{s,a,m,u}} \tag{1}$$

The subscripts a, m, and u refer to age-group, union-status, and contraceptive use at the

time of pregnancy, respectively. s identifies the particular subpopulation analyzed. It can be a specific survey, a pooled regional sample or the total pooled sample. For surveys reporting the type of pregnancy termination, we follow the same approach to derive the conditional probabilities for each termination type, ST and IA. All calculations are carried out in R [38] using `tidyverse` packages [39] and purposely written functions for managing DHS reproductive calendar data.

Approximate binomial confidence intervals are derived from the unweighted number of cases using the Wilson method [40]. For this purpose, we use the `binconf` function from R package `Hmisc` [41].

2.2.2 Clustering

In order to identify common patterns of pregnancy termination at the survey level according to age-group, union-status, and contraceptive use at pregnancy, we use cluster analysis. Unfortunately, in many surveys sample size is too small for accurate estimation of T, especially among older women not-in-union, or among contraceptive users in countries with low contraceptive prevalence. With the view to minimize the problem, we have regrouped pregnancies to women not-in-union in only two age-groups before performing the cluster analysis: 15-24 and 25-49. There are still some combinations where the probability is based on less than 10 unweighted pregnancies. This happens for 12.1% of the categories. Given the considerable uncertainty involved in those estimates we have preferred to set them as missing data in combination with the use of a variant of the k-means cluster analysis algorithm, k-POD, that allows for missing data while simultaneously imputing the missing data to the cluster average [42]. k-POD uses a majorization-minimization algorithm to identify a clustering according to the observed data and retains the information without assuming any distribution over the missingness patterns. We have reprogrammed the algorithm in R package `kpodclustr` [43] to use multiple initial values in order to avoid issues of lack of convergence.

Regarding the choice of the number of clusters, we use the `gap statistic` method since it usually outperforms other methods proposed in the literature [44]. The optimal number of clusters is 4. The interpretation of the clusters is based on the cluster averages for each of the conditional probabilities, and Principal Component Analysis (PCA) that extracts the linear combinations of variables representing the largest possible variability present in the data [45]. In our case, the first two principal components represent 84.2% of the variance. The computations are carried out using R packages `factoextra` [46] and `FactoMineR` [47].

2.2.3 Termination and pregnancy rates

Given our choice of the time-window and our use of imputed age-at-birth instead of age-at-pregnancy, T can be combined with reported ASFRs for the 3-years before the survey to derive reproductive health indicators like $ASTR$, GTR, and the total termination rate (TTR). While T indicates what happens once the pregnancy takes place, the rates provide an estimate of the likelihood of a woman experiencing a termination in a given year. TTR can be interpreted as the expected number of terminations throughout the reproductive years in a synthetic cohort experiencing current $ASTRs$.

$ASTR$ for a particular sub-group i can be defined as

$$\text{ASTR}_a = \frac{PT_a}{N_a} \tag{2}$$

where PT_a represents the number of terminated pregnancies in the subgroup of women of age a, and N_a is the number of woman-years of exposure. $ASFR_a$ is defined equivalently as $\frac{B_a}{N_a}$ where B_a represents the number of births. Since T_a represents the probability of pregnancy termination, $1 - T_a$ represents the probability of a pregnancy ending in live-birth. Thus, we can estimate $ASTR_a$ as:

$$\text{ASTR}_a = \frac{PT_a}{B_a} \cdot \frac{B_a}{N_a} = \frac{T_a}{1 - T_a} \cdot \text{ASFR}_a \tag{3}$$

A similar calculation can be carried out for the GTR as a function of the GFR

$$\text{GTR} = \frac{T}{1 - T} \cdot \text{GFR} \tag{4}$$

In this case, T is the probability of pregnancy termination based on all pregnancies.

TTR is obtained by aggregation of the respective $ASTR$s. In the case of 5-year age-groups, it is given by:

$$\text{TTR} = \sum_a 5 \cdot \text{ASTR}_a \tag{5}$$

This is a parallel definition to that of the Total Fertility Rate (TFR). An estimate of the number of lifetime pregnancies expected over a woman's reproductive ages, the Total Pregnancy Rate (TPR), can be computed as the sum of TFR and TTR:

$$\text{TPR} = \text{TFR} + \text{TTR} \tag{6}$$

Note that TPR should conceptually include pregnancies ending in ST as in our case. Other investigators have used an estimate of TPR only including pregnancies resulting in birth or IA [5].

2.2.4 Tentative separation of terminations as induced or spontaneous

While DHS surveys do not provide information on the type of PT for most surveys, it is possible to use the information contained in those few surveys that report it for a tentative separation of terminations in induced and spontaneous. Based on the 16 DHS surveys with

information on the type of outcome, we have estimated logistic regression models for the probability of IA conditional on termination. The simple idea is that higher values of T will be associated with a higher proportion of IA among PT. Since IA is expected to be more frequent among women who were using contraceptives at the time of pregnancy, we use the conditional probabilities according to contraceptive use providing a total of 32 data points. We estimate two models (see table 1). The first model includes independent variables T and contraceptive use. The second model only T. Since contraceptive use is not statistically significant in the first model and its AIC value is higher, we keep the second model. We, then, compute a tentative probability of IA by multiplying the predicted values of the model by T. ST is the difference between T and the probability of IA. This simple approach provides an educated guess at what the relative proportions of IA and ST are in those surveys reporting all terminations together. While a simple approximation, it is complex enough to capture that the probabilities of ST decline when IA is very high due to the competing nature of both risks since women undergoing an IA are no longer at risk of ST [48].

Table 1: Model estimates of the probability of induced abortion from the probability of pregnancy termination (T).

3 Results

3.1 Patterns of pregnancy termination

Levels of T at the survey level vary significantly between surveys and according to demographic characteristics (see S-table 2). The lower panel of figure 1 displays the overall percentage of terminated pregnancies, T, for the 107 surveys. For those surveys that report the type of outcome, the bars display the respective contribution of IA and ST to all terminations. A first pattern emerges: High values of T are connected with a high prevalence of IA, with ST levels not increasing or even decreasing in countries with high proportions of terminated pregnancies. We also see that most countries reporting the type of PT are high abortion

countries except for Indonesia 2012 and Philippines 2003. However, most of the surveys not reporting the type of outcome have low proportions of PT suggesting that in those countries most reported terminations are spontaneous.

The upper panel of figure 1 introduces the differences in the type of outcome according to contraceptive use at the time of pregnancy for those 16 surveys reporting the type of PT. Graph A contains the same information of the lower panel whereas graphs B and C refer to not-users and users of contraception respectively, the latter experiencing contraceptive failure. We can see that, consistent with our expectations, the probabilities of termination are much higher for women that were using contraceptives, indicating that they were not willing to get pregnant. The reason behind is a higher level of IA resulting in countries where most pregnancies occurring while using do not end in a live-birth. Indeed, those countries with an extremely high prevalence of IA have, if something, lower levels of ST probably due to the competing nature of the risks. Whereas women using have the highest rates of IA, and therefore T, countries with a high incidence of abortion among users tend also to have higher abortion rates among not users.

Figure 1: Probability of pregnancy termination by survey.

Figure 2 shows the relation between T of users and non-users in all surveys using a logarithmic scale. Almost all surveys are above the black diagonal (x = y). This means that women experiencing contraceptive failure are more likely to report terminations than women not using contraceptives. Given the patterns found in figure 1 for surveys with information on the type of outcome, the most likely explanation is that contraceptive users are more likely to recur to IA. While the probability of termination is higher among users than not users, a positive association is observed in consonance with the results for the countries reporting the type of PT. This means that countries with relatively high levels of PT among users also tend to have high T for non-users. Regional differences can also be inspected by looking at color. Countries in Central and West Asia & Europe tend to have the highest levels of T both for

users and non-users. Latin American countries tend to have medium levels of termination for both groups. All African countries have relatively low levels of T with relatively high variance in the differences according to contraceptive use. South and Southeast Asia is very heterogeneous with countries like Cambodia and Nepal having high reported termination rates, whereas Timor Leste reports the lowest levels for both users and not-users. Lines connect surveys of the same country and labels are placed in the point of the earliest survey. Ascending lines tend to predominate indicating that termination rates move together for users and non-users, but there are exceptions, mostly in countries with low levels of T, like in Africa or Asia. Regarding trends over time, there are countries with increasing termination rates like Ghana or Nepal with others like Armenia experiencing declining rates.

Figure 2: Probability of pregnancy termination by contraceptive use at pregnancy.

Overall patterns of PT by age and union status are shown in the upper panel of figure 3. We can see that contraceptive users are more likely to experience terminations for all combinations of age and union status confirming that contraceptive failure points to a more likely use of IA. The overall percentages of T are 20.9% and 9.8%, respectively. Regarding the patterns according to age, in the case of contraceptive users, the likelihood of termination increases monotonically with age irrespective of union status. This is consistent with the use of IA at older ages to limit family size. In the case of non-users in-union, the largest group, T is minimal for the age-group 20-24 increasing monotonically at older ages. This is consistent with medical evidence on a minimum risk of ST at peak fertility ages. Irrespective of union status, the minimum risk of PT is reached at ages 20-24 (9.3% of terminated pregnancies) reaching a maximum of 20.4% at ages 40-49. Regarding union status, and for all combinations of use and age, women not in union are at a slightly higher risk of termination. On average, T is 10.8% for in-union women and 12% for those not-in-union.

Figure 3: Probability of pregnancy termination according to age, union status, and contraceptive use at pregnancy.

Results by region tend to share the same demographic patterns. In general terms, T increases with age beyond the 20-24 age-group, and it is higher for not-in-union women and women experiencing contraceptive failure (lower panel of figure 3). Nevertheless, there are sharp regional differences in the likelihood of PT and the relative importance of these variables. Africa has the lowest average T in our sample, 7.4%. Also, it shows the least differences among contraceptive users and not-users suggesting very low reported IA, with one exception: Women 15-29 not-in-union using contraception report somewhat higher termination rates suggesting some use of IA to avoid births outside of an union. In contrast to Africa, Central and West Asia & Europe has the highest estimates of T in our sample, 30.7%, and the highest differences according to contraceptive use: 64.9% of terminated pregnancies for users compared to 23.9% for not-users. This, again, suggests a high incidence of IA. Latin America lies in middle-ground compared to the previous two regions with an average T of 12.7%. This region presents an increasing trend by age from 10.5% at ages 15-19 to 24.5% at 45-49. Also, there are differences in T by union status and contraceptive use, 12.2% and 15.1% for in-union and not-in-union women, and 17.1% and 11.5% for users and not-users. In the case of South and Southeast Asia, we notice large confidence intervals for women not-in-union due to a combination of almost universal marriage and low fertility outside of marriage. The average T is similar to Latin America with an average T of 12.4%. We find a higher probability of PT as women ages, going from 10% at ages 20-24 to 24.2% at 40-49. However, the difference by union status is unclear due to the scarcity of cases for not-in-union women. According to contraceptive use at pregnancy, T is 23.8% and 11.6% for users and not-users, respectively. Detailed estimates by survey are in S-table 3.

We identified earlier that some regions, and in particular Africa and South and Southeast Asia, are heterogeneous in terms of the risk of PT and the relative differences according to contraceptive use. Cluster analysis can help in characterizing more homogeneous groups. Given the low number of pregnancies in some categories of age and union-status at the country level, and as described in the methods section, we group women not-in-union in two

large age-groups: 15-24 and 25-49. For the cluster analysis, each survey is characterized by 16 conditional probabilities: 8 for contraceptive users and 8 for non-users, for 6 age-groups in the case of women in-union and 2 age-groups for women not-in-union. (see S-table 4 for detailed estimates by survey). Four clusters emerge that have been labeled 1 to 4 in increasing order of T. These four clusters also have specific differentials according to age-group, union status, and contraceptive use at pregnancy. Such differential patterns are highlighted in the PCA. Figure 4 displays the surveys plotted according to the two first PCA dimensions. Principal component 1, capturing 77.1% of the variance, gives positive weight to all conditional probabilities providing a summary measure of terminations levels. Principal component 2 highlights differential patterns according to age, contraceptive use and union status, in particular, whether women not-in-union using contraceptives have higher T and the respective ages at which the risk of termination starts to increase (S-figure 1 displays the analysis by variable).

Figure 4: Principal components analysis by survey.

Graph A of figure 4 shows surveys according to region whereas in graph B they are grouped according to cluster. Clusters are much more homogeneous than the regions, that overlap to a certain extent. This confirms that relatively homogeneous groups of countries can be found that are ranked according to the overall level of termination as suggested by dimension 1, but that also differ qualitatively according to dimension 2, as is the case of cluster 3. To better interpret the clusters, figure 5 displays a map identifying the cluster to which the country belongs in the latest survey. Also, figure 6 displays the cluster means for the different combinations of age-groups, union status, and contraceptive use. We notice how in all cases higher clusters have higher conditional probabilities of PT, but they differ in the relative differences from cluster to cluster. Cluster 1, red color, shows the lowest values of T with small differences according to union status. It is composed mainly of sub-Saharan Africa and insular Southeast Asia, but it also includes Central America, Bolivia, Paraguay,

and Albania 2017. These would be countries reporting very few IA and very low levels of ST as well. In this cluster, reported pregnancies do not increase monotonically with age for women in-union. The minimum is observed at age 20-24 for not-users and 25-29 for contraceptive users. The only group that might be reporting some IA are contraceptive users not-in-union. Cluster 2, blue color, includes the rest of Latin American countries, South Asia, and some countries in sub-Saharan Africa (Ghana, Liberia, and Uganda 2016) with higher probabilities of termination than cluster 1. Minimum termination probabilities are observed in the youngest age group. Although termination rates are much lower than in cluster 3, particularly for in-union women using contraception, the differences disappear in the case of women not-in-union. Cluster 3, green color, includes some surveys from Europe and Asia characterized by high termination rates for women in-union with a large differential according to contraceptive use, and low probabilities of termination for women not-in-union. It includes Kyrgyzstan, Tajikistan, Turkey, Ukraine, Cambodia, Nepal 2016, and the latest Armenian surveys. Finally, cluster 4, purple color, includes surveys having high levels of T and large differentials according to age and contraceptive use. It includes countries in the Former-Soviet Union with a traditionally high incidence of IA like earlier Armenia, Azerbaijan, Kazakhstan, and Moldova. Both cluster 3 and 4 share high differentials in T according to age for women in-union suggesting the use of IA to limit family size.

It is interesting to document the few countries that change cluster over time since these tend to be associated with profound changes. Three countries are moving over time to a cluster with lower T: Armenia, from 4 to 3; Tajikistan, from 3 to 2; and Albania from 2 to 1. In contrast, there are also three countries moving upwards: Uganda from 1 to 2 in 2016, Peru from 1 to 2 in 2007, and Nepal from 2 to 3 in 2016. Colombia belongs in all six surveys to cluster 2 except for a temporary decline to cluster 1 in 1995.

Figure 5: Countries by cluster in the latest DHS survey.

Figure 6: Cluster means by age, union status, and contraceptive use.

Regarding possible explanations for the patterns found, we assess differences according to the legal status of abortion. Figure 7 displays violin plots of overall probabilities of termination in log-scale according to the cluster and how restrictive was the abortion law at the time of the survey. We see that all surveys in contexts of restrictive laws belong to clusters 1 and 2 of low termination. This suggests that in all countries with restrictive laws there are low reported levels of IA. As a result, differences in levels of reported ST must be behind the proportionally large differences in T, many of them too low even as estimates of ST only. While even in these countries with low reported terminations the magnitude and direction of differentials seem consistent, we cannot be sure based only on this evidence whether restrictive laws lead to low IA levels, or to underreporting of IA, due to concerns regarding legal implications. On the other hand, countries with less restrictive abortion laws are very heterogeneous, including countries belonging to all 4 clusters: Albania and Tajikistan are countries where abortion is legal but reporting low levels of termination. This suggests that a more liberal law does not necessarily mean high levels of IA. While underreporting might also be present here, there seems to be less rationale for the intentional omission of IA. At the other end of the spectrum, all the countries with a high incidence of termination driven by IA in clusters 3 and 4 are characterized by liberal abortion laws. Note that reported probabilities of termination can be extremely high, particularly for older women in-union using contraception.

Figure 7: Probability of pregnancy termination by cluster and abortion-legality status.

There are also some countries with surveys that differ according to whether the type of PT is reported or not. It is the case of the Philippines, Colombia, Albania, Armenia, and Turkey. There does not seem to be systematic differences in reporting according to this dimension. In the Philippines, Colombia, and Turkey reported T are very similar in both cases indicating that this dimension does not drive the differences. In Albania, T is lower in the later survey not reporting the type of PT, but this is consistent with external evidence on the declining incidence of IA [49]. In the case of Armenia, the lower rates of T in later surveys including

information on the type of outcome are internally consistent in pointing to declining abortion rates, although qualitative evidence points that there might be underreporting in later surveys connected with the growing importance of self-administered medication abortion [50].

The survey-level variability at the cluster level can be appreciated in figure 8, and it is reported in supplementary tables S-table 3 and S-table 4. Although each cluster includes only similar surveys, there are some outliers for a given age-group and union status. In particular, there are instances of countries with low overall levels of T in clusters 1 and 2 but having very large probabilities of IA for women not-in-union like Nigeria, Ghana, or the Dominican Republic. Albania belongs to the low termination clusters but shows relatively high termination rates for women in-union at ages 40-49. In clusters 1 and 2, the more considerable variability of probabilities for not-contraceptive users has to do with smaller numbers, therefore, showing more erratic patterns.

Figure 8: Probabilities of pregnancy termination by cluster and union status, according to age and contraceptive use prior to pregnancy.

3.2 Termination rates and tentative separation of terminations

The analysis of T suggests that PT are more common among older women consistent both with increased risk of ST and higher prevalence of IA to limit family size. However, there are relatively few pregnancies at older ages and many more pregnancies at peak reproductive ages. When $ASTRs$ are computed, we find that termination rates tend to show an inverted U-shaped pattern peaking mostly in the 25-29 age-group for countries with high abortion rates, with more heterogeneity in peak ages for clusters 1 and 2 (see figure 9). Cluster 1 has the lowest $ASTR$ and smooth trends by age with maximum values at ages 30-34, although Senegal and Uganda have the highest peaks at ages 35-39. Cluster 2 has the maximum values between the ages of 20-24 and 25-29, especially Ghana and Tajikistan. This suggests that whereas from a medical perspective we should expect a higher likelihood of termination in

older pregnant women, from a public health perspective we should expect women experiencing terminations to be younger. Survey-specific $ASTRs$ are shown together with the age-specific probabilities of termination in S-figure 2 and printed in S-table 3.

Figure 9: Age-specific termination rate by cluster.

Termination rates provide two alternative indicators of the quantum of PT: TTR and GTR. Figure 10 compares TTR and GTR with T. $TTRs$ indicate that in all countries in clusters 1 and 2, women are expected to experience on average less than one pregnancy loss over their reproductive life. GFR shows that this corresponds to a risk of less than 25 per thousand of experiencing a termination in a given year. In contrast, in high abortion countries, TTR can be higher than two terminations. There is generally a close association between T and both TTR and GTR as captured by the non-parametric regression line. Differences among the three quantum measures are driven by the population structure and the age-structure of women using contraception. TTR is not affected by construction by the age-structure, but might still be affected if the age-structure of contraceptors is different from the overall population of women. Note that we can think of TTR as the sum of a Total Induced Abortion Rate and a Total Spontaneous Termination Rate. TPR can be derived as the sum of TTR and TFR.

Figure 10: Total termination rate, general termination rate, and probability of pregnancy termination.

From a reproductive health perspective, the implications and determinants of ST and IA are very different, and it would be interesting to obtain separate estimates of the incidence of ST and IA. As presented in figure 1, information from the 16 DHS surveys reporting separately IA and ST suggests that differences in IA are mainly driven by differences in T. That is the idea behind the proposed logistic regression model for the probability of IA conditional on termination as a function of T. Figure 11 presents the resulting IA estimates for all the surveys included in our sample corresponding to model 2. While the model fit

is far from perfect, it provides a good approximate indication of the range of likely IA and ST. It suggests that the implicit reported proportion of pregnancies ending in ST increases slowly with T up to a maximum of around 10 percent, declining at very high levels of T due to competing risks. It also suggests a very low proportion of pregnancies reported to end as IA in countries with low T, like in clusters 1 and 2. Note that the gray shadows indicate the observed patterns and the model fits for the surveys reporting the type of outcome. Since there are only two surveys with very low probability of termination, model estimates are driven more by the patterns in surveys with higher values of T. For those two surveys the fitted probabilities of IA are higher than the observed values suggesting that the estimates should be taken as an upper bound for reported IA in countries with low reported T.

Figure 11: Induced abortion model estimates.

We have finally estimated TPR by adding-up TFR and TTR. Our use of a consistent period for both measures makes this possible. Estimates at the survey level are provided in S-table 5. We can see in figure 12 that TPR is higher in contexts with lower use of modern contraceptives indicating the role of contraception in preventing pregnancies. Once a pregnancy begins, IA provides a final mean of avoiding childbearing. The relative size of the TFR and TTR in the TPR bars indicates these different ways of managing reproduction. Note that our estimates of TPR also include reported ST. This will make them higher than alternative estimates only including IA and live-births [5]. On the other hand, those estimates combine DHS estimates of fertility with higher estimates of IA produced by the Guttmacher Institute [3]. While overall increasing levels of modern contraceptive prevalence are associated to a lower number of pregnancies the relation is far from perfect. Other proximate determinants such as union-formation and sexual activity are also expected to play a role.

Figure 12: Total pregnancy rate (left-axis) and current contraceptive use of any modern method (right-axis) by survey.

4 Discussion

We have analyzed reported patterns of PT according to age, union status, and contraceptive use prior to pregnancy. This is the first such comparative study based on reproductive calendar history from DHS surveys and including all surveys irrespective of whether the type of pregnancy outcome is reported or not. Moreover, our protocol to select pregnancies makes it possible to relate the estimated conditional probabilities of termination to the age-specific fertility rates in the 3-years before the interview in order to derive consistent estimates of age-specific termination rates, total termination rates, total pregnancy rates, and related measures of reproductive health. Also, the comparison of surveys reporting and not reporting the type of pregnancy termination and from different contexts regarding the legality of abortion helps in the interpretation of the patterns found.

Consistent with expectations and with available evidence [1,10–12], we find for most surveys, and especially for surveys reporting a high incidence of pregnancy termination, that women that were using contraception at the time of pregnancy and experienced a contraceptive failure are much more likely to report a PT. This suggests increasing likelihood of IA for these women as confirmed in the few surveys reporting the type of termination.

We also find that, while reported termination rates are higher for women using contraception, higher probabilities of termination for contraceptive users move together with higher probabilities for non-contraceptive users. There can be different factors behind this such as differences in the legal framework and the cultural acceptability of abortion. However, there is also the presence, among non-users, of women with unmet need for contraception. Although they are not using contraception, they are not willing to get pregnant. Moreover, in terms of IA, they behave more similar to contraceptive users since in both cases the pregnancy is unintended [51].

Regarding differences according to the legal framework, we find low reported probabilities of termination in all countries with restrictive laws, but there are also countries where abortion

is legal reporting low incidence, such as Albania or Tajikistan. While this is consistent with higher levels of underreporting in contexts where IA is not legal, legal consequences could also deter the practice of IA. Differences in the DHS interview protocol might also be behind some of these differences. While we have found no differences according to whether the survey reported IA and ST as separate outcomes, there are grounds for improvement in reporting making sure that the questions are understood, increasing the confidentiality of reporting, or including specific questions on self-administered medication abortion [2,30,50,52].

Little is known behind the drivers of omssions in reported PT and more research is needed to determine to what extent differences in reported patterns are due to underlying differences in PT, in self-awareness of PT, or intentional and unintentional omissions. The use only of the most recent pregnancies in our research should minimize some of the problems connected to omissions that increase with time since the interview [8]. The fact that overall reported levels in ST tend to be stable over time suggests that cultural factors or the functioning of public health systems might be behind these changes [29]. Levels of reported T are relatively stable and different surveys from the same country or for neighboring countries tend to fall in the same termination cluster. For the few countries changing cluster adscription over time, external sources suggest that changes in the incidence of IA are behind these changes [49,50,53], except in the case of Uganda [54].

Demographic differences in reported PT are important and consistent with previous research [13–17]. For instance, as a woman ages, the probability of PT rises suggesting a higher risk of ST in low abortion countries, and the use of IA for limiting family size in high abortion settings. Also, not-in-union women have higher chances of ending their pregnancies before live-birth. However, these estimates consider exclusively the likelihood rather than the magnitude. In this regard, age-specific termination rates tend to be higher for women aged between 20 and 29 since pregnancy rates are much higher for them.

Cluster and PCA analysis suggest geographic proximity of patterns not only in reported levels

but also in differentials according to age, union status, and contraceptive use at the time of pregnancy. However, there is some heterogeneity at the regional level. Latin American and African surveys belong to the two lowest PT clusters. Eurasia reports the maximum levels of PT, showing the largest differentials in countries in the former Soviet Union and where abortion is legal. Countries in insular Southeast Asia report some of the lowest levels. Cluster 2, in particular, shows that some countries reporting low levels of PT tend to report rates that are as high as in cluster 3 for women not-in-union using contraceptives. This suggests the use of IA to prevent out-of-union childbearing.

The use of a consistent framework for PT estimation and fertility estimation has allowed us to move from conditional probabilities of termination to age-specific termination rates, total termination rate, and the total pregnancy rate. While contraceptive use at pregnancy is associated with a higher likelihood of termination at the pregnancy level, the use of efficient contraceptive methods reduces the risk of getting pregnant contributing to a lower total pregnancy rate.

Given the observed pattern that high levels of reported T are associated with increasing IA levels, it is possible to interpret differences in T as differences in IA. In particular, clusters 3 and 4 include countries reporting high levels of termination and known to be high abortion countries. We propose a simple tentative approach to separate ST and IA based on total PT, based on surveys that report the type of termination. This model suggests that in most DHS surveys, especially those in clusters 1 and 2, reported IA is very low. It also suggests significant differences in reported ST from country to country. While some of these differences can be interpreted, such as low levels in high abortion countries due to competing risks of IA and ST, there is currently a lack of understanding of what lies behind these differences. More research would be needed to address the roles of culture, education, and differential access to reproductive health behind them. The fact that many of the countries reporting the lowest rates of PT are countries with the poorest levels of access to reproductive health,

with high maternal mortality and infant mortality and low levels of antenatal care, such as many sub-Saharan African countries, suggests that cultural differences in the self-awareness of PT and clinical monitoring of pregnancies could be behind the differences more than real differences in the risk of PT. More research needs to be done in this respect, mainly due to the increased importance given to more sophisticated indicators of reproductive health, like stillbirth rates, unsafe abortions, or births and abortions prevented by using contraception in international monitoring efforts such as the Family Planning 2020 initiative [32]. Measuring accurately reproductive health indicators is key to well-informed decisions and adequately monitoring the progress in the achievement of internationally agreed objectives, like universal access to reproductive health [31].

Our research also has implications regarding fertility and family planning measurement. In particular, our results suggest the importance of treating separately contraceptive users and non-users when accounting for PT due to the significant connection between contraceptive use and terminations. Such connection is absent, for instance, in the proximate determinants framework of fertility analysis [33,34]. It is also important to learn more behind the drivers of reported PT. Whereas current international monitoring tends to use DHS surveys for estimation of fertility, contraception, unintended pregnancies, and unmet need, estimates of PT are not used due to concerns regarding their completeness [3,6,9]. However, if reported PT is not complete, estimates of unmet need and unintended pregnancies will also not be complete, and the role of contraception in the prevention of pregnancies will be underestimated. While we do not claim reported PT levels to be complete, the patterns reported in this research are at least internally consistent and could be taken as a departure point. Note also that rates reported here are much higher than alternative estimates based on prospective cohort monitoring [28].

Table 1: Model estimates of the probability of induced abortion from the probability of pregnancy termination (T).

	Model 1	**Model2**
Intercept	-1.635^{*}	-1.632^{**}
	(0.836)	(0.826)
T	7.582^{**}	6.733^{**}
	(3.220)	(2.796)
$use = 1$	-0.584	
	(1.007)	
AIC	29.716	28.028
BIC	34.113	30.959
Log Likelihood	-11.858	-12.014
Num. obs.	32	32

$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

S-table 1: Sample size. Weighted number of women included in the sample by age and union status and weighted number of pregnancies by outcome.

			Percentage of women								Pregnancies ending in	
Code	Survey	Women	In-union	15-19	20-24	25-29	30-34	35-39	40-49	Pregnancies	Birth	Termination
Africa												
AO	Angola 2015	25,567	65.2	25.2	21.8	17.7	12.3	11.6	11.3	8,880	8,288	592
BF	Burkina Faso 2010	31,132	82.9	21.0	20.1	18.6	14.5	12.0	13.8	10,029	9,530	499
BJ	Benin 2011	29,692	77.6	18.9	20.4	19.8	16.3	12.6	12.1	8,253	7,937	316
BU	Burundi 2010	16,403	65.4	27.4	20.9	16.5	11.6	10.7	12.8	5,428	5,032	396
BU	Burundi 2016	30,485	65.3	23.5	20.7	16.3	14.7	11.3	13.4	9,060	8,321	739
ET	Ethiopia 2005	23,964	68.2	26.7	21.4	17.6	12.4	10.8	11.1	7,078	6,770	308
ET	Ethiopia 2011	29,672	75.1	24.5	21.3	18.5	13.6	11.1	11.0	7,506	7,036	470
ET	Ethiopia 2016	27,528	73.6	24.4	19.1	19.7	14.3	12.2	10.3	7,006	6,636	370
GH	Ghana 2008	8,859	69.6	22.3	19.4	16.7	14.6	12.9	14.2	2,097	1,799	298
GH	Ghana 2014	17,169	69.2	18.6	18.7	17.9	14.8	13.8	16.1	4,390	3,593	797
KE	Kenya 1998	13,636	64.4	25.3	20.6	17.3	14.1	12.1	10.5	3,748	3,540	208
KE	Kenya 2003	14,857	61.2	24.8	21.0	17.7	13.4	10.9	12.2	4,034	3,809	225
KE	Kenya 2008	15,151	70.1	23.0	21.0	17.9	13.8	11.1	13.2	3,895	3,664	231
KM	Comoros 2012	9,059	69.3	26.4	19.1	18.2	13.5	11.8	11.0	2,205	2,038	167
LB	Liberia 2013	16,786	76.3	20.8	18.4	17.8	14.2	13.4	15.4	4,599	4,047	552
LS	Lesotho 2009	13,521	66.6	25.0	21.0	15.9	12.7	10.3	15.1	2,530	2,395	135

S-table 1: Sample size. Weighted number of women included in the sample by age and union status and weighted number of pregnancies by outcome. *(continued)*

			Percentage of women								Pregnancies ending in	
Code	Survey	Women	In-union	15-19	20-24	25-29	30-34	35-39	40-49	Pregnancies	Birth	Termination
LS	Lesotho 2014	11,764	65.3	24.8	20.5	16.9	13.8	10.9	13.1	2,253	2,068	185
MA	Morocco 1992	14,145	67.7	15.6	22.9	17.0	16.7	13.2	14.5	3,445	3,152	293
MA	Morocco 2003	30,068	60.2	21.9	18.9	16.4	12.5	12.2	18.1	4,123	3,636	487
MD	Madagascar 2008	31,458	80.9	23.7	17.4	17.4	14.2	12.7	14.6	8,297	7,690	607
ML	Mali 2012	18,960	85.9	21.6	19.7	21.4	14.8	11.4	11.1	6,392	6,133	259
MW	Malawi 2004	20,692	73.1	25.9	24.4	15.7	13.1	10.1	10.7	7,235	6,877	358
MW	Malawi 2010	41,117	82.5	21.7	21.6	19.2	14.6	11.0	11.9	13,049	12,329	720
MW	Malawi 2015	43,386	77.7	23.8	20.9	18.1	15.8	11.7	9.6	11,077	10,450	627
MZ	Mozambique 2011	24,487	77.8	22.4	20.0	18.0	13.9	12.1	13.6	7,888	7,392	496
NG	Nigeria 2008	61,182	75.6	22.0	20.7	18.8	13.2	11.7	13.6	18,702	17,370	1,332
NG	Nigeria 2013	70,955	75.2	21.8	19.2	18.6	13.7	12.0	14.8	21,249	19,642	1,607
NI	Niger 2012	19,981	88.9	21.2	20.1	21.8	14.3	11.1	11.5	8,955	8,325	630
NM	Namibia 2006	17,254	43.3	23.9	20.1	17.3	14.0	11.9	12.7	3,385	3,205	180
NM	Namibia 2013	16,361	42.1	22.5	19.9	17.1	14.7	12.0	13.8	3,312	3,083	229
RW	Rwanda 2010	24,554	61.9	22.4	21.7	18.2	12.9	10.4	14.4	5,835	5,418	417
RW	Rwanda 2014	24,480	61.9	21.0	19.4	18.5	16.0	11.6	13.5	5,556	5,118	438
SL	Sierra Leone 2008	13,396	79.7	20.4	20.8	20.3	15.5	12.0	11.1	3,946	3,697	249
SL	Sierra Leone 2013	28,995	74.8	23.3	18.3	18.0	15.0	12.9	12.5	7,952	7,414	538

S-table 1: Sample size. Weighted number of women included in the sample by age and union status and weighted number of pregnancies by outcome. *(continued)*

			Percentage of women								Pregnancies ending in	
Code	Survey	Women	In-union	15-19	20-24	25-29	30-34	35-39	40-49	Pregnancies	Birth	Termination
SN	Senegal 2012	15,240	71.0	26.6	21.7	17.2	12.6	10.1	11.7	4,419	4,008	411
SN	Senegal 2014	14,926	72.6	25.1	20.9	18.6	13.2	10.5	11.7	4,188	3,839	349
SN	Senegal 2015	15,692	71.9	25.8	19.8	18.9	12.7	11.4	11.5	4,294	3,903	391
SN	Senegal 2016	15,709	72.9	25.4	20.6	17.7	14.0	10.6	11.8	4,115	3,741	374
SN	Senegal 2017	29,760	71.2	25.0	18.7	18.6	14.6	11.6	11.5	7,728	6,930	798
TZ	Tanzania 2004	18,442	67.8	23.1	20.6	18.3	14.5	10.8	12.6	6,052	5,520	532
TZ	Tanzania 2010	18,097	75.0	22.1	19.6	17.1	14.3	12.6	14.3	5,535	5,088	447
TZ	Tanzania 2015	23,887	73.3	23.5	19.1	16.6	13.9	12.7	14.3	6,999	6,314	685
UG	Uganda 2006	15,203	78.2	23.2	20.3	17.8	14.6	11.3	12.8	5,778	5,217	561
UG	Uganda 2011	15,543	75.0	23.7	21.1	18.4	13.5	11.6	11.6	5,572	5,015	557
UG	Uganda 2016	33,314	73.9	24.4	20.7	17.8	13.4	11.4	12.3	10,528	9,375	1,153
ZM	Zambia 2007	12,682	73.8	23.2	22.6	19.1	14.0	10.3	10.7	4,384	4,112	272
ZM	Zambia 2013	29,627	72.3	23.9	18.9	18.2	14.8	12.2	12.0	8,592	8,108	484
ZW	Zimbabwe 1994	10,776	64.9	25.5	20.7	16.7	13.7	11.5	12.0	2,645	2,427	218
ZW	Zimbabwe 1999	9,872	62.5	28.4	23.2	16.9	9.0	10.8	11.6	2,452	2,252	200
ZW	Zimbabwe 2005	15,481	61.1	27.2	22.0	16.9	12.5	9.6	11.8	3,557	3,298	259
ZW	Zimbabwe 2010	16,255	72.0	23.9	21.8	18.5	14.8	10.8	10.2	3,981	3,702	279
ZW	Zimbabwe 2015	17,660	73.2	21.3	19.2	18.5	16.5	12.7	11.8	4,207	3,851	356

S-table 1: Sample size. Weighted number of women included in the sample by age and union status and weighted number of pregnancies by outcome. *(continued)*

			Percentage of women								Pregnancies ending in	
Code	Survey	Women	In-union	15-19	20-24	25-29	30-34	35-39	40-49	Pregnancies	Birth	Termination
Central and West Asia & Europe												
AL	Albania 2008	11,904	69.4	20.4	14.7	11.9	15.5	19.6	18.0	1,049	882	167
AL	Albania 2017	17,926	80.7	9.6	16.4	14.1	15.1	16.1	28.7	1,767	1,604	163
AM	Armenia 2000	11,234	70.3	19.5	15.8	12.4	14.6	16.7	21.0	2,508	932	1,576
AM	Armenia 2005	9,783	75.2	12.6	15.2	14.8	14.3	17.0	26.2	2,035	978	1,057
AM	Armenia 2010	9,427	74.8	11.2	21.7	16.0	14.7	13.8	22.5	1,508	956	552
AM	Armenia 2015	10,568	76.1	8.0	19.2	19.8	17.1	15.3	20.7	1,549	1,048	501
AZ	Azerbaijan 2006	14,366	67.3	20.7	17.5	14.3	14.1	15.9	17.5	3,121	1,491	1,630
KK	Kazakhstan 1999	8,507	65.4	17.8	14.9	16.9	16.4	16.2	17.8	1,613	856	757
KY	Kyrgyz Republic 2012	14,831	73.6	20.1	19.7	15.9	13.1	12.5	18.8	3,436	2,665	771
MB	Moldova 2005	13,033	67.5	20.9	16.0	14.4	13.5	12.9	22.2	1,854	1,036	818
TJ	Tajikistan 2012	17,680	69.9	22.8	20.3	15.7	12.6	11.8	16.7	4,111	3,455	656
TJ	Tajikistan 2017	19,554	74.5	20.4	19.5	18.5	13.9	12.1	15.6	4,850	4,079	771
TR	Turkey 1998	13,319	81.3	15.1	18.3	17.5	17.8	14.7	16.5	2,860	2,158	702
TR	Turkey 2003	15,300	94.8	5.6	15.8	19.8	17.8	17.8	23.2	3,200	2,464	736
UA	Ukraine 2007	12,342	76.9	14.3	15.7	16.2	16.0	15.9	21.8	1,061	701	360
Latin America												

S-table 1: Sample size. Weighted number of women included in the sample by age and union status and weighted number of pregnancies by outcome. *(continued)*

			Percentage of women								Pregnancies ending in	
Code	Survey	Women	In-union	15-19	20-24	25-29	30-34	35-39	40-49	Pregnancies	Birth	Termination
BO	Bolivia 1994	15,303	64.5	21.9	18.9	17.4	15.5	12.5	13.7	4,086	3,718	368
BO	Bolivia 2008	31,082	67.9	21.2	17.6	16.9	14.2	13.0	17.2	6,217	5,412	805
BR	Brazil 1996	22,715	63.1	20.2	16.9	17.3	15.8	13.7	16.2	3,386	2,927	459
CO	Colombia 1990	15,418	64.9	22.3	21.5	19.0	14.5	11.1	11.6	2,684	2,348	336
CO	Colombia 1995	20,150	57.8	19.8	19.3	17.7	14.2	13.4	15.6	3,543	3,143	400
CO	Colombia 2000	21,255	54.6	21.0	17.3	16.1	15.3	14.0	16.3	3,350	2,823	527
CO	Colombia 2005	70,147	55.4	19.0	17.6	15.3	14.8	14.3	19.0	10,185	8,374	1,811
CO	Colombia 2010	89,239	70.5	19.5	16.8	16.1	14.5	14.3	18.8	11,639	9,568	2,071
CO	Colombia 2015	66,362	71.3	18.7	16.9	15.6	14.9	13.4	20.5	7,807	6,603	1,204
DR	Dominican Republic 1991	12,546	63.4	25.5	22.5	17.7	14.3	11.0	9.0	2,877	2,463	414
DR	Dominican Republic 1996	14,905	65.3	22.9	20.1	17.2	14.7	12.9	12.3	3,255	2,709	546
DR	Dominican Republic 1999	2,028	62.6	24.1	21.3	19.4	16.9	7.7	10.6	435	340	95
DR	Dominican Republic 2002	41,477	67.7	21.7	18.4	16.6	14.9	13.9	14.4	8,065	6,761	1,304
GU	Guatemala 1995	21,716	70.9	24.3	19.2	14.8	13.6	12.8	15.4	6,179	5,811	368
GU	Guatemala 1998	10,598	71.4	24.7	19.8	15.8	13.3	12.6	13.9	2,988	2,813	175
GU	Guatemala 2014	47,045	68.1	23.1	19.1	16.0	14.2	12.3	15.4	8,300	7,649	651
GY	Guyana 2009	8,916	70.9	20.3	15.6	15.2	14.7	14.8	19.3	1,567	1,225	342
HN	Honduras 2005	36,022	73.7	23.3	19.6	16.4	13.9	11.7	15.0	6,767	6,154	613

S-table 1: Sample size. Weighted number of women included in the sample by age and union status and weighted number of pregnancies by outcome. *(continued)*

			Percentage of women								Pregnancies ending in	
Code	Survey	Women	In-union	15-19	20-24	25-29	30-34	35-39	40-49	Pregnancies	Birth	Termination
HN	Honduras 2011	41,241	72.6	23.2	19.0	16.3	14.3	12.1	15.0	7,120	6,420	700
NC	Nicaragua 1998	23,629	67.4	25.1	19.2	17.3	14.6	12.0	11.7	5,145	4,734	411
PE	Peru 1991	28,575	59.7	23.1	19.8	16.9	14.7	12.4	13.1	5,696	5,114	582
PE	Peru 1996	52,860	63.8	21.5	18.9	17.3	15.1	12.7	14.5	10,459	9,408	1,051
PE	Peru 2000	50,579	62.2	20.7	18.1	16.4	15.5	13.5	15.8	8,027	7,201	826
PE	Peru 2004	34,361	61.3	19.6	17.3	16.3	15.6	14.6	16.6	4,531	4,019	512
PE	Peru 2007	40,992	62.6	18.7	16.7	15.9	15.5	13.2	19.9	5,949	5,116	833
PE	Peru 2009	44,210	63.1	18.7	16.5	15.9	15.4	14.7	18.9	6,514	5,599	915
PE	Peru 2010	41,908	62.6	18.5	16.3	15.9	15.7	14.7	19.0	6,115	5,150	965
PE	Peru 2011	40,991	63.2	18.1	16.1	16.0	15.8	14.8	19.2	6,109	5,184	925
PY	Paraguay 1990	10,530	64.6	22.4	19.1	17.5	14.2	12.1	14.6	2,789	2,485	304
South and Southeast Asia												
IA	India 2005	227,719	72.6	21.3	19.4	17.3	15.1	13.0	14.0	38,223	33,576	4,647
ID	Indonesia 2012	84,923	71.9	16.1	15.9	17.1	16.0	15.4	19.5	11,858	10,600	1,258
KH	Cambodia 2010	33,889	69.9	21.2	18.7	18.2	10.1	12.5	19.4	6,514	5,108	1,406
KH	Cambodia 2014	32,230	71.9	18.7	18.4	18.1	16.1	10.3	18.4	5,985	4,555	1,430
NP	Nepal 2011	22,776	78.0	23.1	19.4	16.8	14.4	12.6	13.7	3,848	3,275	573
NP	Nepal 2016	23,046	81.9	22.1	17.1	16.6	14.6	13.0	16.6	3,749	3,008	741

S-table 1: Sample size. Weighted number of women included in the sample by age and union status and weighted number of pregnancies by outcome. *(continued)*

			Percentage of women								Pregnancies ending in	
Code	Survey	Women	In-union	15-19	20-24	25-29	30-34	35-39	40-49	Pregnancies	Birth	Termination
PH	Philippines 1993	26,738	63.7	21.4	18.9	17.6	14.7	13.4	14.0	6,144	5,549	595
PH	Philippines 1998	24,745	64.3	21.3	17.6	17.2	15.2	13.0	15.6	5,229	4,667	562
PH	Philippines 2003	24,282	66.2	19.6	17.9	16.5	15.9	13.5	16.6	4,787	4,288	499
TL	Timor Leste 2009	22,591	67.4	25.5	18.7	12.4	13.9	14.0	15.5	6,225	6,044	181
TL	Timor Leste 2016	21,001	63.0	25.3	17.9	16.6	12.9	10.4	16.9	4,680	4,521	159

S-table 2: Weighted number of pregnancies (P) and probability of termination (T) included in the sample by contraceptive use, union status, and age-group.

					Contraceptive use				Union status				Age-group					
			Total		Using		Not using		In-union		Not-in-union		15-24		25-34		35-49	
Code	Survey	Cluster	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
Africa																		
AO	Angola 2015	1	8,880	6.7	38	23.7	8,842	6.6	6,507	6.4	2,374	7.3	4,240	6.6	3,324	5.6	1,316	9.6
BF	Burkina Faso 2010	1	10,029	5.0	65	13.8	9,965	4.9	9,687	4.8	342	9.6	4,171	5.4	4,248	4.2	1,610	6.1
BJ	Benin 2011	1	8,253	3.8	39	10.3	8,215	3.8	7,434	3.6	819	6.1	3,180	3.9	4,001	3.5	1,072	5.0
BU	Burundi 2010	1	5,428	7.3	95	7.4	5,333	7.3	5,157	7.3	271	7.4	2,104	7.3	2,272	5.2	1,052	11.8
BU	Burundi 2016	1	9,060	8.2	151	6.0	8,909	8.2	8,463	8.3	598	5.5	3,051	7.8	4,310	6.5	1,699	12.9
ET	Ethiopia 2005	1	7,078	4.4	62	24.2	7,016	4.2	6,935	4.3	143	7.7	2,941	4.1	3,013	3.7	1,124	6.8
ET	Ethiopia 2011	1	7,506	6.3	373	7.2	7,133	6.2	7,315	6.2	191	7.9	3,074	6.5	3,288	4.3	1,144	11.2
ET	Ethiopia 2016	1	7,006	5.3	70	14.3	6,936	5.2	6,851	5.2	155	10.3	2,692	4.2	3,219	4.9	1,095	8.9
GH	Ghana 2008	2	2,097	14.2	162	17.3	1,935	14.0	1,811	11.8	286	29.4	811	15.5	931	12.5	355	15.8
GH	Ghana 2014	2	4,390	18.2	201	29.9	4,190	17.6	3,671	14.7	719	36.2	1,474	20.6	2,072	15.8	844	19.7
KE	Kenya 1998	1	3,748	5.5	326	4.9	3,422	5.6	3,069	5.2	679	7.1	1,837	5.2	1,487	5.4	424	7.5
KE	Kenya 2003	1	4,034	5.6	324	6.8	3,710	5.5	3,419	5.7	616	5.0	1,950	5.8	1,602	4.3	482	8.7
KE	Kenya 2008	1	3,895	5.9	495	5.7	3,400	6.0	3,249	6.4	647	3.7	1,818	4.0	1,584	5.7	493	13.6
KM	Comoros 2012	1	2,205	7.6	26	3.8	2,180	7.6	2,103	7.5	102	8.8	796	5.2	1,037	7.3	372	13.4
LB	Liberia 2013	2	4,599	12.0	91	37.4	4,507	11.5	3,498	11.9	1,101	12.2	2,154	10.1	1,765	12.6	680	16.5
LS	Lesotho 2009	1	2,530	5.3	228	7.0	2,301	5.2	1,962	5.5	568	4.9	1,359	5.1	906	4.9	265	8.3
LS	Lesotho 2014	1	2,253	8.2	260	6.2	1,992	8.5	1,696	8.5	556	7.6	1,181	6.4	820	9.6	252	11.9

S-table 2: Weighted number of pregnancies (P) and probability of termination (T) included in the sample by contraceptive use, union status, and age-group. *(continued)*

					Contraceptive use				Union status				Age-group					
			Total		Using		Not using		In-union		Not-in-union		15-24		25-34		35-49	
Code	Survey	Cluster	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
MA	Morocco 1992	1	3,445	8.5	435	11.3	3,010	8.1	3,430	8.5	15	6.7	1,034	7.5	1,660	8.3	751	10.4
MA	Morocco 2003	1	4,123	11.8	868	13.4	3,255	11.4	4,091	11.8	33	15.2	1,374	9.3	1,935	10.2	814	19.8
MD	Madagascar 2008	1	8,297	7.3	517	13.2	7,780	6.9	7,533	6.8	763	12.3	3,909	6.9	3,109	7.1	1,279	8.9
ML	Mali 2012	1	6,392	4.1	9	11.1	6,383	4.0	6,084	4.0	308	5.2	2,680	4.0	2,838	3.6	874	5.5
MW	Malawi 2004	1	7,235	4.9	240	3.8	6,995	5.0	6,651	4.9	584	5.1	3,932	4.8	2,474	4.4	829	7.0
MW	Malawi 2010	1	13,049	5.5	945	3.9	12,103	5.6	12,080	5.3	969	8.5	6,257	5.1	5,072	5.3	1,720	7.7
MW	Malawi 2015	1	11,077	5.7	225	6.2	10,853	5.6	9,652	5.4	1,426	7.4	5,612	5.8	4,167	5.1	1,298	6.9
MZ	Mozambique 2011	1	7,888	6.3	58	19.0	7,830	6.2	6,872	5.6	1,016	11.0	3,648	6.9	3,045	5.3	1,195	6.9
NG	Nigeria 2008	1	18,702	7.1	909	12.9	17,794	6.8	17,311	6.2	1,392	18.0	7,470	7.2	8,253	5.8	2,979	10.5
NG	Nigeria 2013	1	21,249	7.6	501	17.6	20,748	7.3	20,002	7.0	1,247	16.1	8,451	6.9	9,410	7.0	3,388	10.9
NI	Niger 2012	1	8,955	7.0	32	6.2	8,923	7.0	8,785	7.1	171	6.4	3,758	5.9	3,906	6.6	1,291	11.7
NM	Namibia 2006	1	3,385	5.3	309	4.2	3,076	5.4	1,705	7.1	1,680	3.5	1,486	3.6	1,385	5.3	514	10.5
NM	Namibia 2013	1	3,312	6.9	327	4.6	2,985	7.2	1,455	8.1	1,857	6.0	1,414	4.5	1,388	8.1	510	10.4
RW	Rwanda 2010	1	5,835	7.1	248	9.7	5,587	7.0	5,199	7.3	635	6.0	2,036	6.9	2,729	5.5	1,070	12.0
RW	Rwanda 2014	1	5,556	7.9	370	11.6	5,186	7.6	4,747	8.2	809	5.9	1,803	6.9	2,794	7.0	959	12.3
SL	Sierra Leone 2008	1	3,946	6.3	94	9.6	3,853	6.2	3,502	6.1	444	8.1	1,685	6.1	1,687	6.1	574	7.7
SL	Sierra Leone 2013	1	7,952	6.8	104	21.2	7,848	6.6	6,790	6.5	1,163	8.5	3,373	6.4	3,332	6.2	1,247	9.1
SN	Senegal 2012	1	4,419	9.3	33	12.1	4,386	9.3	4,209	9.4	209	6.7	1,773	9.4	1,886	7.9	760	12.6

S-table 2: Weighted number of pregnancies (P) and probability of termination (T) included in the sample by contraceptive use, union status, and age-group. *(continued)*

					Contraceptive use				Union status				Age-group					
			Total		Using		Not using		In-union		Not-in-union		15-24		25-34		35-49	
Code	Survey	Cluster	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
SN	Senegal 2014	1	4,188	8.3	28	10.7	4,159	8.3	3,915	8.4	273	7.0	1,570	7.4	1,913	8.4	705	10.2
SN	Senegal 2015	1	4,294	9.1	55	14.5	4,239	9.1	4,066	9.3	229	5.7	1,567	7.0	1,947	7.6	780	17.1
SN	Senegal 2016	1	4,115	9.1	91	9.9	4,024	9.1	3,930	8.9	185	12.4	1,523	7.6	1,898	8.1	694	15.0
SN	Senegal 2017	1	7,728	10.3	63	6.3	7,665	10.4	7,326	10.5	402	7.7	2,754	8.8	3,558	8.7	1,416	17.4
TZ	Tanzania 2004	1	6,052	8.8	255	13.7	5,796	8.6	5,288	8.3	764	12.3	2,765	7.5	2,492	8.1	795	15.5
TZ	Tanzania 2010	1	5,535	8.1	309	4.2	5,226	8.3	4,938	8.3	597	6.0	2,392	7.3	2,251	6.8	892	13.5
TZ	Tanzania 2015	1	6,999	9.8	368	12.2	6,631	9.7	6,053	9.7	946	10.5	3,121	8.5	2,719	9.3	1,159	14.5
UG	Uganda 2006	1	5,778	9.7	328	11.6	5,450	9.6	5,291	9.5	487	12.3	2,586	8.9	2,332	7.7	860	17.4
UG	Uganda 2011	1	5,572	10.0	253	9.9	5,319	10.0	5,040	9.6	532	13.5	2,587	9.4	2,187	8.1	798	17.0
UG	Uganda 2016	2	10,528	11.0	422	17.3	10,106	10.7	9,152	10.8	1,376	11.8	5,025	9.9	4,064	9.6	1,439	18.4
ZM	Zambia 2007	1	4,384	6.2	468	6.4	3,917	6.2	3,828	6.1	556	7.0	1,957	6.0	1,814	6.2	613	6.9
ZM	Zambia 2013	1	8,592	5.6	536	5.0	8,056	5.7	7,181	5.6	1,411	6.0	3,819	5.3	3,522	4.8	1,251	9.0
ZW	Zimbabwe 1994	1	2,645	8.2	279	9.7	2,366	8.1	2,231	8.2	414	8.2	1,295	8.2	992	6.5	358	13.4
ZW	Zimbabwe 1999	1	2,452	8.2	222	8.6	2,230	8.1	2,027	8.2	425	8.2	1,349	8.2	808	6.6	295	12.2
ZW	Zimbabwe 2005	1	3,557	7.3	358	6.4	3,199	7.4	3,028	7.4	529	6.6	1,940	6.9	1,274	6.0	343	14.3
ZW	Zimbabwe 2010	1	3,981	7.0	283	6.7	3,698	7.0	3,404	7.1	578	6.6	1,987	6.2	1,599	7.8	395	7.6
ZW	Zimbabwe 2015	1	4,207	8.5	346	7.2	3,860	8.6	3,634	8.4	572	9.1	1,879	9.0	1,805	6.2	523	14.3

Central and West Asia & Europe

S-table 2: Weighted number of pregnancies (P) and probability of termination (T) included in the sample by contraceptive use, union status, and age-group. *(continued)*

					Contraceptive use				Union status				Age-group					
			Total		Using		Not using		In-union		Not-in-union		15-24		25-34		35-49	
Code	Survey	Cluster	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
AL	Albania 2008	2	1,049	15.9	221	18.6	828	15.3	996	16.6	53	3.8	372	10.2	580	15.3	97	41.2
AL	Albania 2017	1	1,767	9.2	82	22.0	1,686	8.6	1,665	9.6	103	2.9	591	7.3	994	7.8	182	23.1
AM	Armenia 2000	4	2,508	62.8	1,080	85.2	1,428	45.9	2,495	62.8	13	61.5	988	40.1	1,096	74.0	424	87.0
AM	Armenia 2005	4	2,035	51.9	586	83.3	1,449	39.3	1,991	51.9	43	53.5	830	31.1	960	62.7	245	80.4
AM	Armenia 2010	3	1,508	36.6	276	67.4	1,232	29.7	1,487	36.9	20	15.0	690	22.8	677	46.1	141	58.9
AM	Armenia 2015	3	1,549	32.3	220	75.5	1,328	25.3	1,522	32.4	27	29.6	571	21.9	838	36.8	140	48.6
AZ	Azerbaijan 2006	4	3,121	52.2	664	82.4	2,457	44.1	3,069	52.6	52	32.7	1,234	31.4	1,382	60.6	505	80.4
KK	Kazakhstan 1999	4	1,613	46.9	374	78.3	1,238	37.6	1,458	45.5	154	61.0	653	35.2	746	51.3	214	67.3
KY	Kyrgyz Rep. 2012	3	3,436	22.4	213	50.2	3,222	20.6	3,317	22.4	119	23.5	1,458	17.6	1,543	24.4	435	31.7
MB	Moldova 2005	4	1,854	44.1	536	67.9	1,318	34.4	1,713	43.3	141	53.2	869	35.4	790	46.7	195	72.3
TJ	Tajikistan 2012	3	4,111	16.0	74	54.1	4,037	15.3	4,034	15.9	77	16.9	2,003	11.2	1,707	17.6	401	32.4
TJ	Tajikistan 2017	2	4,850	15.9	41	39.0	4,809	15.7	4,771	15.9	80	13.8	2,462	10.5	2,027	18.7	361	36.8
TR	Turkey 1998	3	2,860	24.5	615	45.7	2,244	18.8	2,849	24.5	10	30.0	1,316	17.6	1,233	25.9	311	48.9
TR	Turkey 2003	3	3,200	23.0	851	37.6	2,350	17.7	3,199	22.9	2	100.0	1,393	15.7	1,398	23.8	409	45.0
UA	Ukraine 2007	3	1,061	33.9	264	65.2	797	23.6	974	34.5	87	27.6	447	20.4	502	41.0	112	56.2
Latin America																		
BO	Bolivia 1994	1	4,086	9.0	776	13.8	3,310	7.9	3,651	9.2	435	7.6	1,625	6.9	1,806	10.4	655	10.5
BO	Bolivia 2008	1	6,217	12.9	1,522	15.5	4,695	12.1	5,150	13.1	1,067	12.0	2,618	10.6	2,578	13.3	1,021	18.1

S-table 2: Weighted number of pregnancies (P) and probability of termination (T) included in the sample by contraceptive use, union status, and age-group. *(continued)*

			Total		Contraceptive use				Union status				Age-group					
					Using		Not using		In-union		Not-in-union		15-24		25-34		35-49	
Code	Survey	Cluster	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
BR	Brazil 1996	2	3,386	13.6	697	16.8	2,689	12.7	2,699	13.0	687	15.7	1,658	12.5	1,326	11.7	402	24.1
CO	Colombia 1990	2	2,684	12.5	521	17.1	2,163	11.4	2,312	13.1	372	8.6	1,344	10.5	1,079	13.1	261	20.7
CO	Colombia 1995	1	3,543	11.3	965	14.5	2,578	10.1	2,867	11.6	675	9.9	1,751	10.0	1,420	11.7	372	15.9
CO	Colombia 2000	2	3,350	15.7	1,119	16.9	2,230	15.2	2,489	15.2	861	17.1	1,613	13.3	1,353	15.7	384	26.0
CO	Colombia 2005	2	10,185	17.8	2,937	21.5	7,248	16.3	7,425	16.7	2,760	20.7	5,200	16.2	3,746	17.4	1,239	25.8
CO	Colombia 2010	2	11,639	17.8	2,543	21.0	9,096	16.9	8,714	18.2	2,925	16.7	5,995	15.8	4,303	17.8	1,341	26.5
CO	Colombia 2015	2	7,807	15.4	1,582	19.3	6,224	14.4	5,908	15.3	1,899	15.7	3,913	13.2	3,099	16.5	795	22.3
DR	Dominican Rep. 1991	2	2,877	14.4	327	21.7	2,549	13.5	2,722	14.4	155	14.2	1,534	10.7	1,145	17.9	198	22.7
DR	Dominican Rep. 1996	2	3,255	16.8	398	19.1	2,857	16.5	2,933	15.9	322	25.2	1,818	15.4	1,234	17.2	203	26.6
DR	Dominican Rep. 1999	2	435	21.8	60	20.0	375	22.1	394	18.5	41	53.7	224	18.3	181	24.9	30	30.0
DR	Dominican Rep. 2002	2	8,065	16.2	1,044	21.6	7,021	15.4	7,094	14.6	971	27.9	4,557	15.3	2,969	16.3	539	22.4
GU	Guatemala 1995	1	6,179	6.0	245	11.0	5,934	5.7	5,845	6.0	334	4.8	2,952	5.1	2,355	5.6	872	9.7
GU	Guatemala 1998	1	2,988	5.9	197	11.2	2,791	5.4	2,736	5.7	252	7.1	1,451	4.5	1,125	6.7	412	8.5
GU	Guatemala 2014	1	8,300	7.8	935	10.8	7,365	7.5	7,313	8.0	987	6.8	4,193	6.3	3,179	8.2	928	13.7
GY	Guyana 2009	2	1,567	21.8	195	34.9	1,372	20.0	1,254	22.2	313	20.1	768	15.5	583	25.2	216	35.2
HN	Honduras 2005	1	6,767	9.1	1,053	12.5	5,713	8.4	6,241	9.0	526	10.1	3,417	7.1	2,545	8.8	805	18.1
HN	Honduras 2011	1	7,120	9.8	757	14.3	6,363	9.3	6,281	10.2	838	6.8	3,709	8.1	2,658	9.8	753	18.5
NC	Nicaragua 1998	1	5,145	8.0	469	12.4	4,677	7.5	4,860	7.8	285	10.9	2,781	7.3	1,828	8.2	536	10.8

S-table 2: Weighted number of pregnancies (P) and probability of termination (T) included in the sample by contraceptive use, union status, and age-group. *(continued)*

					Contraceptive use				Union status				Age-group					
			Total		Using		Not using		In-union		Not-in-union		15-24		25-34		35-49	
Code	Survey	Cluster	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
PE	Peru 1991	1	5,696	10.2	1,643	13.1	4,053	9.0	4,993	10.2	703	10.4	2,342	6.8	2,473	11.0	881	17.0
PE	Peru 1996	1	10,459	10.0	3,037	12.4	7,422	9.1	9,026	10.0	1,433	10.1	4,453	7.9	4,347	10.6	1,659	14.4
PE	Peru 2000	1	8,027	10.3	1,976	13.9	6,052	9.1	6,565	10.0	1,462	11.5	3,310	7.8	3,406	10.8	1,311	15.1
PE	Peru 2004	1	4,531	11.3	1,249	14.7	3,282	10.0	3,667	11.0	864	12.6	1,813	9.7	1,917	10.4	801	17.0
PE	Peru 2007	2	5,949	14.0	1,810	17.6	4,139	12.4	4,762	14.0	1,187	14.1	2,385	12.0	2,548	13.1	1,016	20.9
PE	Peru 2009	2	6,514	14.0	2,026	17.8	4,488	12.3	5,239	12.9	1,275	18.6	2,513	12.8	2,839	12.8	1,162	19.8
PE	Peru 2010	2	6,115	15.8	1,906	21.2	4,209	13.3	4,930	14.8	1,185	19.8	2,419	12.6	2,606	15.5	1,090	23.4
PE	Peru 2011	2	6,109	15.1	1,963	20.2	4,146	12.7	4,905	14.0	1,204	19.8	2,297	13.3	2,709	14.2	1,103	21.3
PY	Paraguay 1990	1	2,789	10.9	414	19.8	2,375	9.3	2,453	11.3	336	8.3	1,088	8.4	1,212	11.1	489	16.0
South and Southeast Asia																		
IA	India 2005	2	38,223	12.2	1,591	27.9	36,632	11.5	38,134	12.1	89	22.5	23,470	11.0	13,046	13.5	1,707	18.1
ID	Indonesia 2012	1	11,858	10.6	843	11.6	11,016	10.5	11,369	10.8	489	6.1	4,052	8.3	5,788	9.9	2,018	17.3
KH	Cambodia 2010	3	6,514	21.6	409	49.1	6,105	19.7	6,359	21.7	155	17.4	2,545	15.1	2,859	20.4	1,110	39.5
KH	Cambodia 2014	3	5,985	23.9	584	53.3	5,401	20.7	5,863	23.9	122	24.6	2,401	17.2	2,860	23.7	724	47.0
NP	Nepal 2011	2	3,848	14.9	191	40.3	3,657	13.6	3,807	14.9	41	14.6	2,158	10.9	1,401	19.2	289	23.9
NP	Nepal 2016	3	3,749	19.8	187	41.7	3,563	18.6	3,713	19.9	36	5.6	2,196	14.9	1,358	24.0	195	44.6
PH	Philippines 1993	1	6,144	9.7	749	12.1	5,395	9.3	5,842	9.8	302	7.3	2,143	8.0	2,939	8.5	1,062	16.2
PH	Philippines 1998	1	5,229	10.7	1,007	11.4	4,221	10.6	4,910	10.9	319	8.2	1,770	9.1	2,544	9.2	915	18.1

S-table 2: Weighted number of pregnancies (P) and probability of termination (T) included in the sample by contraceptive use, union status, and age-group. *(continued)*

					Contraceptive use				Union status				Age-group					
			Total		Using		Not using		In-union		Not-in-union		15-24		25-34		35-49	
Code	Survey	Cluster	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
PH	Philippines 2003	1	4,787	10.4	655	10.8	4,133	10.4	4,414	10.8	373	5.6	1,747	8.7	2,183	9.2	857	17.0
TL	Timor Leste 2009	1	6,225	2.9	31	6.5	6,194	2.9	6,109	2.8	117	6.8	2,041	2.8	2,728	2.5	1,456	3.7
TL	Timor Leste 2016	1	4,680	3.4	16	0.0	4,664	3.4	4,449	3.4	231	2.6	1,616	4.0	2,340	2.7	724	4.3

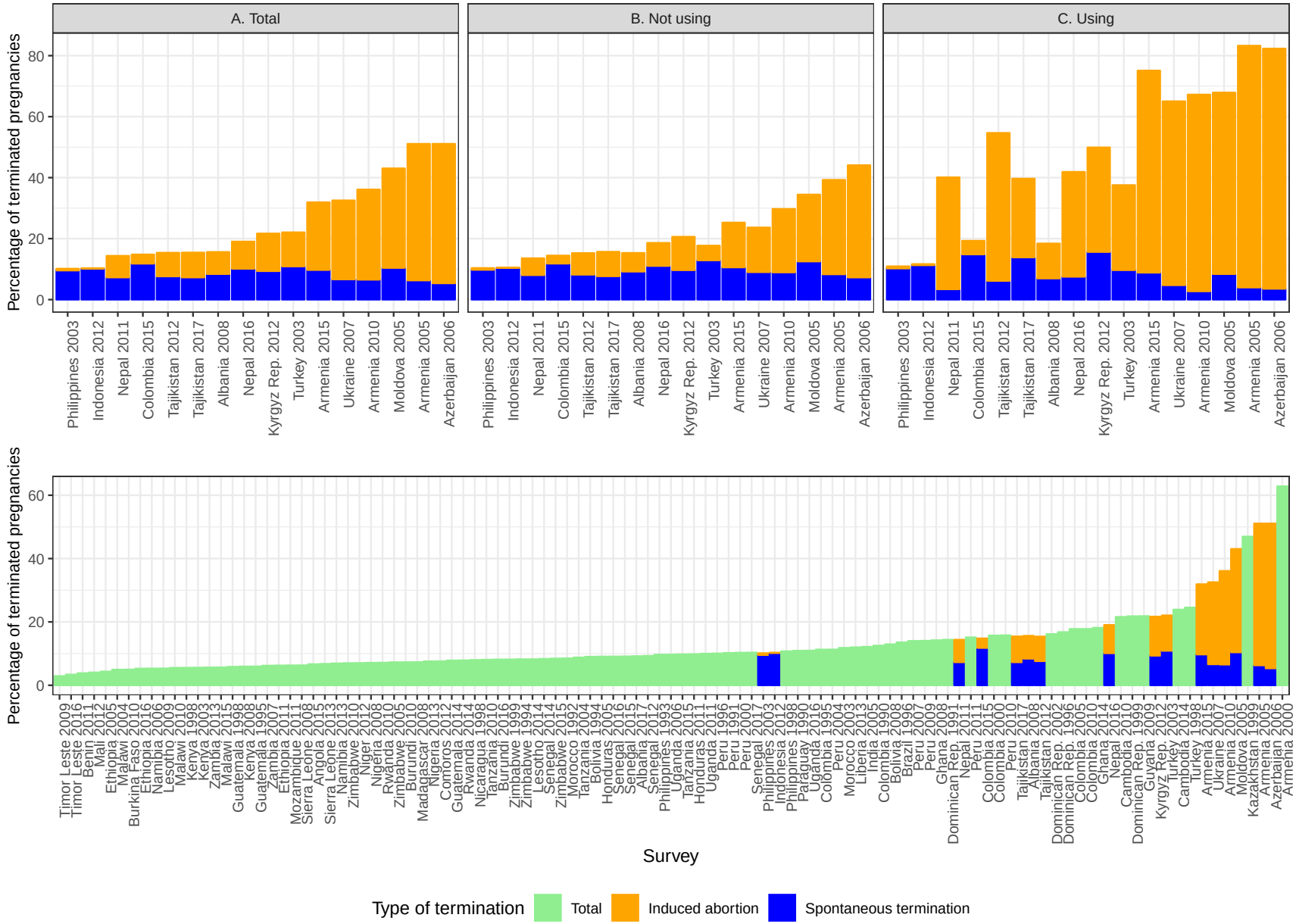


Figure 1: Probability of pregnancy termination by survey.

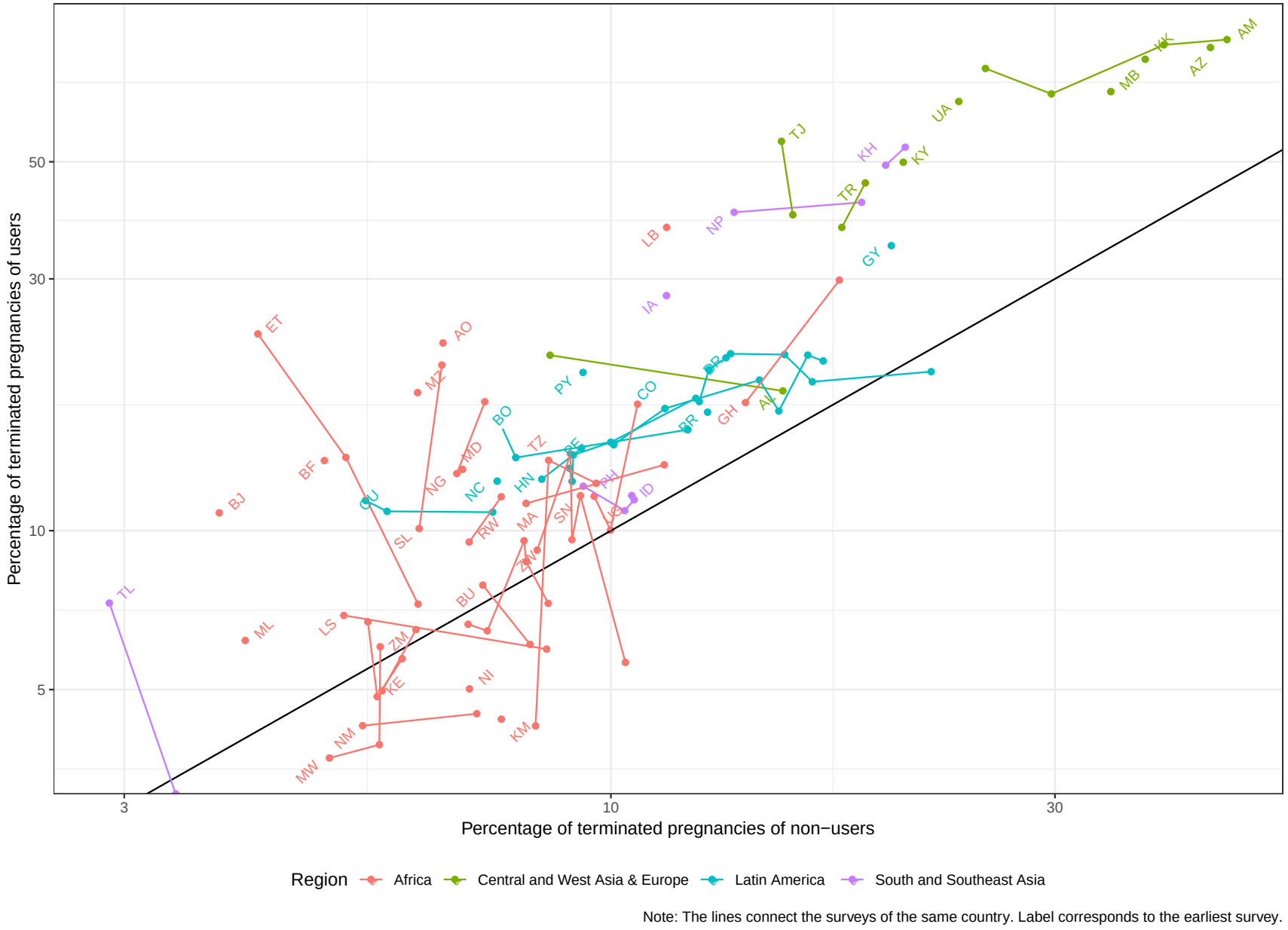


Figure 2: Probability of pregnancy termination by contraceptive use at pregnancy.

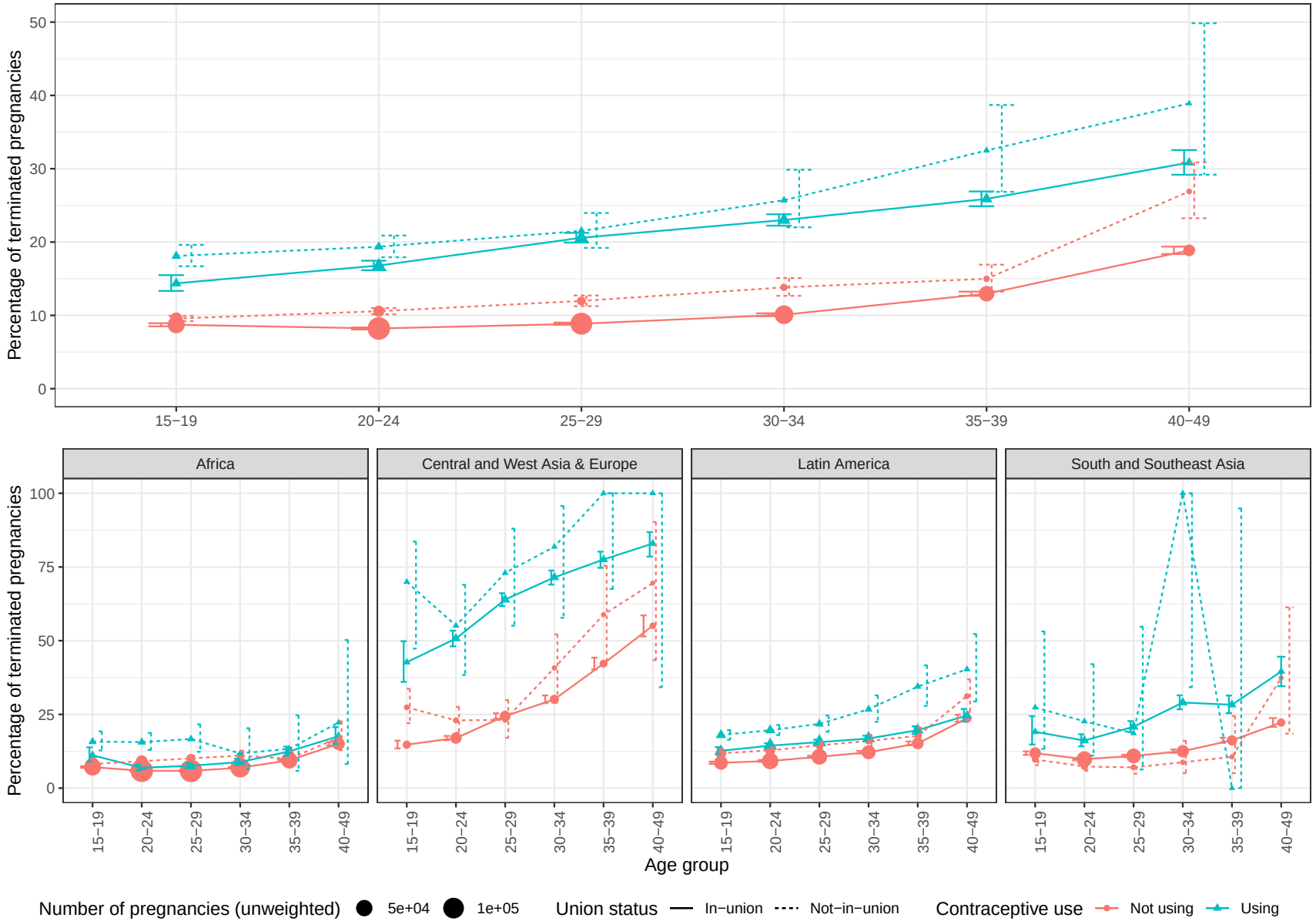


Figure 3: Probability of pregnancy termination according to age, union status, and contraceptive use at pregnancy.

Figure 4: Principal components analysis by survey.

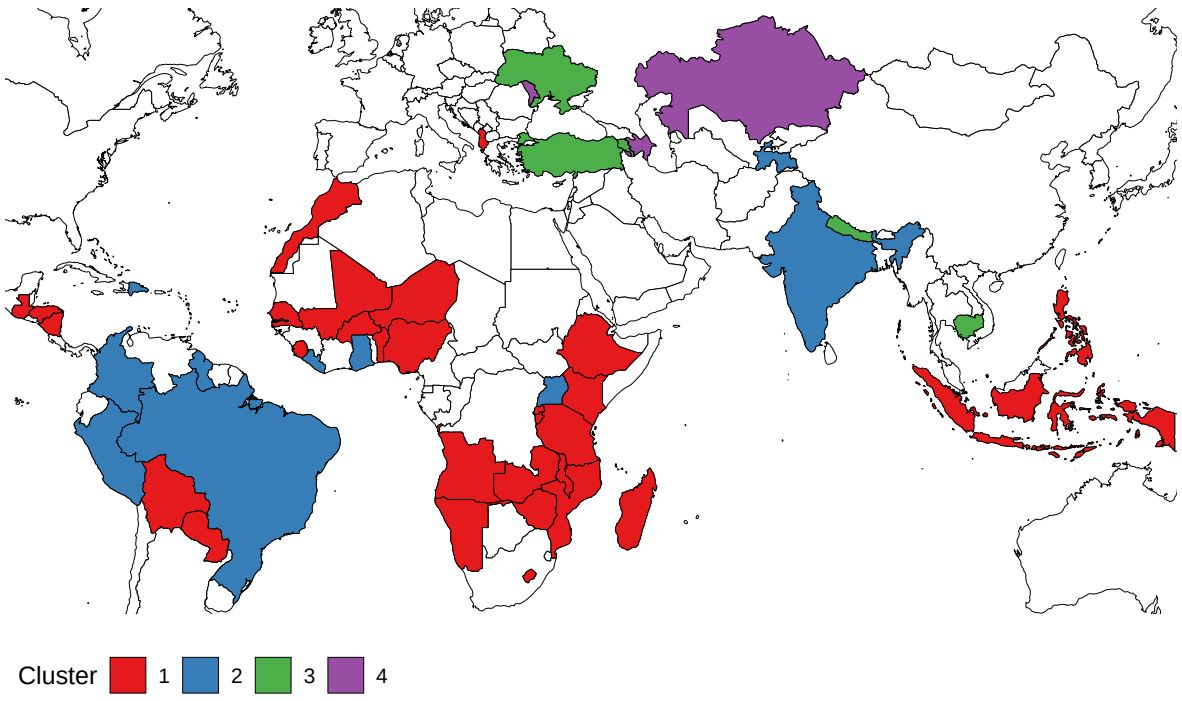


Figure 5: Countries by cluster in the latest DHS survey.

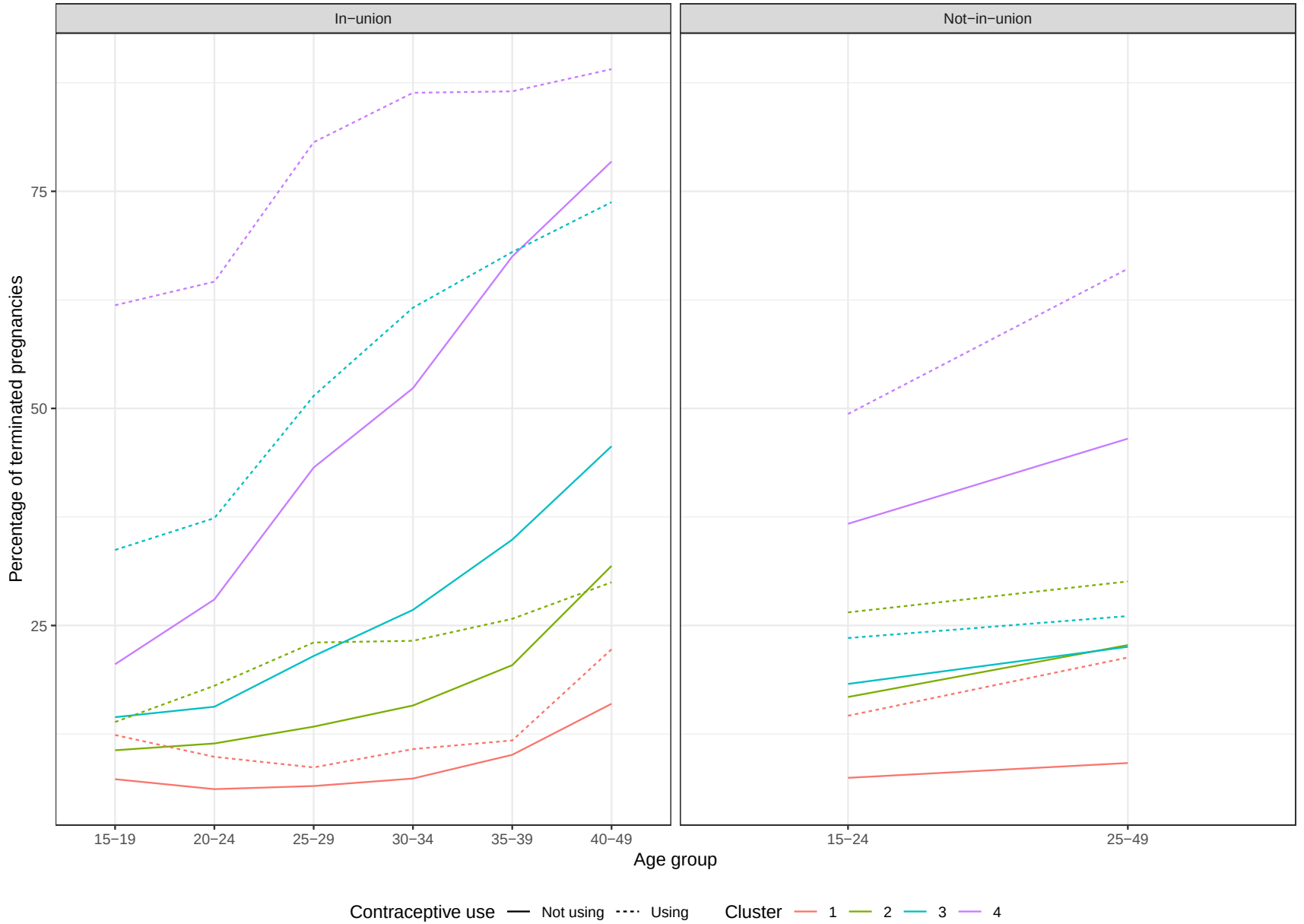


Figure 6: Cluster means by age, union status, and contraceptive use.

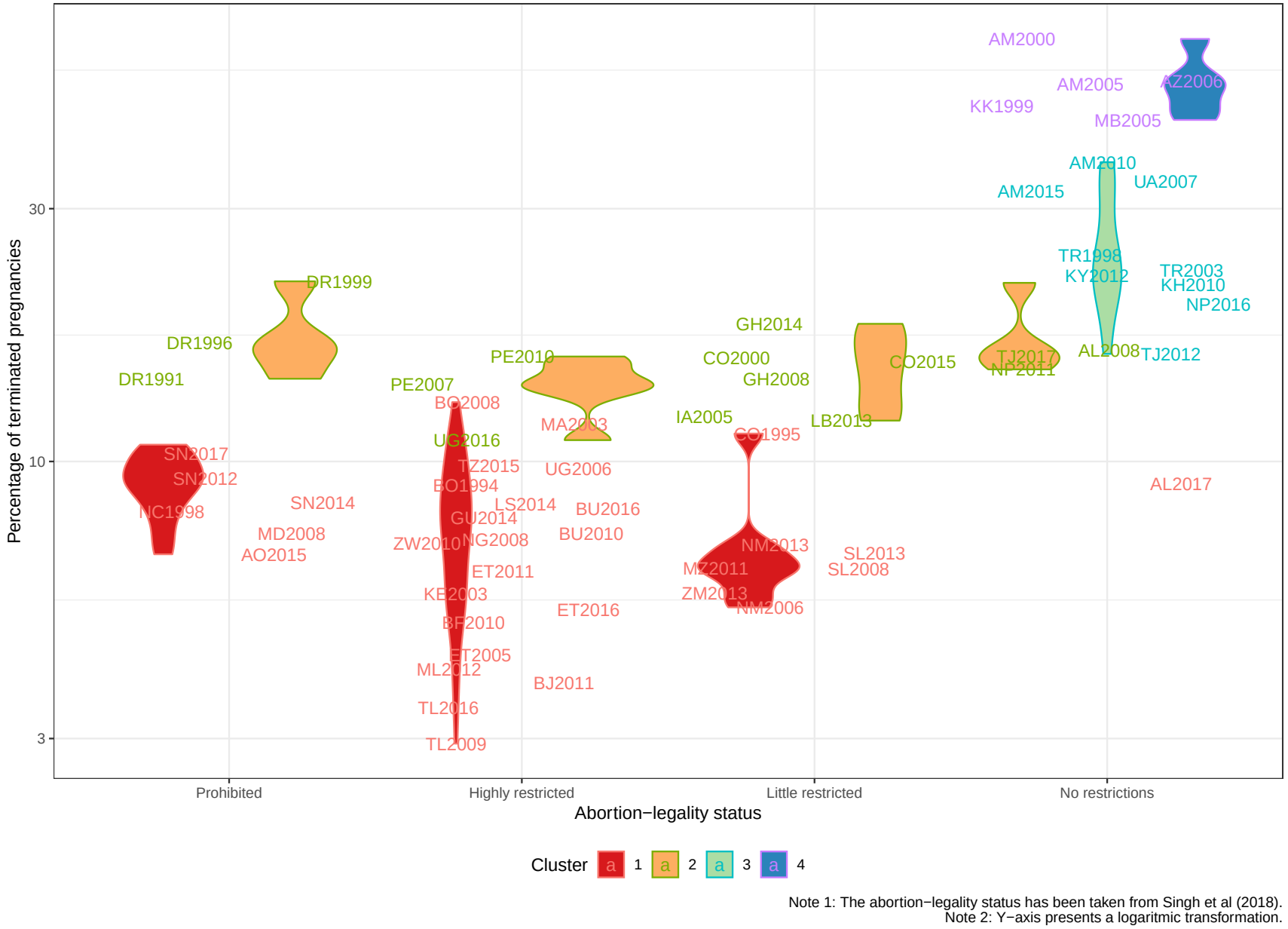


Figure 7: Probability of pregnancy termination by cluster and abortion-legality status.

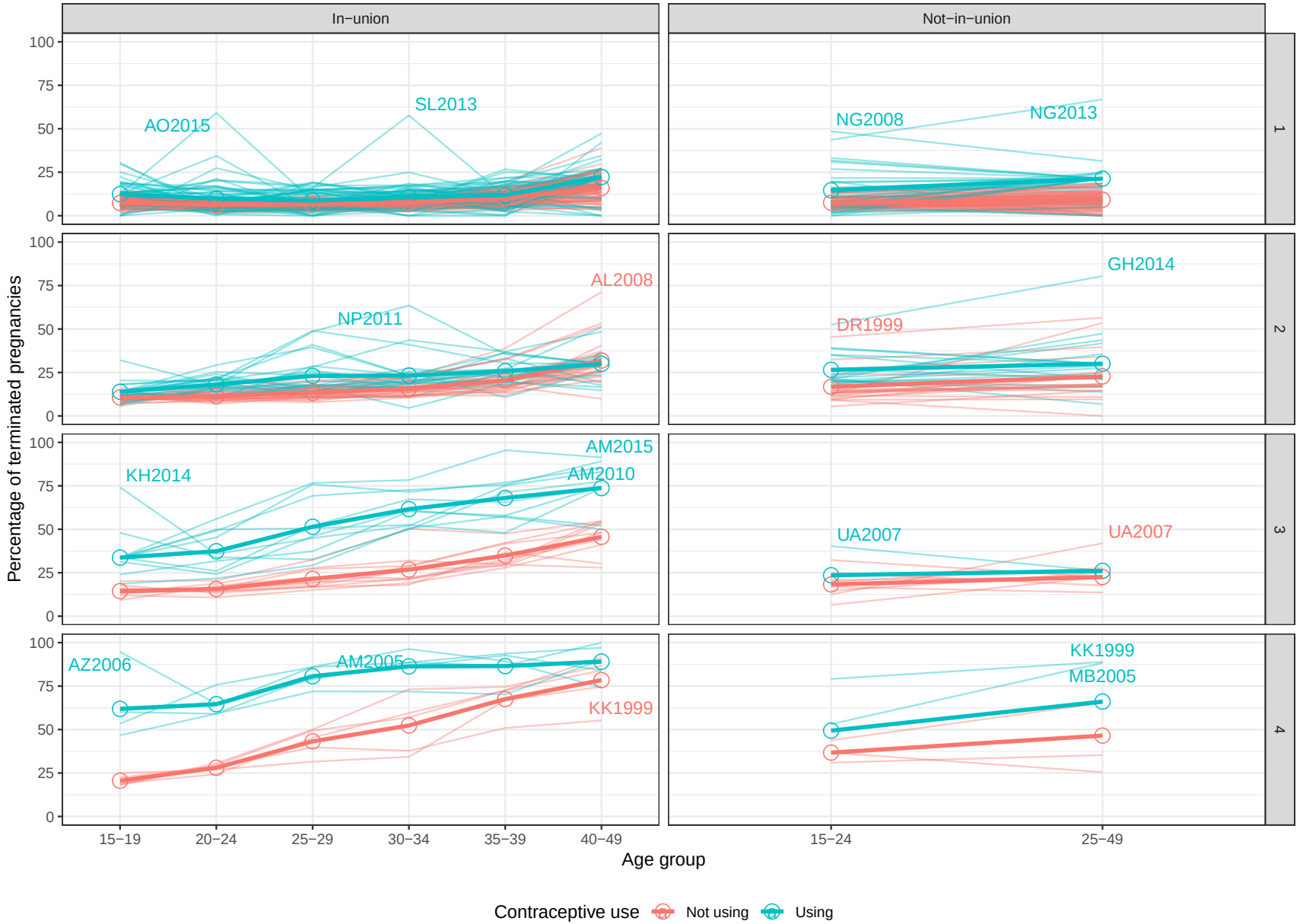


Figure 8: Probabilities of pregnancy termination by cluster and union status, according to age and contraceptive use prior to pregnancy.

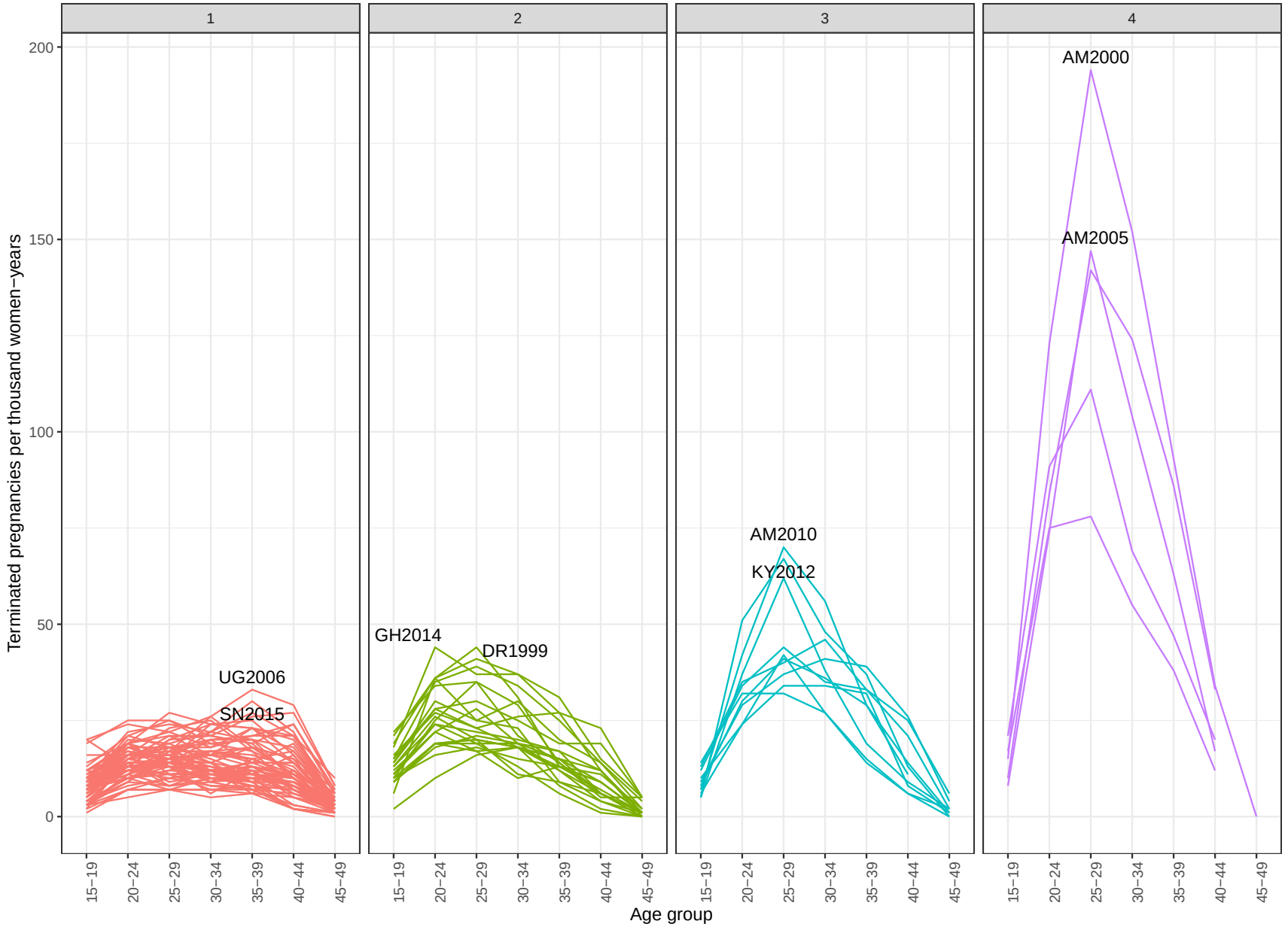


Figure 9: Age-specific termination rate by cluster.

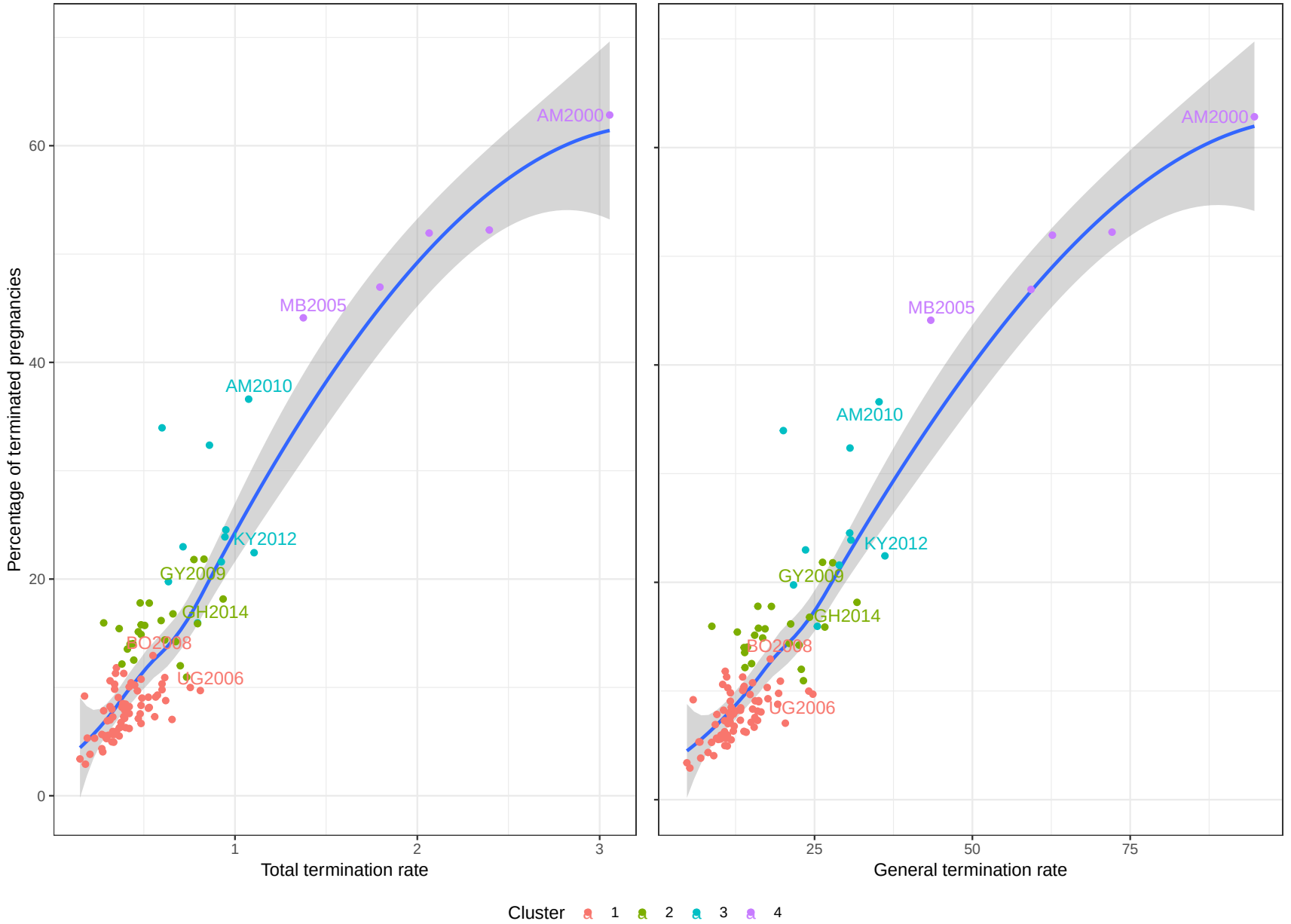


Figure 10: Total termination rate, general termination rate, and probability of pregnancy termination.

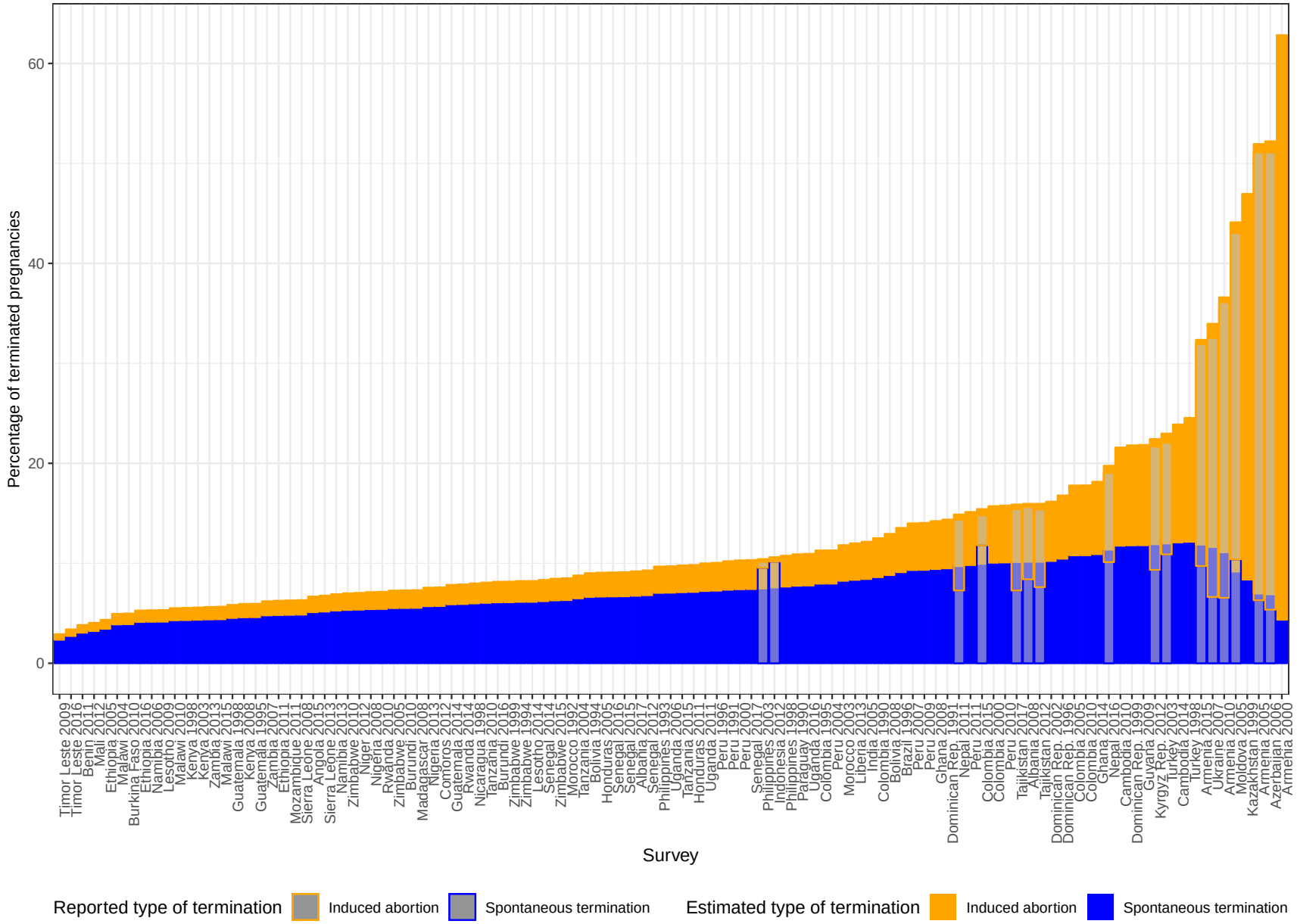


Figure 11: Induced abortion model estimates.

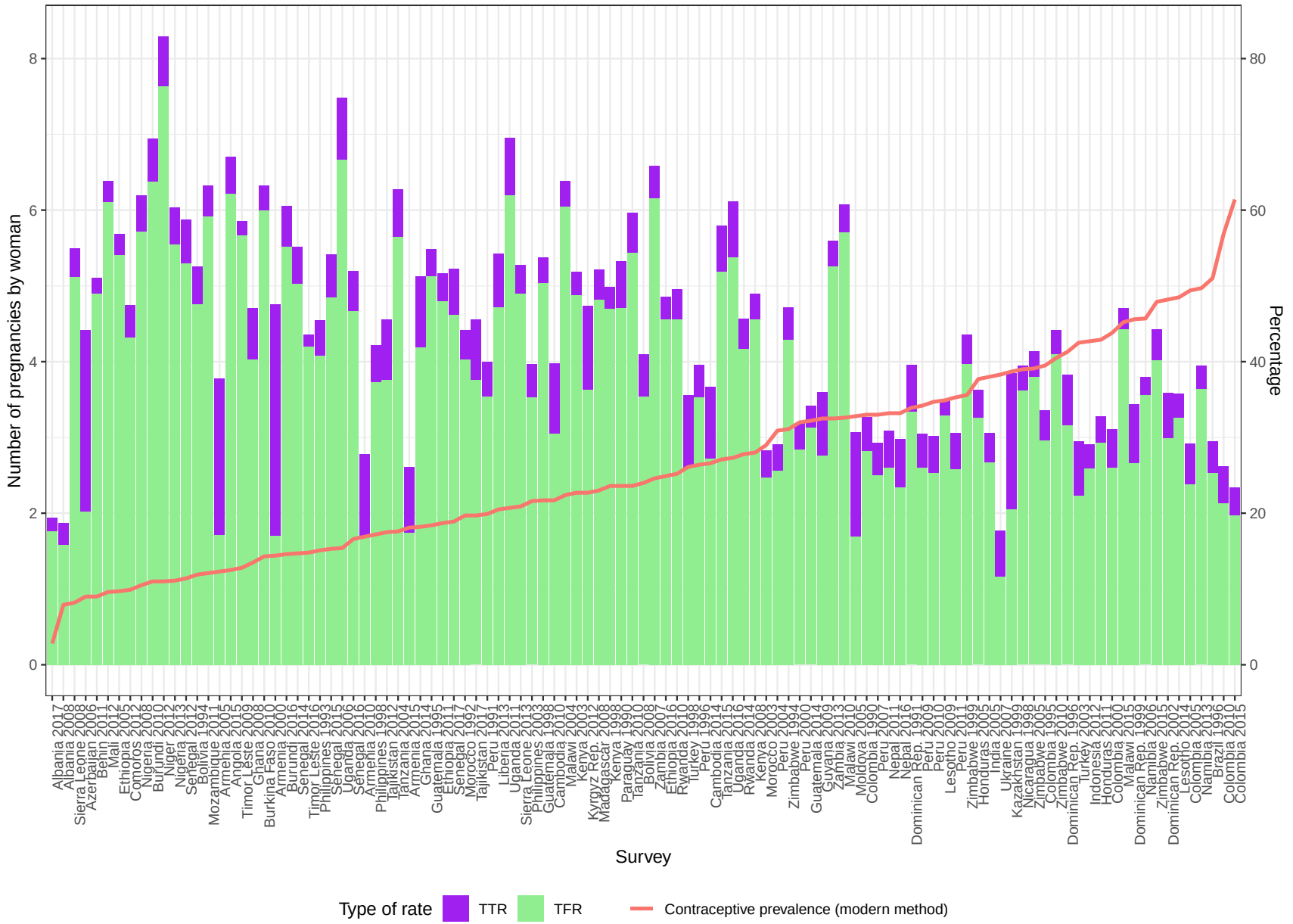


Figure 12: Total pregnancy rate (left-axis) and current contraceptive use of any modern method (right-axis) by survey.

S-table 3

	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Africa							
Angola 2015							
Using	0.0	36.8	0.0	0.0	0.0		
Not using	6.7	6.2	5.3	6.3	7.3	15.7	15.7
All	6.6	6.5	5.2	6.3	7.3	15.7	15.7
ASTR	12.0	18.0	15.0	16.0	15.0	17.0	4.0
Burkina Faso 2010							
Using	2.6	22.8	6.1	18.5	20.1		
Not using	7.2	4.3	3.7	4.7	4.7	9.0	9.0
All	7.2	4.4	3.7	4.8	4.8	9.0	9.0
ASTR	10.0	12.0	10.0	12.0	10.0	9.0	2.0
Benin 2011							
Using	0.0	9.8	0.0	23.3	0.0	60.3	60.3
Not using	4.5	3.6	3.1	4.0	5.5	3.4	3.4
All	4.5	3.6	3.1	4.1	5.4	4.0	4.0
ASTR	4.0	9.0	8.0	9.0	7.0	3.0	1.0
Burundi 2010							
Using	0.0	11.1	0.0	2.8	0.0	42.2	42.2
Not using	10.8	6.1	4.4	6.9	8.8	18.1	18.1
All	10.8	6.1	4.3	6.8	8.6	19.0	19.0
ASTR	8.0	18.0	14.0	20.0	21.0	24.0	7.0
Burundi 2016							
Using	0.0	4.9	0.0	6.4	13.0	15.6	15.6
Not using	8.6	7.6	6.5	6.7	10.8	16.9	16.9
All	8.6	7.6	6.4	6.7	10.9	16.8	16.8
ASTR	5.0	18.0	18.0	18.0	23.0	20.0	4.0
Ethiopia 2005							
Using	6.5	28.9	15.9	17.5	21.9	81.3	81.3
Not using	3.2	4.4	3.2	4.1	4.9	9.1	9.1
All	3.2	4.7	3.3	4.1	5.2	9.6	9.6
ASTR	3.0	11.0	8.0	10.0	9.0	9.0	4.0
Ethiopia 2011							
Using	2.9	6.3	6.2	9.1	3.8	59.3	59.3
Not using	6.5	6.5	3.3	5.6	8.8	15.9	15.9
All	6.4	6.5	3.4	5.7	8.6	16.9	16.9
ASTR	5.0	14.0	8.0	12.0	14.0	14.0	6.0
Ethiopia 2016							
Using	41.4	3.8	18.7	12.1	4.1		
Not using	5.0	3.7	4.5	5.3	6.7	14.8	14.8
All	5.3	3.7	4.7	5.4	6.7	14.8	14.8
ASTR	4.0	8.0	10.0	11.0	10.0	12.0	4.0
Ghana 2008							
Using	20.0	20.8	20.0	9.4	19.0	0.0	0.0
Not using	17.1	14.2	9.9	15.0	13.8	20.7	20.7
All	17.3	14.7	10.8	14.6	14.3	19.7	19.7
ASTR	14.0	30.0	25.0	30.0	20.0	14.0	2.0

S-table 3: *(continued)*

	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Ghana 2014							
Using	10.3	46.4	40.5	15.8	21.6	23.7	23.7
Not using	19.5	20.1	14.5	15.9	18.4	22.7	22.7
All	19.2	21.3	15.7	15.9	18.5	22.8	22.8
ASTR	18.0	44.0	37.0	37.0	31.0	15.0	5.0
Kenya 1998							
Using	9.2	0.9	4.9	2.9	26.0	0.0	0.0
Not using	6.0	5.0	5.7	5.5	5.3	10.5	10.5
All	6.2	4.6	5.6	5.2	6.6	9.5	9.5
ASTR	7.0	12.0	13.0	10.0	8.0	5.0	2.0
Kenya 2003							
Using	12.1	6.9	2.5	5.0	10.6	4.0	4.0
Not using	6.2	5.3	3.7	5.4	8.2	9.7	9.7
All	6.6	5.4	3.6	5.4	8.5	9.3	9.3
ASTR	8.0	14.0	9.0	11.0	11.0	6.0	2.0
Kenya 2008							
Using	3.2	7.0	5.5	4.1	4.2	15.7	15.7
Not using	3.1	4.2	6.3	5.2	12.4	18.8	18.8
All	3.1	4.5	6.2	5.0	11.3	18.4	18.4
ASTR	3.0	11.0	14.0	9.0	15.0	11.0	3.0
Comoros 2012							
Using	0.0	0.0	2.8	0.0	0.0	100.0	100.0
Not using	5.3	5.1	7.9	6.6	12.0	18.1	18.1
All	5.3	5.0	7.9	6.4	11.9	18.8	18.8
ASTR	4.0	9.0	17.0	14.0	18.0	15.0	7.0
Liberia 2013							
Using	29.6	37.5	38.9	56.4	36.4	45.1	45.1
Not using	8.2	10.8	12.2	11.7	11.8	27.0	27.0
All	8.7	11.2	12.9	12.2	12.6	27.4	27.4
ASTR	14.0	28.0	30.0	25.0	19.0	19.0	5.0
Lesotho 2009							
Using	4.4	8.6	2.8	6.2	10.5	29.7	29.7
Not using	4.4	5.2	4.3	5.9	10.0	4.0	4.0
All	4.4	5.5	4.1	5.9	10.1	5.6	5.6
ASTR	4.0	10.0	7.0	7.0	8.0	2.0	0.0
Lesotho 2014							
Using	13.9	1.3	3.1	11.3	6.5	6.2	6.2
Not using	6.3	6.8	9.8	10.5	12.7	12.8	12.8
All	7.0	6.2	9.0	10.6	11.6	12.0	12.0
ASTR	7.0	12.0	14.0	13.0	9.0	7.0	1.0
Morocco 1992							
Using	11.1	4.6	9.0	9.4	13.4	25.5	25.5
Not using	9.0	7.2	7.6	8.6	8.9	8.5	8.5
All	9.1	7.0	7.8	8.7	9.7	11.7	11.7
ASTR	4.0	10.0	15.0	17.0	15.0	11.0	5.0
Morocco 2003							
Using	18.1	11.1	10.2	12.3	15.8	21.8	21.8

S-table 3: *(continued)*

	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Not using	10.1	8.5	8.4	11.7	16.9	29.8	29.8
All	10.7	8.9	8.8	11.8	16.6	27.2	27.2
ASTR	4.0	10.0	12.0	17.0	15.0	10.0	2.0
Madagascar 2008							
Using	18.9	9.2	14.2	12.4	10.8	21.1	21.1
Not using	7.0	6.2	6.5	6.8	7.5	11.4	11.4
All	7.5	6.4	7.1	7.2	7.8	11.8	11.8
ASTR	12.0	16.0	16.0	13.0	11.0	8.0	2.0
Mali 2012							
Using		0.0	11.5	0.0	0.0		
Not using	4.4	3.7	3.8	3.4	4.6	7.2	7.2
All	4.4	3.7	3.8	3.4	4.6	7.2	7.2
ASTR	8.0	10.0	11.0	8.0	8.0	7.0	3.0
Malawi 2004							
Using	14.9	0.6	0.0	7.5	6.0	5.1	5.1
Not using	5.8	4.3	4.1	5.0	7.2	6.9	6.9
All	5.9	4.2	4.0	5.1	7.1	6.7	6.7
ASTR	10.0	13.0	11.0	12.0	12.0	6.0	3.0
Malawi 2010							
Using	5.3	2.4	3.1	5.8	5.5	4.5	4.5
Not using	7.3	3.9	5.5	5.4	5.3	13.1	13.1
All	7.3	3.7	5.3	5.4	5.3	12.6	12.6
ASTR	12.0	10.0	13.0	12.0	9.0	12.0	5.0
Malawi 2015							
Using	7.8	2.5	8.0	10.0	3.3	0.0	0.0
Not using	6.5	5.4	5.4	4.3	5.7	10.0	10.0
All	6.5	5.3	5.4	4.5	5.7	9.9	9.9
ASTR	9.0	12.0	11.0	7.0	7.0	6.0	2.0
Mozambique 2011							
Using	20.4	41.1	3.8	0.0	17.7	19.5	19.5
Not using	8.4	5.4	5.8	4.5	6.1	8.6	8.6
All	8.5	5.7	5.8	4.5	6.1	8.7	8.7
ASTR	16.0	16.0	16.0	10.0	11.0	8.0	3.0
Nigeria 2008							
Using	28.5	17.4	6.9	9.5	14.8	10.0	10.0
Not using	6.8	6.6	5.1	6.5	9.9	11.3	11.3
All	7.5	7.1	5.2	6.7	10.2	11.3	11.3
ASTR	10.0	17.0	15.0	17.0	18.0	11.0	6.0
Nigeria 2013							
Using	39.5	21.5	12.0	8.0	26.7	20.8	20.8
Not using	7.1	6.3	6.6	7.3	9.3	13.0	13.0
All	7.5	6.5	6.7	7.3	9.8	13.2	13.2
ASTR	10.0	16.0	18.0	19.0	17.0	12.0	4.0
Niger 2012							
Using	22.0	0.0	8.5	0.0	0.0		
Not using	9.0	3.8	5.8	7.9	9.5	17.3	17.3
All	9.0	3.8	5.8	7.9	9.4	17.3	17.3

S-table 3: *(continued)*

	15-19	20-24	25-29	30-34	35-39	40-44	45-49
ASTR	20.0	13.0	20.0	24.0	23.0	21.0	10.0
Namibia 2006							
Using	3.4	1.4	5.1	4.3	4.6	27.6	27.6
Not using	3.1	4.1	4.4	6.4	8.6	14.5	14.5
All	3.2	3.9	4.5	6.2	8.4	15.3	15.3
ASTR	3.0	7.0	7.0	10.0	10.0	8.0	1.0
Namibia 2013							
Using	2.7	2.5	7.5	5.5	6.8	6.7	6.7
Not using	3.5	5.4	9.3	7.0	7.8	17.9	17.9
All	3.4	5.1	9.1	6.8	7.7	17.0	17.0
ASTR	3.0	9.0	17.0	11.0	9.0	9.0	2.0
Rwanda 2010							
Using	52.3	4.0	3.2	11.8	12.4	17.7	17.7
Not using	4.5	7.4	5.5	5.2	8.1	17.7	17.7
All	4.8	7.4	5.4	5.6	8.4	17.7	17.7
ASTR	2.0	15.0	13.0	12.0	14.0	19.0	4.0
Rwanda 2014							
Using	0.0	3.7	8.6	11.1	17.5	17.1	17.1
Not using	6.4	7.2	5.9	7.9	9.9	16.0	16.0
All	6.3	7.1	6.0	8.2	10.9	16.1	16.1
ASTR	3.0	14.0	14.0	17.0	16.0	13.0	2.0
Sierra Leone 2008							
Using	47.1	6.4	8.2	0.0	0.0	100.0	100.0
Not using	6.1	5.8	6.2	6.1	6.3	10.1	10.1
All	6.5	5.8	6.2	6.0	6.2	11.2	11.2
ASTR	10.0	14.0	14.0	12.0	10.0	9.0	5.0
Sierra Leone 2013							
Using	21.5	12.0	13.3	52.5	11.2	59.7	59.7
Not using	6.8	5.9	6.1	5.8	8.2	10.7	10.7
All	7.0	6.0	6.2	6.2	8.3	11.4	11.4
ASTR	9.0	14.0	15.0	12.0	13.0	8.0	4.0
Senegal 2012							
Using		7.7	0.0	11.4	0.0	41.0	41.0
Not using	11.5	8.3	8.2	7.3	10.4	17.2	17.2
All	11.5	8.3	8.2	7.4	10.3	17.6	17.6
ASTR	10.0	19.0	22.0	18.0	21.0	21.0	4.0
Senegal 2014							
Using		0.0	19.2	0.0	0.0	0.0	0.0
Not using	6.8	7.7	6.5	11.0	10.5	10.3	10.3
All	6.8	7.6	6.6	11.0	10.5	10.2	10.2
ASTR	7.0	16.0	17.0	26.0	18.0	11.0	2.0
Senegal 2015							
Using	0.0	0.0	48.0	0.0	14.6	23.1	23.1
Not using	8.8	6.2	5.9	9.7	15.5	20.8	20.8
All	8.7	6.1	6.3	9.5	15.5	20.8	20.8
ASTR	8.0	12.0	15.0	22.0	30.0	22.0	4.0
Senegal 2016							

S-table 3: *(continued)*

	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Using		4.7	0.0	16.6	6.6	36.6	36.6
Not using	7.0	7.9	6.2	10.6	14.1	17.5	17.5
All	7.0	7.9	6.1	10.8	13.7	17.9	17.9
ASTR	5.0	16.0	15.0	24.0	23.0	17.0	5.0
Senegal 2017							
Using	0.0	0.0	7.5	4.3	10.7	0.0	0.0
Not using	9.9	8.1	8.0	9.7	15.7	21.1	21.1
All	9.9	8.1	8.0	9.6	15.6	20.8	20.8
ASTR	9.0	16.0	19.0	22.0	27.0	21.0	6.0
Tanzania 2004							
Using	0.0	11.1	18.3	12.9	7.6	31.2	31.2
Not using	9.4	6.2	7.1	8.5	11.1	23.2	23.2
All	9.3	6.3	7.8	8.7	10.9	23.5	23.5
ASTR	14.0	19.0	21.0	21.0	19.0	24.0	6.0
Tanzania 2010							
Using	0.0	3.3	3.2	5.8	7.5	4.4	4.4
Not using	7.0	7.8	6.8	7.1	12.8	17.1	17.1
All	6.8	7.6	6.6	7.0	12.5	15.9	15.9
ASTR	9.0	21.0	18.0	16.0	23.0	14.0	4.0
Tanzania 2015							
Using	23.5	5.9	13.9	11.5	10.2	15.5	15.5
Not using	8.8	8.1	9.3	8.6	12.0	20.1	20.1
All	9.2	8.0	9.6	8.8	11.9	19.7	19.7
ASTR	13.0	21.0	25.0	19.0	20.0	18.0	4.0
Uganda 2006							
Using	14.0	8.9	8.7	7.7	25.1	29.2	29.2
Not using	11.5	7.1	6.5	9.3	13.9	23.5	23.5
All	11.6	7.2	6.6	9.2	14.6	23.6	23.6
ASTR	20.0	24.0	22.0	26.0	33.0	29.0	8.0
Uganda 2011							
Using	3.3	10.9	5.7	4.4	18.2	55.6	55.6
Not using	13.0	7.3	8.2	8.6	12.9	25.3	25.3
All	12.7	7.5	8.1	8.3	13.1	26.6	26.6
ASTR	19.0	25.0	25.0	21.0	26.0	27.0	8.0
Uganda 2016							
Using	12.9	18.4	13.6	17.2	27.3	17.7	17.7
Not using	10.4	9.3	8.3	10.9	14.9	25.7	25.7
All	10.4	9.6	8.6	11.2	15.5	25.2	25.2
ASTR	15.0	28.0	23.0	26.0	27.0	23.0	5.0
Zambia 2007							
Using	11.3	6.1	4.9	10.9	2.3	0.0	0.0
Not using	6.8	5.3	6.5	5.3	6.0	11.2	11.2
All	7.0	5.4	6.3	6.0	5.5	10.1	10.1
ASTR	11.0	16.0	18.0	15.0	11.0	10.0	3.0
Zambia 2013							
Using	3.2	2.6	3.4	2.6	14.6	3.0	3.0
Not using	5.6	5.3	4.6	5.4	6.8	13.9	13.9

S-table 3: *(continued)*

	15-19	20-24	25-29	30-34	35-39	40-44	45-49
All	5.6	5.2	4.5	5.2	7.6	12.7	12.7
ASTR	8.0	13.0	11.0	11.0	12.0	10.0	2.0
Zimbabwe 1994							
Using	4.4	6.0	10.2	9.6	14.2	22.8	22.8
Not using	8.2	8.6	5.6	6.4	7.8	23.7	23.7
All	7.9	8.3	6.1	6.7	8.9	23.5	23.5
ASTR	9.0	19.0	13.0	12.0	11.0	16.0	4.0
Zimbabwe 1999							
Using	13.9	15.0	5.0	0.0	4.1	12.7	12.7
Not using	8.6	7.1	7.0	6.8	11.2	18.0	18.0
All	8.8	7.9	6.8	5.9	10.4	17.5	17.5
ASTR	11.0	17.0	13.0	9.0	13.0	10.0	3.0
Zimbabwe 2005							
Using	26.3	2.2	4.9	2.6	6.7	22.6	22.6
Not using	8.4	5.8	7.5	4.3	12.4	18.5	18.5
All	9.3	5.4	7.2	4.1	11.8	19.0	19.0
ASTR	10.0	12.0	13.0	6.0	12.0	10.0	3.0
Zimbabwe 2010							
Using	24.2	5.4	3.2	11.2	5.8	0.0	0.0
Not using	7.8	5.2	7.5	8.5	7.9	7.6	7.6
All	8.0	5.2	7.2	8.8	7.7	6.5	6.5
ASTR	10.0	12.0	15.0	14.0	9.0	2.0	1.0
Zimbabwe 2015							
Using	0.0	4.1	8.3	9.7	11.8	10.0	10.0
Not using	9.9	9.1	4.9	7.3	11.0	26.6	26.6
All	9.6	8.6	5.2	7.6	11.1	24.7	24.7
ASTR	12.0	19.0	11.0	12.0	13.0	11.0	2.0
Central and West Asia & Europe							
Albania 2008							
Using	0.0	22.9	14.6	19.9	23.9		
Not using	12.0	7.0	10.4	22.2	38.4	71.3	71.3
All	11.2	9.9	11.4	21.5	35.8	71.3	71.3
ASTR	2.0	10.0	16.0	18.0	8.0	2.0	0.0
Albania 2017							
Using	0.0	19.4	16.3	24.9	39.9	72.2	72.2
Not using	5.8	7.0	7.0	7.4	19.5	38.9	38.9
All	5.6	7.6	7.5	8.3	20.2	41.2	41.2
ASTR	1.0	7.0	10.0	8.0	7.0	2.0	0.0
Armenia 2000							
Using	53.4	75.7	86.0	88.6	93.7	97.1	97.1
Not using	19.1	30.7	50.3	73.0	74.6	86.7	86.7
All	23.1	45.3	68.8	81.3	85.3	91.9	91.9
ASTR	15.0	123.0	194.0	152.0	93.0	34.0	0.0
Armenia 2005							
Using	44.7	67.9	86.0	96.4	89.3	74.3	74.3
Not using	19.4	24.1	44.2	59.1	72.3	85.0	85.0
All	20.4	33.2	57.8	73.7	79.8	80.8	80.8

S-table 3: *(continued)*

	15-19	20-24	25-29	30-34	35-39	40-44	45-49
ASTR	8.0	74.0	147.0	104.0	63.0	17.0	
Armenia 2010							
Using	6.1	49.1	69.2	72.7	75.5	89.1	89.1
Not using	20.9	20.4	32.0	50.2	47.1	54.6	54.6
All	20.7	23.3	40.7	57.2	54.4	68.8	68.8
ASTR	7.0	42.0	70.0	56.0	29.0	11.0	
Armenia 2015							
Using	75.2	56.0	76.7	78.3	95.5	91.8	91.8
Not using	14.9	19.1	27.7	31.8	29.8	53.5	53.5
All	16.1	22.8	34.8	40.9	43.8	68.1	68.1
ASTR	5.0	37.0	62.0	38.0	19.0	9.0	2.0
Azerbaijan 2006							
Using	94.7	64.9	78.8	88.6	86.7	100.0	100.0
Not using	20.2	29.2	49.0	56.7	72.6	84.1	84.1
All	22.6	33.1	55.8	67.3	77.5	89.2	89.2
ASTR	10.0	84.0	142.0	124.0	86.0	33.0	
Kazakhstan 1999							
Using	66.9	58.1	80.9	86.1	93.2	85.2	85.2
Not using	29.2	31.1	40.1	38.1	55.2	59.6	59.6
All	34.8	35.4	51.2	51.9	66.3	68.9	68.9
ASTR	21.0	91.0	111.0	69.0	47.0	20.0	
Kyrgyz Rep. 2012							
Using	17.0	48.4	51.9	52.6	48.0	81.5	81.5
Not using	9.5	17.8	22.4	21.7	29.8	30.0	30.0
All	9.8	19.2	24.5	24.3	31.4	31.9	31.9
ASTR	5.0	51.0	67.0	48.0	37.0	13.0	0.0
Moldova 2005							
Using	56.8	59.4	72.1	72.5	71.5	90.0	90.0
Not using	27.6	28.9	33.3	35.6	67.2	75.4	75.4
All	33.3	36.2	45.2	49.0	69.0	80.6	80.6
ASTR	17.0	75.0	78.0	55.0	38.0	12.0	
Tajikistan 2012							
Using		26.0	52.0	67.3	65.6	70.2	70.2
Not using	13.0	10.6	15.0	19.5	27.9	41.1	41.1
All	13.0	10.7	16.0	20.8	29.4	42.7	42.7
ASTR	8.0	30.0	41.0	36.0	29.0	14.0	1.0
Tajikistan 2017							
Using		21.7	41.0	78.4	40.3	100.0	100.0
Not using	10.2	10.5	16.1	22.8	32.4	51.7	51.7
All	10.2	10.6	16.4	23.2	32.6	51.8	51.8
ASTR	6.0	36.0	41.0	37.0	27.0	12.0	0.0
Turkey 1998							
Using	48.0	33.9	32.7	50.0	71.3	77.5	77.5
Not using	13.5	14.4	17.7	26.8	29.4	48.3	48.3
All	17.4	17.7	21.0	33.0	44.1	61.4	61.4
ASTR	13.0	35.0	40.0	46.0	33.0	21.0	2.0
Turkey 2003							

S-table 3: *(continued)*

	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Using	18.6	21.8	29.3	50.6	57.5	52.0	52.0
Not using	17.8	13.3	16.9	18.4	36.7	30.3	30.3
All	17.9	15.0	20.3	30.1	46.0	41.0	41.0
ASTR	10.0	24.0	34.0	34.0	32.0	8.0	1.0
Ukraine 2007							
Using	52.3	41.0	75.4	71.5	77.4	85.6	85.6
Not using	12.9	15.6	28.5	30.0	36.5	53.8	53.8
All	19.4	20.5	40.6	41.6	53.2	68.2	68.2
ASTR	6.0	24.0	42.0	27.0	15.0	6.0	0.0
Latin America							
Bolivia 1994							
Using	14.6	8.5	14.0	17.0	13.7	19.8	19.8
Not using	6.6	6.1	8.1	10.1	10.5	6.4	6.4
All	7.7	6.5	9.2	11.8	11.1	9.4	9.4
ASTR	8.0	16.0	23.0	25.0	17.0	7.0	2.0
Bolivia 2008							
Using	8.3	15.0	15.7	16.1	18.8	24.3	24.3
Not using	10.3	9.8	11.2	14.4	16.8	18.0	18.0
All	9.9	11.0	12.3	14.9	17.4	19.4	19.4
ASTR	10.0	22.0	24.0	22.0	20.0	10.0	2.0
Brazil 1996							
Using	19.7	20.6	11.6	11.0	23.2	30.6	30.6
Not using	11.2	10.6	12.2	11.2	21.0	31.7	31.7
All	12.3	12.6	12.1	11.1	21.5	31.4	31.4
ASTR	12.0	22.0	17.0	10.0	13.0	7.0	1.0
Colombia 1990							
Using	20.9	15.0	14.8	24.7	12.1	26.2	26.2
Not using	9.9	9.3	10.8	13.4	19.0	35.1	35.1
All	11.1	10.2	11.7	15.9	16.9	32.4	32.4
ASTR	9.0	19.0	20.0	18.0	13.0	9.0	1.0
Colombia 1995							
Using	13.3	13.8	15.0	14.4	12.0	28.1	28.1
Not using	8.1	9.3	10.0	11.1	11.7	23.8	23.8
All	9.1	10.4	11.5	12.1	11.8	25.3	25.3
ASTR	9.0	20.0	19.0	14.0	7.0	8.0	1.0
Colombia 2000							
Using	13.1	16.4	13.0	18.6	26.4	28.5	28.5
Not using	10.8	13.7	15.6	16.2	24.6	27.0	27.0
All	11.5	14.6	14.7	17.0	25.3	27.6	27.6
ASTR	11.0	24.0	22.0	20.0	17.0	6.0	1.0
Colombia 2005							
Using	17.1	22.4	17.9	22.1	33.9	24.0	24.0
Not using	14.7	14.7	15.8	17.3	21.0	30.4	30.4
All	15.3	16.8	16.4	18.8	25.1	28.2	28.2
ASTR	16.0	27.0	23.0	18.0	15.0	6.0	1.0
Colombia 2010							
Using	15.4	22.6	18.1	26.5	22.1	32.9	32.9

S-table 3: *(continued)*

	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Not using	12.8	16.4	15.8	18.3	23.8	34.6	34.6
All	13.4	17.7	16.3	20.1	23.4	34.2	34.2
ASTR	13.0	26.0	20.0	18.0	12.0	6.0	1.0
Colombia 2015							
Using	17.7	16.5	23.8	20.6	19.4	16.6	16.6
Not using	10.0	13.7	16.3	13.3	19.5	36.2	36.2
All	11.6	14.3	17.9	14.4	19.5	31.5	31.5
ASTR	10.0	19.0	20.0	11.0	9.0	4.0	0.0
Dominican Rep. 1991							
Using	7.1	17.9	25.5	18.4	36.5	100.0	100.0
Not using	10.7	9.9	15.3	20.1	17.4	24.3	24.3
All	10.4	10.8	16.8	19.9	20.0	30.8	30.8
ASTR	10.0	25.0	35.0	29.0	14.0	5.0	5.0
Dominican Rep. 1996							
Using	15.0	16.7	15.0	24.9	48.7	66.7	66.7
Not using	16.7	14.2	18.5	14.1	24.9	22.5	22.5
All	16.6	14.6	18.0	15.7	26.7	29.0	29.0
ASTR	22.0	34.0	35.0	21.0	14.0	6.0	0.0
Dominican Rep. 1999							
Using	13.8	10.1	35.4	3.6	0.0	29.0	29.0
Not using	18.1	20.3	22.8	26.8	21.6	73.6	73.6
All	17.6	19.0	25.3	24.6	20.4	53.0	53.0
ASTR	21.0	36.0	44.0	31.0	13.0	9.0	1.0
Dominican Rep. 2002							
Using	20.1	23.3	14.9	24.7	26.5	49.2	49.2
Not using	13.6	14.7	14.5	18.3	16.0	43.4	43.4
All	14.3	16.0	14.6	19.1	17.5	44.0	44.0
ASTR	19.0	36.0	25.0	23.0	9.0	6.0	1.0
Guatemala 1995							
Using	0.0	19.4	2.8	13.7	5.4	16.5	16.5
Not using	4.5	4.9	5.2	5.9	7.6	15.4	15.4
All	4.4	5.6	5.1	6.2	7.5	15.5	15.5
ASTR	6.0	15.0	13.0	13.0	11.0	10.0	2.0
Guatemala 1998							
Using	11.7	5.9	14.1	3.5	0.4	73.5	73.5
Not using	5.7	3.7	6.1	6.4	4.5	13.3	13.3
All	6.0	3.8	6.9	6.2	4.2	17.2	17.2
ASTR	7.0	11.0	18.0	12.0	6.0	12.0	1.0
Guatemala 2014							
Using	8.9	9.9	9.0	9.9	16.3	22.2	22.2
Not using	7.4	5.0	7.5	8.6	9.7	21.3	21.3
All	7.4	5.5	7.7	8.8	10.8	21.5	21.5
ASTR	7.0	10.0	12.0	11.0	8.0	7.0	1.0
Guyana 2009							
Using	17.6	24.9	48.0	41.4	30.3	20.6	20.6
Not using	12.5	16.5	20.6	21.5	30.9	52.4	52.4
All	12.7	17.7	25.2	24.9	30.9	51.1	51.1

S-table 3: *(continued)*

	15-19	20-24	25-29	30-34	35-39	40-44	45-49
ASTR	15.0	35.0	39.0	34.0	25.0	14.0	4.0
Honduras 2005							
Using	6.8	11.8	16.3	8.3	20.0	16.9	16.9
Not using	6.8	6.6	6.9	9.3	14.0	26.9	26.9
All	6.8	7.4	8.5	9.1	15.1	25.2	25.2
ASTR	7.0	13.0	14.0	12.0	13.0	11.0	2.0
Honduras 2011							
Using	13.4	11.6	12.7	13.3	18.5	45.7	45.7
Not using	8.0	7.3	8.7	10.6	14.0	27.3	27.3
All	8.5	7.7	9.1	10.9	14.6	29.8	29.8
ASTR	9.0	13.0	14.0	12.0	11.0	8.0	1.0
Nicaragua 1998							
Using	12.9	15.3	13.4	5.2	7.2	17.0	17.0
Not using	4.7	8.3	8.3	7.2	11.7	9.1	9.1
All	5.4	9.0	8.9	7.1	11.4	9.4	9.4
ASTR	7.0	19.0	16.0	9.0	10.0	3.0	1.0
Peru 1991							
Using	8.4	7.4	12.7	13.8	21.8	26.2	26.2
Not using	5.7	6.9	8.8	11.8	13.6	14.3	14.3
All	6.3	7.0	10.0	12.5	16.3	18.6	18.6
ASTR	4.0	13.0	20.0	21.0	19.0	10.0	3.0
Peru 1996							
Using	14.1	8.6	11.9	15.2	11.9	18.4	18.4
Not using	6.4	7.4	7.9	11.3	12.9	18.9	18.9
All	8.1	7.7	9.1	12.6	12.6	18.7	18.7
ASTR	7.0	15.0	16.0	20.0	14.0	10.0	2.0
Peru 2000							
Using	13.6	7.3	15.1	14.3	19.3	21.8	21.8
Not using	8.8	6.6	7.9	11.4	12.4	15.0	15.0
All	9.6	6.7	9.7	12.2	14.5	17.1	17.1
ASTR	7.0	10.0	14.0	16.0	13.0	7.0	1.0
Peru 2004							
Using	16.9	14.5	13.2	11.2	16.7	24.7	24.7
Not using	8.8	7.2	10.1	9.2	12.0	26.3	26.3
All	10.6	9.2	11.0	9.8	13.4	25.8	25.8
ASTR	7.0	13.0	15.0	12.0	11.0	9.0	2.0
Peru 2007							
Using	17.7	14.3	18.5	18.1	18.9	23.2	23.2
Not using	11.5	10.0	10.4	11.4	15.5	31.3	31.3
All	13.3	11.3	12.9	13.4	16.7	28.8	28.8
ASTR	10.0	16.0	18.0	15.0	13.0	11.0	2.0
Peru 2009							
Using	18.7	18.7	15.2	18.2	20.6	14.2	14.2
Not using	7.7	11.3	10.5	12.0	16.9	29.1	29.1
All	11.4	13.8	11.9	13.9	17.9	24.0	24.0
ASTR	9.0	19.0	17.0	18.0	15.0	9.0	1.0
Peru 2010							

S-table 3: *(continued)*

	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Using	16.3	16.9	22.9	22.4	27.2	31.5	31.5
Not using	10.2	11.2	11.5	13.6	17.6	28.1	28.1
All	12.2	13.0	14.7	16.4	20.7	29.1	29.1
ASTR	9.0	18.0	21.0	19.0	17.0	12.0	1.0
Peru 2011							
Using	15.0	17.9	20.2	20.2	23.2	36.0	36.0
Not using	12.3	11.1	10.2	13.1	13.9	29.4	29.4
All	13.2	13.3	13.2	15.2	17.0	31.7	31.7
ASTR	9.0	19.0	19.0	19.0	15.0	12.0	1.0
Paraguay 1990							
Using	14.5	21.3	17.9	18.8	20.9	33.7	33.7
Not using	7.8	6.0	10.0	9.2	13.9	15.8	15.8
All	8.4	8.3	11.3	10.8	15.1	18.2	18.2
ASTR	9.0	19.0	27.0	24.0	25.0	16.0	3.0
South and Southeast Asia							
India 2005							
Using	13.4	20.5	28.2	43.6	37.0	48.4	48.4
Not using	12.2	10.0	11.2	15.0	17.3	9.9	9.9
All	12.2	10.4	12.0	17.0	19.3	13.6	13.6
ASTR	13.0	24.0	19.0	13.0	6.0	1.0	0.0
Indonesia 2012							
Using	29.0	5.6	3.3	12.4	19.9	17.5	17.5
Not using	9.1	7.9	9.0	11.7	15.5	21.2	21.2
All	9.4	7.8	8.7	11.7	16.1	20.7	20.7
ASTR	5.0	12.0	14.0	14.0	12.0	5.0	1.0
Cambodia 2010							
Using	26.9	31.7	37.9	60.2	57.9	74.6	74.6
Not using	16.7	14.2	16.7	21.6	32.5	44.2	44.2
All	16.9	14.5	18.3	25.2	35.2	47.9	47.9
ASTR	9.0	29.0	37.0	41.0	39.0	26.0	4.0
Cambodia 2014							
Using	74.1	35.7	44.8	52.6	75.1	83.1	83.1
Not using	15.9	16.1	19.7	20.9	31.4	55.0	55.0
All	17.2	17.1	22.6	25.4	39.3	59.4	59.4
ASTR	12.0	34.0	44.0	35.0	33.0	25.0	6.0
Nepal 2011							
Using	42.2	18.5	48.5	63.5	35.6	11.1	11.1
Not using	11.4	10.2	16.5	16.8	22.9	23.1	23.1
All	11.7	10.4	18.4	20.9	24.7	21.3	21.3
ASTR	11.0	22.0	28.0	19.0	12.0	4.0	1.0
Nepal 2016							
Using	30.8	24.2	46.0	60.9	56.8	50.0	50.0
Not using	13.3	15.3	19.0	28.5	41.7	48.0	48.0
All	13.8	15.6	20.5	31.3	42.9	48.5	48.5
ASTR	14.0	32.0	32.0	27.0	14.0	6.0	2.0
Philippines 1993							
Using	13.9	7.8	12.7	10.3	12.4	27.1	27.1

S-table 3: *(continued)*

	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Not using	10.3	7.2	8.1	8.0	13.5	21.9	21.9
All	10.5	7.3	8.7	8.3	13.3	22.7	22.7
ASTR	6.0	15.0	21.0	16.0	18.0	15.0	2.0
Philippines 1998							
Using	11.9	9.0	5.8	15.3	13.5	32.4	32.4
Not using	13.0	7.6	8.2	10.1	15.7	25.1	25.1
All	12.9	7.8	7.7	11.3	15.2	26.5	26.5
ASTR	7.0	15.0	18.0	20.0	20.0	14.0	3.0
Philippines 2003							
Using	16.3	6.5	8.0	14.9	11.1	17.6	17.6
Not using	9.0	8.6	8.2	9.9	13.4	26.6	26.6
All	9.5	8.4	8.1	10.8	13.1	25.0	25.0
ASTR	6.0	16.0	17.0	17.0	14.0	14.0	2.0
Timor Leste 2009							
Using	0.0	0.0	0.0	14.4	13.7		
Not using	4.7	2.3	2.6	2.4	2.7	5.3	5.3
All	4.7	2.3	2.6	2.5	2.8	5.3	5.3
ASTR	3.0	5.0	7.0	7.0	6.0	5.0	3.0
Timor Leste 2016							
Using			0.0	0.0	0.0	0.0	0.0
Not using	5.4	3.5	2.9	2.6	4.8	3.6	3.6
All	5.4	3.5	2.8	2.6	4.7	3.6	3.6
ASTR	2.0	7.0	7.0	5.0	6.0	2.0	1.0

599 Note: Cells left in blank correspond to categories with less than 10 unweighted pregnancies.

S-table 4

	In-union						Not-in-union	
	15-19	20-24	25-29	30-34	35-39	40-49	15-24	25-49
Africa								
Angola 2015								
Using	*12.4*	59.1	*8.7*	*10.8*	*11.8*	*22.3*	0	*21.3*
Not using	6.3	5.5	5.1	5.5	7.6	15.6	7.3	7.8
All	6.3	6	5.1	5.5	7.6	15.6	7.2	7.8
Burkina Faso 2010								
Using	*12.4*	17.2	6.2	18.5	*11.8*	*22.3*	*14.6*	*21.3*
Not using	7	4.1	3.6	4.7	4.7	9	8.5	18.5
All	7	4.2	3.6	4.8	4.8	9	8.7	18.5
Benin 2011								
Using	*12.4*	*9.9*	0	*10.8*	*11.8*	*22.3*	*14.6*	*21.3*
Not using	3.8	3.5	2.8	3.8	5.1	3.5	4.9	10.2
All	3.8	3.6	2.8	3.8	5.1	3.6	4.9	10.3
Burundi 2010								
Using	*12.4*	13.5	0	2.8	0	42.2	*14.6*	*21.3*
Not using	11.4	5.9	4.4	7	8.9	18.2	8.7	1.8
All	11.4	6	4.3	6.9	8.7	19	8.8	1.8
Burundi 2016								
Using	*12.4*	5.1	0	6.4	13	*22.3*	*14.6*	*21.3*
Not using	10.3	7.7	6.6	6.7	10.9	16.9	5.7	4.9
All	10.3	7.7	6.5	6.7	10.9	17	5.7	4.9
Ethiopia 2005								
Using	0	27.4	14.5	17.5	21.9	*22.3*	*14.6*	*21.3*
Not using	3	4.2	3.3	4.2	5	9.1	10.8	0
All	3	4.5	3.4	4.2	5.3	9.2	10.9	1.1
Ethiopia 2011								
Using	1.6	6.1	6.2	9.3	3.8	*22.3*	13.8	*21.3*
Not using	6.1	6.6	3.3	5.5	8.9	15.9	8.4	3.3
All	6	6.5	3.5	5.7	8.6	16	8.7	3.8
Ethiopia 2016								
Using	*12.4*	0	19.1	12.5	4.1	*22.3*	*14.6*	*21.3*
Not using	4.5	3.5	4.4	5.2	6.7	14.8	9.9	12.3
All	4.5	3.5	4.6	5.3	6.7	14.8	10	12.5
Ghana 2008								
Using	*13.9*	10	17.7	4.6	19	*30*	39.2	*30.1*
Not using	9.4	10.7	8.5	14.5	13.2	20.7	26.8	34
All	9.7	10.6	9.3	13.9	13.8	21.2	28.1	33.4
Ghana 2014								
Using	*13.9*	25.3	23.4	15.8	22.8	*30*	52.5	80.4
Not using	11.4	13.7	11.7	14.8	17.3	22.6	32.4	39.6
All	11.5	14.1	12.1	14.9	17.5	22.8	33.7	42.7
Kenya 1998								
Using	5.4	1.3	5.3	3	12.5	0	5	24.2
Not using	4.5	5.1	5.4	5.4	5.5	9.6	6.6	8.3
All	4.5	4.8	5.4	5.1	5.9	8.6	6.4	9.7

S-table 4: *(continued)*

	In-union						Not-in-union	
	15-19	20-24	25-29	30-34	35-39	40-49	15-24	25-49
Kenya 2003								
Using	17.9	6.9	1.3	5.3	11.1	*22.3*	7	7.4
Not using	7.6	5.4	3.9	5.3	8.2	8.2	4.3	6.1
All	8.1	5.5	3.7	5.3	8.6	9.2	4.5	6.2
Kenya 2008								
Using	6	8	5.5	4.1	4.3	15.7	0	5.1
Not using	3.3	4.4	6.5	4.4	12.5	19	3.1	9
All	3.4	4.8	6.3	4.4	11.4	18.6	2.9	8.3
Comoros 2012								
Using	*12.4*	*9.9*	*8.7*	*10.8*	*11.8*	*22.3*	*14.6*	*21.3*
Not using	5.7	4.6	8.1	5.8	12	18.1	6.6	17.9
All	5.7	4.7	8.1	5.9	12	18.2	6.6	17.9
Liberia 2013								
Using	*13.9*	29.3	39.4	*23.2*	36.4	*30*	38.7	*30.1*
Not using	7.7	8.3	12.4	11.9	11.7	27	11.7	10.9
All	7.8	8.6	13.1	12	12.5	27	12.4	10.9
Lesotho 2009								
Using	7.7	2.7	2.9	6.6	11.1	*22.3*	15.3	*21.3*
Not using	4.3	6	4.6	5.1	9.3	4.1	3.7	7.7
All	4.5	5.7	4.4	5.3	9.6	5.3	4.5	8.6
Lesotho 2014								
Using	22.4	1.2	1.9	11.7	6.8	*22.3*	5	6.9
Not using	9.8	4.8	10.1	10.1	12.4	13.1	7.1	10.5
All	10.7	4.4	9.2	10.3	11.4	14.3	6.9	10
Morocco 1992								
Using	*12.4*	4.6	9.2	9.4	13.6	25.5	*14.6*	*21.3*
Not using	9.1	7.1	7.7	8.6	8.9	8.5	*7.5*	*9.2*
All	9.2	6.9	7.8	8.8	9.7	11.8	7.5	14.4
Morocco 2003								
Using	18.1	11.1	10.2	12.3	15.8	21.8	*14.6*	*21.3*
Not using	10	8.5	8.2	11.7	16.9	29.8	8.6	*9.2*
All	10.7	8.9	8.6	11.9	16.6	27.2	8.9	9.2
Madagascar 2008								
Using	11	8.3	14.3	12	11	21.1	31.8	*21.3*
Not using	5.2	5.7	6.4	6.8	7.6	11.4	11.6	9.2
All	5.4	5.9	7	7.2	7.8	11.8	12.5	10.5
Mali 2012								
Using	*12.4*	*9.9*	*8.7*	*10.8*	*11.8*	*22.3*	*14.6*	*21.3*
Not using	4.5	3.5	3.8	3.4	4.6	7.2	5.7	2.4
All	4.5	3.5	3.8	3.4	4.6	7.2	5.7	2.4
Malawi 2004								
Using	12.5	0.6	0	7.5	6	5.1	*14.6*	*21.3*
Not using	5.8	4.4	4.3	5	7	6.4	5	5.5
All	5.9	4.2	4.1	5.1	7	6.3	5	5.6
Malawi 2010								

S-table 4: *(continued)*

	In-union						Not-in-union	
	15-19	20-24	25-29	30-34	35-39	40-49	15-24	25-49
Using	6.7	2.4	2.5	5.9	5.5	4.5	1.3	*21.3*
Not using	6.8	3.7	5.1	5.4	5.3	13.2	7.9	16.8
All	6.8	3.6	4.9	5.5	5.3	12.7	7.7	17.3
Malawi 2015								
Using	9.4	2.6	8.2	10	3.3	*22.3*	*14.6*	*21.3*
Not using	6.2	4.9	5.3	4.3	5.8	10.2	7.6	6.3
All	6.3	4.8	5.4	4.5	5.7	10.3	7.6	6.5
Mozambique 2011								
Using	*12.4*	34.4	3.8	*10.8*	*11.8*	*22.3*	33.2	*21.3*
Not using	7.7	4.2	5.5	4.4	5.8	8.7	10.7	10.8
All	7.7	4.4	5.5	4.4	5.8	8.8	11.1	10.8
Nigeria 2008								
Using	15.7	6.1	3.9	8	15.2	10	48.5	31.4
Not using	5.2	5.2	4.7	6.2	10	11.3	16.2	13.4
All	5.4	5.3	4.7	6.4	10.3	11.2	19	15.4
Nigeria 2013								
Using	18.6	16.8	7.5	7.4	26.7	20.8	43.7	66.8
Not using	6.3	5.4	6.1	7.2	9.3	13.1	13.7	17
All	6.3	5.6	6.1	7.2	9.9	13.3	15.2	19.3
Niger 2012								
Using	*12.4*	*9.9*	8.5	*10.8*	*11.8*	*22.3*	*14.6*	*21.3*
Not using	9.1	3.8	5.8	7.9	9.5	17.3	6.8	0
All	9.1	3.9	5.9	7.9	9.5	17.3	6.8	0
Namibia 2006								
Using	*12.4*	3.7	6	6.6	3	*22.3*	1.6	4.7
Not using	1.5	6	4.9	7.6	9	16.4	3.3	4
All	1.6	5.8	5	7.5	8.5	16.6	3.1	4.1
Namibia 2013								
Using	*12.4*	4.8	10.1	3.9	10.6	*22.3*	2.4	5
Not using	2.5	5.5	11.5	6	7.9	14.4	4.8	8.5
All	2.8	5.5	11.4	5.8	8.1	15	4.4	8.2
Rwanda 2010								
Using	*12.4*	4	3.2	11.8	12.7	17.7	*14.6*	*21.3*
Not using	5.1	7.6	5.1	5.3	8.3	18.1	5.6	7.1
All	5.1	7.5	5	5.7	8.6	18	5.6	7.2
Rwanda 2014								
Using	*12.4*	4	8.8	10.5	17.5	17.6	*14.6*	*21.3*
Not using	10.5	7.2	5.9	7.7	10	16.2	5.6	6.8
All	10.6	7.1	6.1	8	11	16.4	5.7	7.2
Sierra Leone 2008								
Using	*12.4*	7.7	9.1	0	0	*22.3*	18.9	*21.3*
Not using	5.4	5.1	6.2	6	6.4	10.1	8.5	6.2
All	5.4	5.2	6.3	5.8	6.3	10.3	8.8	7.1
Sierra Leone 2013								
Using	*12.4*	3.5	16	57.7	11.2	*22.3*	12.5	*21.3*

S-table 4: *(continued)*

	In-union						Not-in-union	
	15-19	20-24	25-29	30-34	35-39	40-49	15-24	25-49
Not using	6.2	5.4	5.9	5.7	7.9	10.6	7.9	11.5
All	6.2	5.4	6	6.1	8	10.8	8	11.8
Senegal 2012								
Using	*12.4*	*9.9*	*8.7*	11.4	*11.8*	*22.3*	*14.6*	*21.3*
Not using	11.2	8.7	8.4	7.4	10.4	17.2	8.3	1.1
All	11.2	8.7	8.4	7.5	10.4	17.3	8.5	1.1
Senegal 2014								
Using	*12.4*	*9.9*	19.2	*10.8*	*11.8*	*22.3*	*14.6*	*21.3*
Not using	6.5	7.7	6.7	11.1	10.5	10.1	7.6	4
All	6.5	7.8	6.8	11.1	10.5	10.2	7.6	4
Senegal 2015								
Using	*12.4*	*9.9*	*8.7*	0	*11.8*	*22.3*	*14.6*	*21.3*
Not using	9.2	6.5	6	9.4	15.6	20.8	5	8.2
All	9.2	6.5	6.1	9.2	15.5	20.8	5	8.2
Senegal 2016								
Using	*12.4*	*9.9*	0	16.6	6.6	*22.3*	*14.6*	*21.3*
Not using	5.4	8.1	5.7	10.7	14.1	17.5	11	18.7
All	5.4	8.1	5.6	10.9	13.7	17.6	11	18.7
Senegal 2017								
Using	*12.4*	*9.9*	*8.7*	4.9	10.7	*22.3*	*14.6*	*21.3*
Not using	10.4	8.4	8	9.5	15.7	21.1	6.1	14
All	10.4	8.5	8	9.5	15.6	21.1	6.1	14.2
Tanzania 2004								
Using	*12.4*	8.7	18.7	10.9	2.5	*22.3*	14.5	*21.3*
Not using	8.8	5.7	6.1	8.5	11.2	22.3	10.1	16.2
All	8.8	5.9	6.9	8.6	10.8	22.3	10.2	16.3
Tanzania 2010								
Using	*12.4*	2.5	3.3	6	7.7	4.4	3.9	*21.3*
Not using	8.5	7.2	7.1	7.3	13	17.2	7.3	0.8
All	8.5	7	6.9	7.2	12.7	16	7.2	2.2
Tanzania 2015								
Using	5.5	6.3	15.1	11.5	9.6	15.5	19.5	*21.3*
Not using	9	7.7	8.6	8.7	12.3	20.1	9.3	14.4
All	8.9	7.6	9	8.9	12.1	19.7	9.8	15
Uganda 2006								
Using	25.1	9.7	8.7	7.9	25.1	*22.3*	1.6	*21.3*
Not using	9.4	7.3	6.4	9.2	13.9	23.5	13	13.7
All	10	7.4	6.6	9.1	14.6	23.4	12.2	14
Uganda 2011								
Using	0	12.6	4.1	4.4	18.2	*22.3*	8	*21.3*
Not using	12.9	6.6	8	8.6	12.5	25.5	13.3	17.3
All	12.5	6.9	7.8	8.3	12.7	25.3	13.1	17.5
Uganda 2016								
Using	7	15.9	14.1	17.9	27.4	17.7	35.2	*30.1*
Not using	10.3	9.1	7.9	10.5	15	25.5	10.5	18.3

S-table 4: *(continued)*

	In-union						Not-in-union	
	15-19	20-24	25-29	30-34	35-39	40-49	15-24	25-49
All	10.3	9.4	8.2	10.8	15.7	25	10.9	18.9
Zambia 2007								
Using	6.1	5.2	5	11	2.3	0	15.6	*21.3*
Not using	7.7	5.2	6.2	5.4	6	10.8	5.7	12.4
All	7.6	5.2	6.1	6.1	5.5	9.7	6.4	13.2
Zambia 2013								
Using	4	2.4	3.5	2.6	14.6	3	2.8	*21.3*
Not using	5.6	5.5	4.2	5.3	6.4	13.9	5.2	11.4
All	5.6	5.3	4.1	5.1	7.2	12.7	5.2	11.7
Zimbabwe 1994								
Using	6	5.5	7.2	9.8	14.2	27.3	5.3	24.9
Not using	10.4	8.4	4.9	6	7	24.5	6.6	12.5
All	10	8.1	5.2	6.4	8.3	24.9	6.5	13.6
Zimbabwe 1999								
Using	13.2	16.5	5.5	0	4.2	*22.3*	10	*21.3*
Not using	8.5	7	6.5	7.1	11.6	18.9	8.2	8.2
All	8.8	7.9	6.4	6.2	10.7	19.1	8.3	9.4
Zimbabwe 2005								
Using	30.4	2.3	5.2	2.7	6.9	23.9	5.5	0
Not using	9.4	5.9	7.1	4.6	12.1	18.2	5.8	10.9
All	10.6	5.5	6.8	4.4	11.6	18.8	5.8	10
Zimbabwe 2010								
Using	*12.4*	5	3.3	11.3	5.9	0	21.8	*21.3*
Not using	9.7	5	7.3	8	8.1	7.7	5.4	12.4
All	9.8	5	7	8.4	7.8	6.8	5.7	12.7
Zimbabwe 2015								
Using	0	4	8.5	9.7	11.8	10	*14.6*	*21.3*
Not using	9.4	9.2	5	7.1	11.1	26.6	9.7	6
All	9	8.7	5.4	7.4	11.1	24.7	9.8	6.3
Central and West Asia & Europe								
Albania 2008								
Using	*13.9*	24.1	14.9	20.2	23.9	*30*	*26.5*	*30.1*
Not using	12	6.9	11	22.4	38.8	71.3	9.1	0
All	12.1	10.2	12	21.8	36.1	71.3	11.8	4.2
Albania 2017								
Using	*12.4*	20	16.3	24.9	*11.8*	*22.3*	*14.6*	*21.3*
Not using	6.7	6.9	7.6	7.6	19.6	38.9	5.5	0
All	6.8	7.6	8	8.5	19.3	37.7	5.6	0
Armenia 2000								
Using	53.4	75.7	86	88.6	93.7	97.1	*49.4*	*66.1*
Not using	18.5	30.6	50.1	73.1	74.6	86.7	*36.7*	*46.5*
All	22.6	45.3	68.7	81.4	85.3	91.9	36.7	46.5
Armenia 2005								
Using	*61.9*	64.3	86	96.3	89.3	74.3	*49.4*	*66.1*
Not using	19	24.3	45.3	59.5	72.6	91.5	*36.7*	25.5

S-table 4: *(continued)*

	In-union						Not-in-union	
	15-19	20-24	25-29	30-34	35-39	40-49	15-24	25-49
All	20.7	31.9	58.8	74	80.2	84.5	46.5	28.2
Armenia 2010								
Using	*33.7*	49.1	69.2	72.7	75.5	89.1	*23.6*	*26.1*
Not using	20.2	20.6	32.4	50.2	47.5	54.6	20.8	*22.5*
All	20.4	23.5	41.1	57.2	54.8	68.8	20.8	22.5
Armenia 2015								
Using	*33.7*	56	76.7	78.3	95.5	91.4	*23.6*	*26.1*
Not using	13.7	18.7	27.8	32	29.8	53.5	32.3	*22.5*
All	14	22.5	34.9	41	43.8	67.4	32.3	22.9
Azerbaijan 2006								
Using	94.7	64.9	78.8	88.6	86.7	100	*49.4*	*66.1*
Not using	17.9	29.5	49.3	57	72.6	84.1	31	35.3
All	20.6	33.4	56.2	67.5	77.4	89.2	31	35.3
Kazakhstan 1999								
Using	46.7	59.1	80.5	86.3	92.7	84	79.1	88.9
Not using	22.4	28.8	39.7	37.8	50.9	55.3	49.8	65.2
All	25.2	33.8	50.6	51.6	63.2	67	54	72.5
Kyrgyz Rep. 2012								
Using	*33.7*	49.9	50.5	52.6	48	*73.7*	*23.6*	*26.1*
Not using	9.3	17.5	22.5	21.8	29.8	27.9	19.9	27.7
All	10	19	24.4	24.4	31.4	29.6	20.1	27.6
Moldova 2005								
Using	60.1	59.1	71.9	71.9	70.2	90	53.1	88.3
Not using	25	26.9	31.5	34.3	66.8	74.7	43.8	65.3
All	32.4	34.8	44.1	48.2	68.3	80.5	45.1	70.3
Tajikistan 2012								
Using	*33.7*	26	52	67.3	65.6	*73.7*	*23.6*	*26.1*
Not using	12.1	10.7	15.1	19.2	27.9	41.1	14.7	25
All	12.1	10.8	16	20.4	29.4	42.9	14.7	25
Tajikistan 2017								
Using	*13.9*	21.7	41	*23.2*	*25.8*	*30*	*26.5*	*30.1*
Not using	9.4	10.7	16	22.8	32.5	51.7	11.5	25.1
All	9.4	10.7	16.3	22.8	32.3	51.6	11.5	25.1
Turkey 1998								
Using	48	33.9	32.7	50	71.3	77.5	*23.6*	*26.1*
Not using	13.7	14.4	17.7	26.4	29.1	48.3	*18.3*	*22.5*
All	17.6	17.7	21	32.9	43.9	61.4	18.3	22.5
Turkey 2003								
Using	18.6	21.8	29.3	50.6	57.5	52	23.6	*26.1*
Not using	17.8	13.3	16.9	18	36.7	30.3	*18.3*	*22.5*
All	17.9	15	20.3	29.9	46	41		22.5
Ukraine 2007								
Using	*33.7*	45.3	75.9	71.5	76.8	85.6	40.3	*26.1*
Not using	13	15.9	27.1	28.9	42.3	53.8	12.5	41.9
All	15.4	21.2	39.6	41.2	57.4	68.2	20.6	39.1

S-table 4: *(continued)*

	In-union						Not-in-union	
	15-19	20-24	25-29	30-34	35-39	40-49	15-24	25-49
Latin America								
Bolivia 1994								
Using	12.6	7.6	14.6	17.2	13.7	20	19.9	0
Not using	7.2	6.2	7.9	10	10.6	6.4	5.5	11.1
All	8.1	6.5	9.2	11.8	11.2	9.4	6.9	9.9
Bolivia 2008								
Using	8.7	13.9	15	16.6	18.8	24.3	13.3	18.6
Not using	9.6	10	10.8	14.4	16.7	17.5	10.2	16.8
All	9.4	11	11.8	15	17.3	19.1	10.8	17.3
Brazil 1996								
Using	20.4	20	10.5	11	24.8	33.5	20.6	13.8
Not using	9.7	9.1	11.9	11.1	20.7	30.3	14.3	17
All	10.9	11.1	11.6	11	21.6	31	15.6	16.2
Colombia 1990								
Using	7	16.8	16	25.1	10.8	26.2	21.5	6.7
Not using	11.6	10.3	10.2	13.6	19.2	35.1	5.5	14.5
All	11.1	11.4	11.6	16.3	16.7	32.4	7.5	13
Colombia 1995								
Using	18.6	14.9	15.2	15.6	9.6	26.1	7.7	15.5
Not using	8.6	9.9	9.5	11.1	9.3	23.9	7.1	14.9
All	10.2	11.2	11.1	12.6	9.4	24.7	7.2	15.1
Colombia 2000								
Using	8	14.8	12.9	15.2	25.8	29	19.2	24.5
Not using	8.6	14.2	16.4	16.5	21.1	25.6	13.4	18.4
All	8.5	14.4	15.2	16.1	23	26.9	15.4	20.5
Colombia 2005								
Using	18.3	21	16.6	21.6	33.1	19.3	20.4	27.5
Not using	10.4	13.8	14.3	17	20.6	29	18.8	22.3
All	12.1	15.6	15	18.4	24.8	25.5	19.3	23.8
Colombia 2010								
Using	13	22.1	17.3	27.4	22.3	32.9	20	21.4
Not using	11.7	16.1	15.1	19	25.2	35.1	15.3	16.8
All	12	17.3	15.6	20.8	24.5	34.5	16.4	17.8
Colombia 2015								
Using	11.5	16.6	25.1	21.2	19.5	16.6	19.6	17.1
Not using	7.8	12.3	15.7	13.7	21.6	37.1	14.7	14.7
All	8.5	13.2	17.7	14.8	21.1	32	15.9	15.2
Dominican Rep. 1991								
Using	5.7	16.2	26.3	18.4	36.5	*30*	27	*30.1*
Not using	11	9.8	14.8	20.1	18	25.1	9.5	23
All	10.7	10.5	16.6	19.9	20.5	25.5	12.2	23.8
Dominican Rep. 1996								
Using	14.9	15.8	16.7	20.5	*25.8*	*30*	22.8	41.7
Not using	16.2	12.6	18.2	14.2	24.1	19.4	24.3	22.8
All	16.1	13	18	15	24.2	20.2	24.1	27.3

S-table 4: *(continued)*

	In-union						Not-in-union	
	15-19	20-24	25-29	30-34	35-39	40-49	15-24	25-49
Dominican Rep. 1999								
Using	*13.9*	10.1	28.8	*23.2*	*25.8*	*30*	*26.5*	*30.1*
Not using	13.7	18.2	20.3	22.9	20.5	*31.9*	45.4	56.5
All	13.7	17.1	22	22.9	20.8	30.5	45	53.9
Dominican Rep. 2002								
Using	18.1	21.1	14	25.5	26.9	50.9	35	21.5
Not using	11.7	12.3	13.8	16.8	14.3	40.5	26.5	29.6
All	12.4	13.7	13.8	17.9	15.9	41.7	27.5	28.6
Guatemala 1995								
Using	0	21.3	2.8	13.7	3.2	16.5	*14.6*	*21.3*
Not using	4.8	4.9	5.3	6	7	15.3	4	8.3
All	4.7	5.6	5.2	6.3	6.8	15.3	4.5	8.5
Guatemala 1998								
Using	17.2	7	14.1	3.6	0.6	*22.3*	*14.6*	*21.3*
Not using	6.3	3.2	6	6.5	4.5	13.3	5.6	6.5
All	6.7	3.4	6.9	6.3	4.3	13.6	6.3	9.4
Guatemala 2014								
Using	10.3	10.3	9.4	9.9	16.3	22.2	4.3	0
Not using	7.4	5.2	7.3	8.6	9.6	19.9	5.7	13.3
All	7.6	5.8	7.5	8.8	10.8	20.2	5.6	12.5
Guyana 2009								
Using	*13.9*	21	49	41	30.3	*30*	23.7	43.6
Not using	9.8	16	19.3	21.8	32.8	53.3	17.3	22.5
All	10	16.8	24.1	24.8	32.5	52.4	17.9	26.9
Honduras 2005								
Using	3.9	11.5	15.1	8.4	20	16.9	16.1	*21.3*
Not using	6.5	6.6	6.7	9.2	14.1	26.1	7.3	14
All	6.3	7.4	8.1	9.1	15.2	24.5	8.6	14.9
Honduras 2011								
Using	13.9	12.4	13.1	14.1	17	47.3	10.6	11
Not using	8.6	7.6	9	10.4	14	26.7	5.6	8.5
All	9	8.1	9.5	10.9	14.4	29.5	6.3	8.8
Nicaragua 1998								
Using	13.3	15.9	13.5	5.4	7.2	*22.3*	*14.6*	*21.3*
Not using	4.6	7.9	8.2	6.9	11.7	9.3	10.2	13.3
All	5.3	8.6	8.8	6.7	11.3	9.8	10.4	14.2
Peru 1991								
Using	6	5.5	13.1	13.1	21.6	26.7	15.3	16.2
Not using	4.9	6.7	8.9	11.4	13.5	13.9	7.6	12.4
All	5.1	6.4	10.2	12	16.2	18.6	9.3	13.2
Peru 1996								
Using	13.6	8.9	11.1	14.4	12.1	18.1	10.9	21.7
Not using	5.6	7.3	7.8	11.4	12.8	19.3	8	10.3
All	7.4	7.7	8.8	12.4	12.5	18.8	8.7	13.6
Peru 2000								

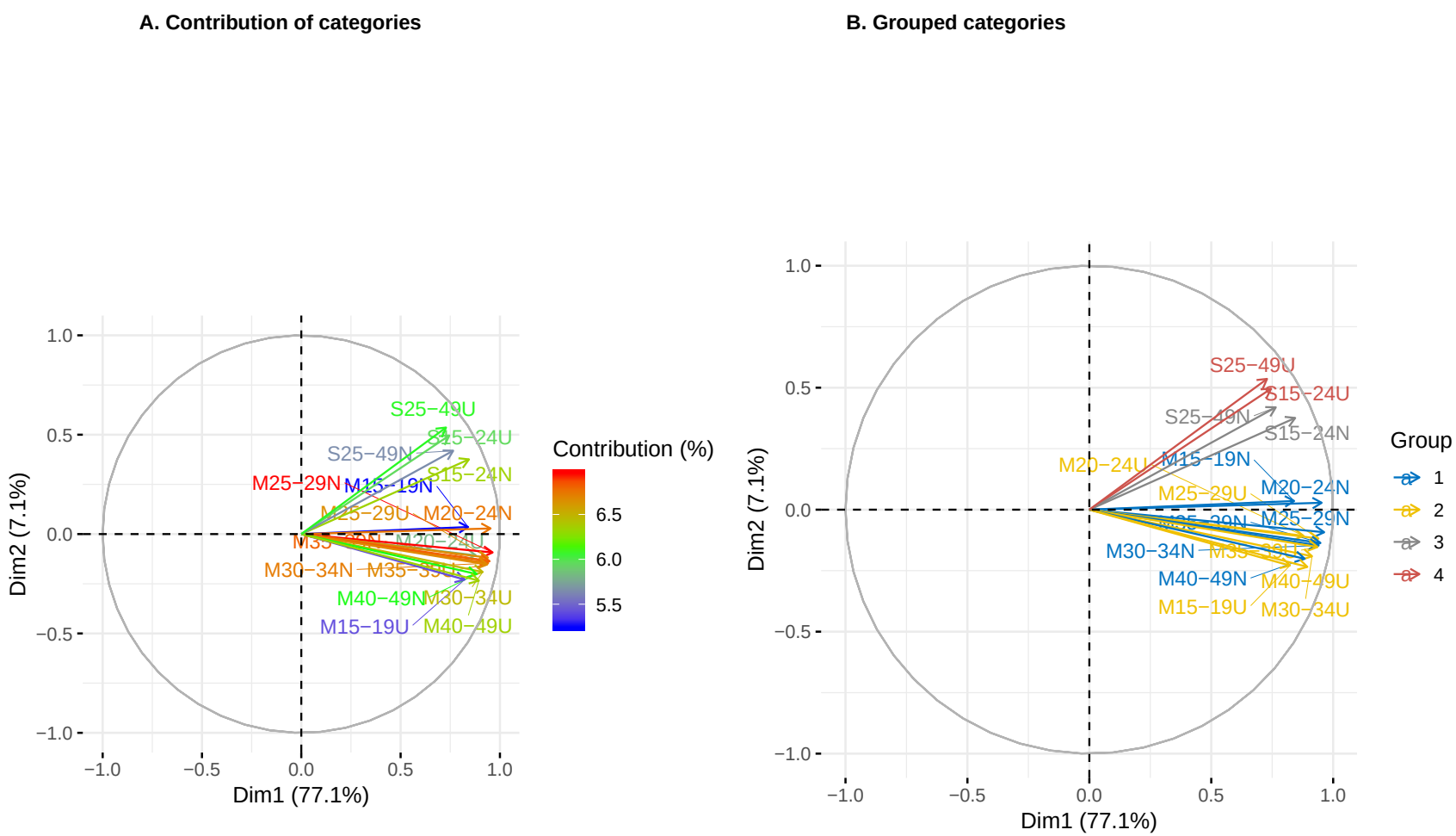
S-table 4: *(continued)*

	In-union						Not-in-union	
	15-19	20-24	25-29	30-34	35-39	40-49	15-24	25-49
Using	8.9	6.4	15.1	12.8	17.8	21.6	13.4	24.7
Not using	7.3	6.9	7.8	10.9	12.7	12.1	8.4	13
All	7.5	6.8	9.6	11.5	14.3	15.3	9.6	15.8
Peru 2004								
Using	19.1	14.1	11.9	11.5	16.7	22.2	15.2	20.7
Not using	7	5.9	10	9.1	12	27.3	11.3	10.8
All	9.2	8	10.6	9.8	13.4	25.7	12.4	13.1
Peru 2007								
Using	8.8	11.7	17.8	16.2	17.9	23.8	22	28.8
Not using	11.4	11.1	11	11.3	16.5	31.8	9.3	9.6
All	10.8	11.3	13.2	12.7	17	29.2	13.7	14.9
Peru 2009								
Using	12.5	12.5	13.9	18.5	19.8	14.6	27	21.2
Not using	6.7	9.3	10.5	11.2	16	29.3	13	16.7
All	8.6	10.2	11.4	13.5	17.1	24.4	18.8	17.9
Peru 2010								
Using	12.2	14.4	20.2	19.1	25.4	29	21.3	47.4
Not using	9.3	9.9	10.8	13.2	17	29.4	13.5	17.3
All	10.1	11.2	13.5	15.1	19.7	29.3	16.5	26.1
Peru 2011								
Using	14.1	17	17.7	18.7	20.5	35.9	17.8	35.6
Not using	10.9	8.1	9.6	12.1	13.8	28.7	17.2	17.9
All	11.9	10.9	12	14.1	16.1	31.3	17.4	24
Paraguay 1990								
Using	9.7	20.5	17.3	17.5	19.5	34.5	26.9	*21.3*
Not using	9.1	6.5	10.2	9	14.4	15.7	4.6	10
All	9.2	8.8	11.4	10.4	15.3	18.2	6.4	11.1
South and Southeast Asia								
India 2005								
Using	13.4	20.5	28.2	43.6	37	48.4	*26.5*	*30.1*
Not using	12.2	10	11.1	14.9	17.3	9.9	12.4	53.4
All	12.2	10.4	11.9	16.9	19.2	13.6	12.4	53.4
Indonesia 2012								
Using	29.8	5.6	3.3	12.4	19.9	17.5	*14.6*	*21.3*
Not using	10.2	8.1	9	11.7	15.6	21.1	5.2	9.7
All	10.5	7.9	8.7	11.7	16.2	20.6	5.3	9.8
Cambodia 2010								
Using	24	31.7	37.3	60.2	57.9	74.6	*23.6*	*26.1*
Not using	16	14.3	16.8	21.8	32.7	43.9	16.8	13.6
All	16.1	14.7	18.3	25.4	35.4	47.7	17	14.2
Cambodia 2014								
Using	74.1	35.7	44.9	52	75.1	83.1	*23.6*	*26.1*
Not using	15.4	15.8	19.7	21.1	31.5	55	24.9	17.7
All	16.8	16.9	22.5	25.4	39.3	59.4	24.9	18.4
Nepal 2011								

S-table 4: *(continued)*

	In-union						Not-in-union	
	15-19	20-24	25-29	30-34	35-39	40-49	15-24	25-49
Using	32.1	17.7	48.5	63.5	35.6	*30*	*26.5*	*30.1*
Not using	11.5	10.1	16.5	16.9	22.9	23.1	13.2	*22.7*
All	11.7	10.3	18.4	21	24.7	24.1	13.7	22.7
Nepal 2016								
Using	31.3	24.2	46	60.9	56.8	50	*23.6*	*26.1*
Not using	13.5	15.3	19	28.6	41.7	48	6.5	*22.5*
All	14	15.7	20.5	31.4	42.9	48.5	6.7	22.5
Philippines 1993								
Using	13.9	7.9	12.8	10.3	12.4	27.1	*14.6*	*21.3*
Not using	9.3	7.5	8.3	8.1	13.4	22.1	8.8	3.8
All	9.5	7.5	8.9	8.4	13.3	22.9	8.8	4.1
Philippines 1998								
Using	6.6	7.6	5.9	15.1	13.5	32.4	30.9	*21.3*
Not using	14.2	7.6	8.6	10.3	16	24.9	7.7	2.7
All	13.5	7.6	7.9	11.4	15.4	26.3	9.6	3.5
Philippines 2003								
Using	19.7	6	8.1	14.9	11.3	17.6	8.4	*21.3*
Not using	9.6	9.2	8.5	9.8	13.6	26.7	5.8	5.5
All	10.4	8.8	8.4	10.7	13.2	25	5.9	6
Timor Leste 2009								
Using	*12.4*	*9.9*	*8.7*	14.4	*11.8*	*22.3*	*14.6*	*21.3*
Not using	4.5	2	2.6	2.4	2.8	5.3	8	0
All	4.6	2.1	2.7	2.5	2.8	5.3	8	0
Timor Leste 2016								
Using	*12.4*	*9.9*	*8.7*	*10.8*	*11.8*	*22.3*	*14.6*	*21.3*
Not using	5.2	3.8	2.9	2.7	4.7	3.6	2.7	2.9
All	5.2	3.8	2.9	2.7	4.8	3.7	2.7	2.9
Cluster means								
Cluster 1								
Using	12.4	9.9	8.7	10.8	11.8	22.3	14.6	21.3
Not using	7.3	6.2	6.5	7.4	10.1	16	7.5	9.2
Cluster 2								
Using	13.9	18.1	23	23.2	25.8	30	26.5	30.1
Not using	10.6	11.4	13.4	15.8	20.4	31.9	16.8	22.7
Cluster 3								
Using	33.7	37.4	51.4	61.6	68	73.7	23.6	26.1
Not using	14.4	15.6	21.5	26.8	34.9	45.6	18.3	22.5
Cluster 4								
Using	61.9	64.6	80.6	86.3	86.5	89.1	49.4	66.1
Not using	20.5	28	43.2	52.3	67.5	78.4	36.7	46.5

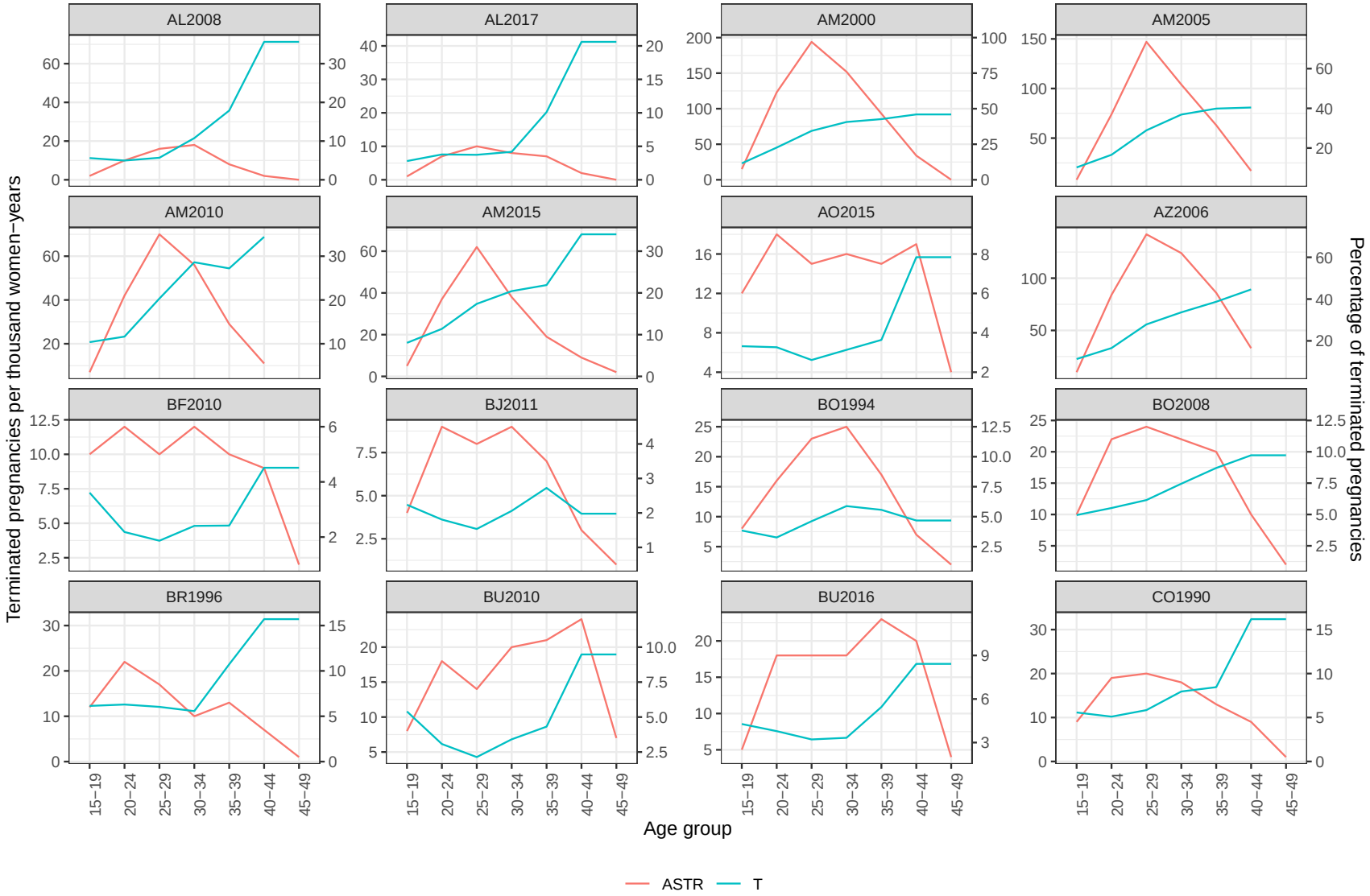
600 Note: Values in *italic* correspond to imputed probabilities from the clustering.



Note: The category name has the following structure: The first letter is the union status (M=in−union or S=not−in−union). Then, the age−group. The last letter refers to using (U) or not using (N) contraceptives.

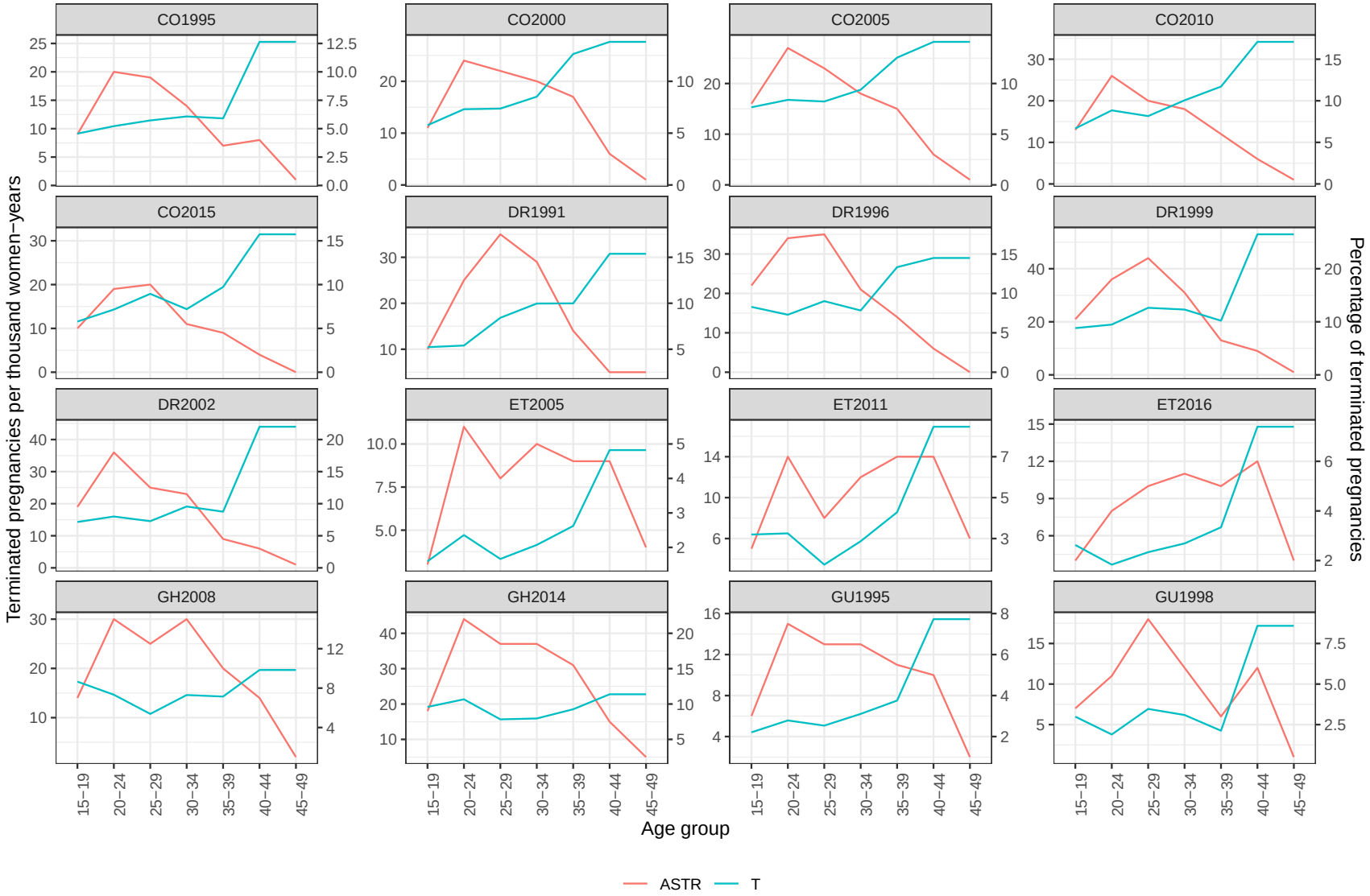
S-figure 1: Principal components analysis by categories.

S−figure 2: Age−specific termination rate (ASTR) and probability of pregnancy termination (T) by survey.

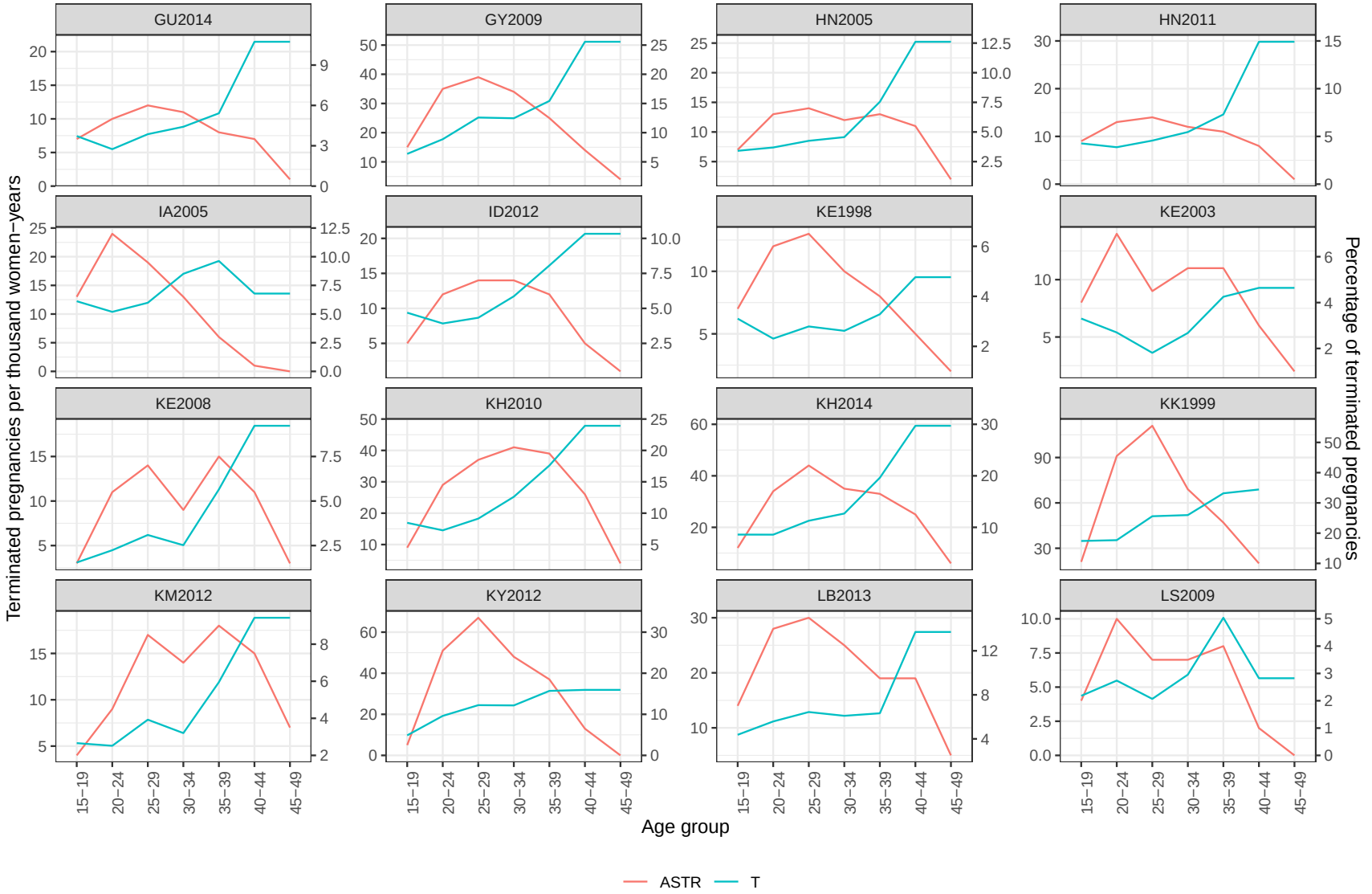


601

S−figure 2: Age−specific termination rate (ASTR) and probability of pregnancy termination (T) by survey.

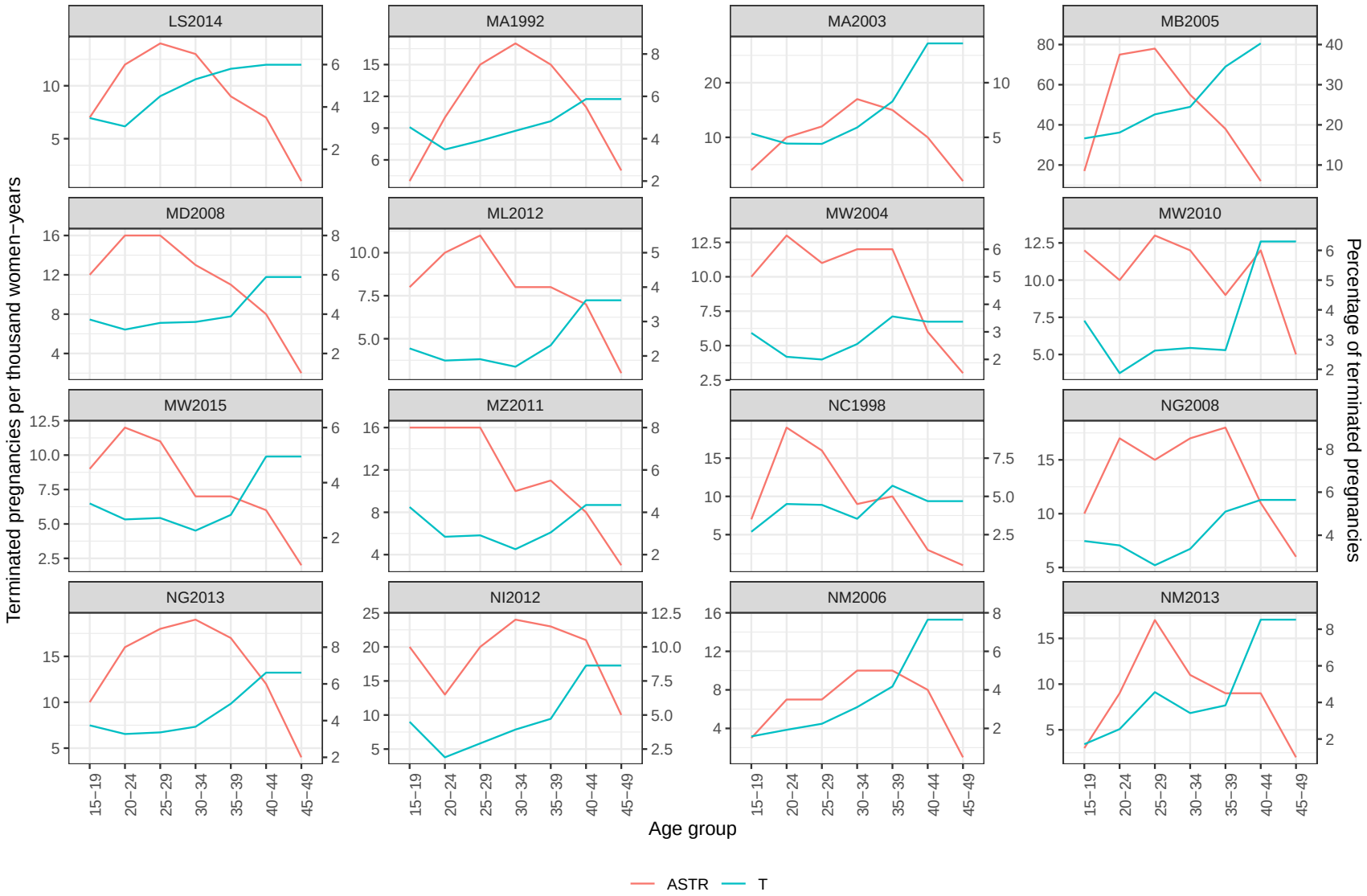


S−figure 2: Age−specific termination rate (ASTR) and probability of pregnancy termination (T) by survey.

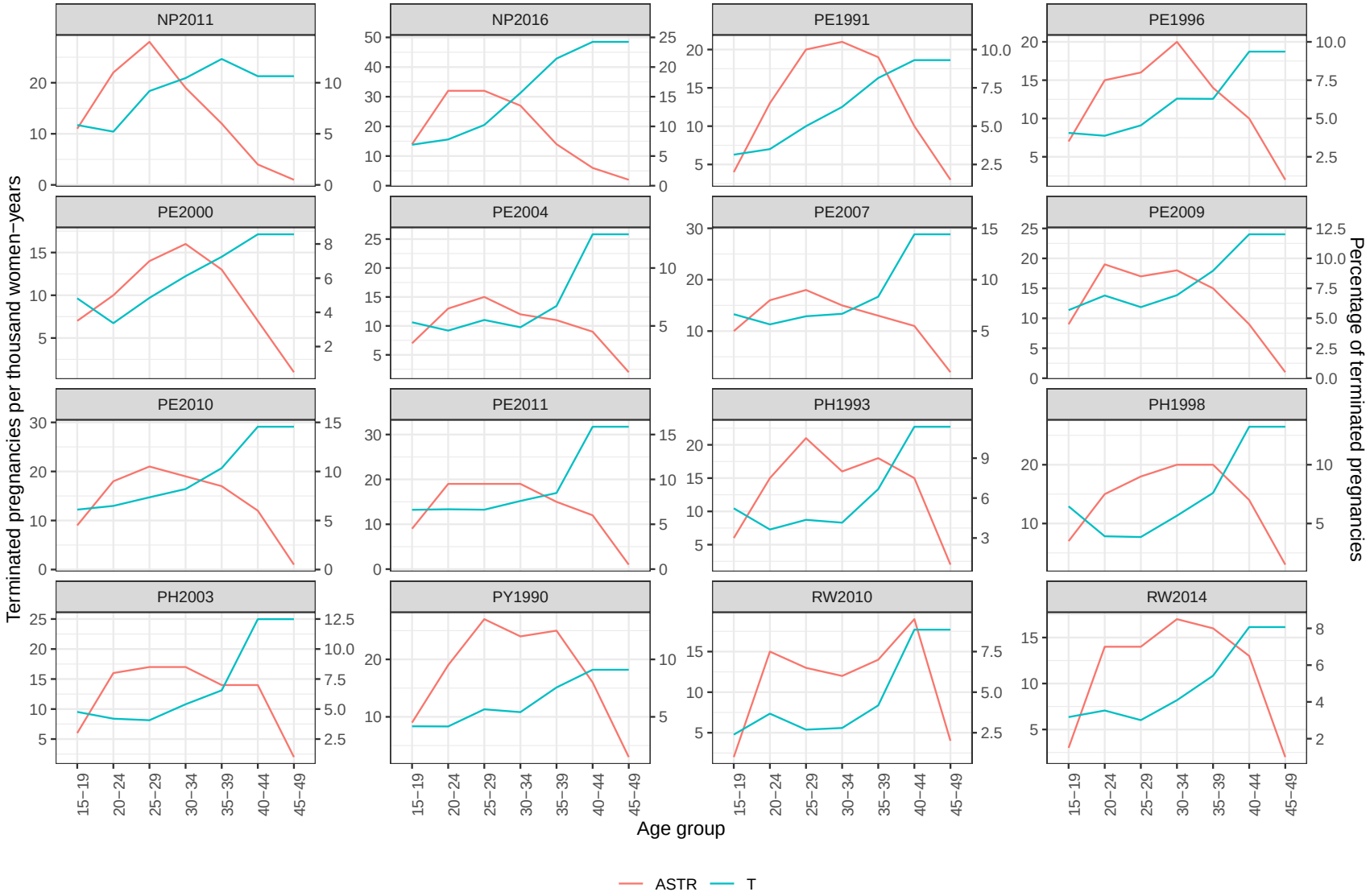


603

S−figure 2: Age−specific termination rate (ASTR) and probability of pregnancy termination (T) by survey.

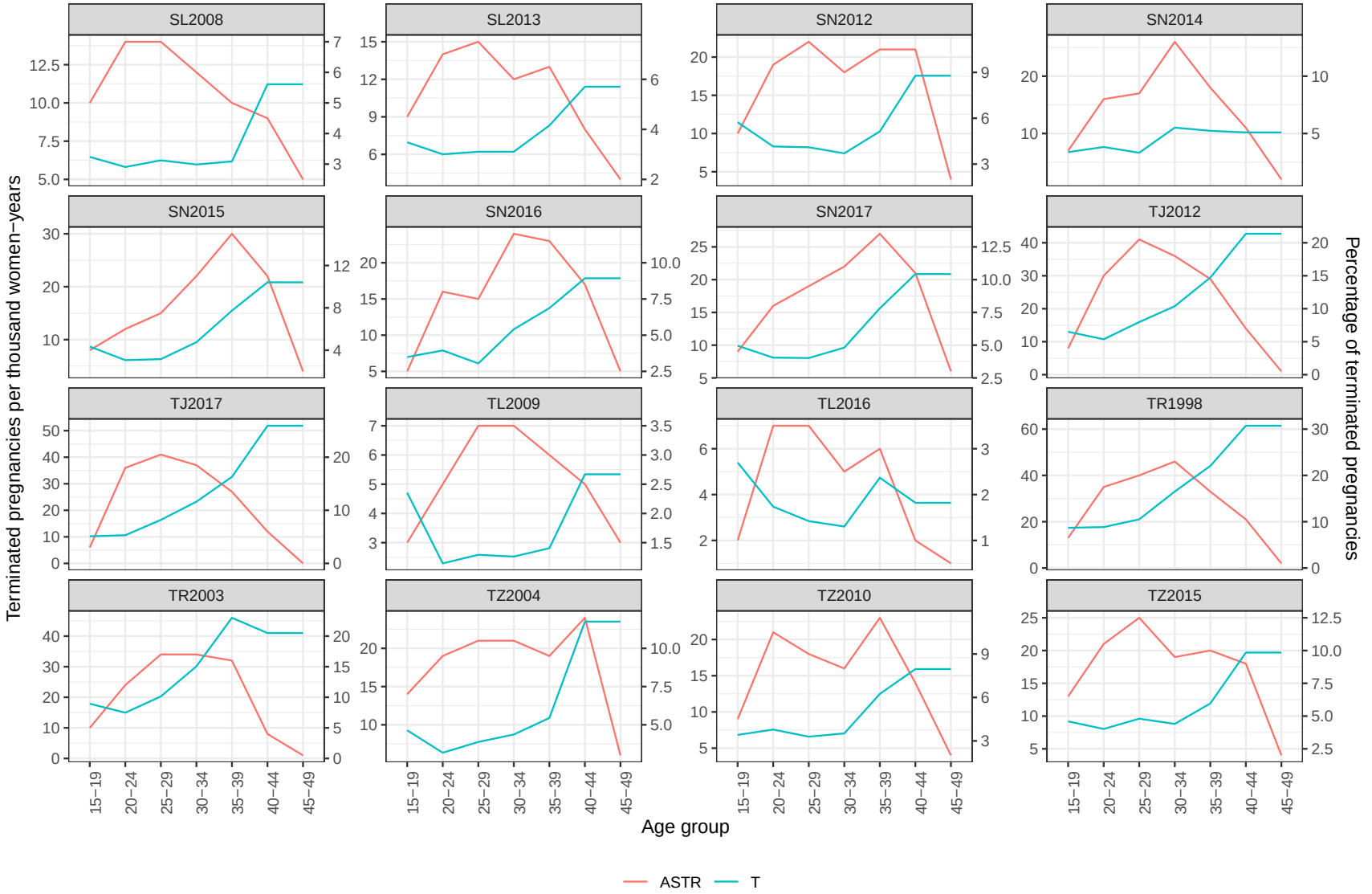


S−figure 2: Age−specific termination rate (ASTR) and probability of pregnancy termination (T) by survey.

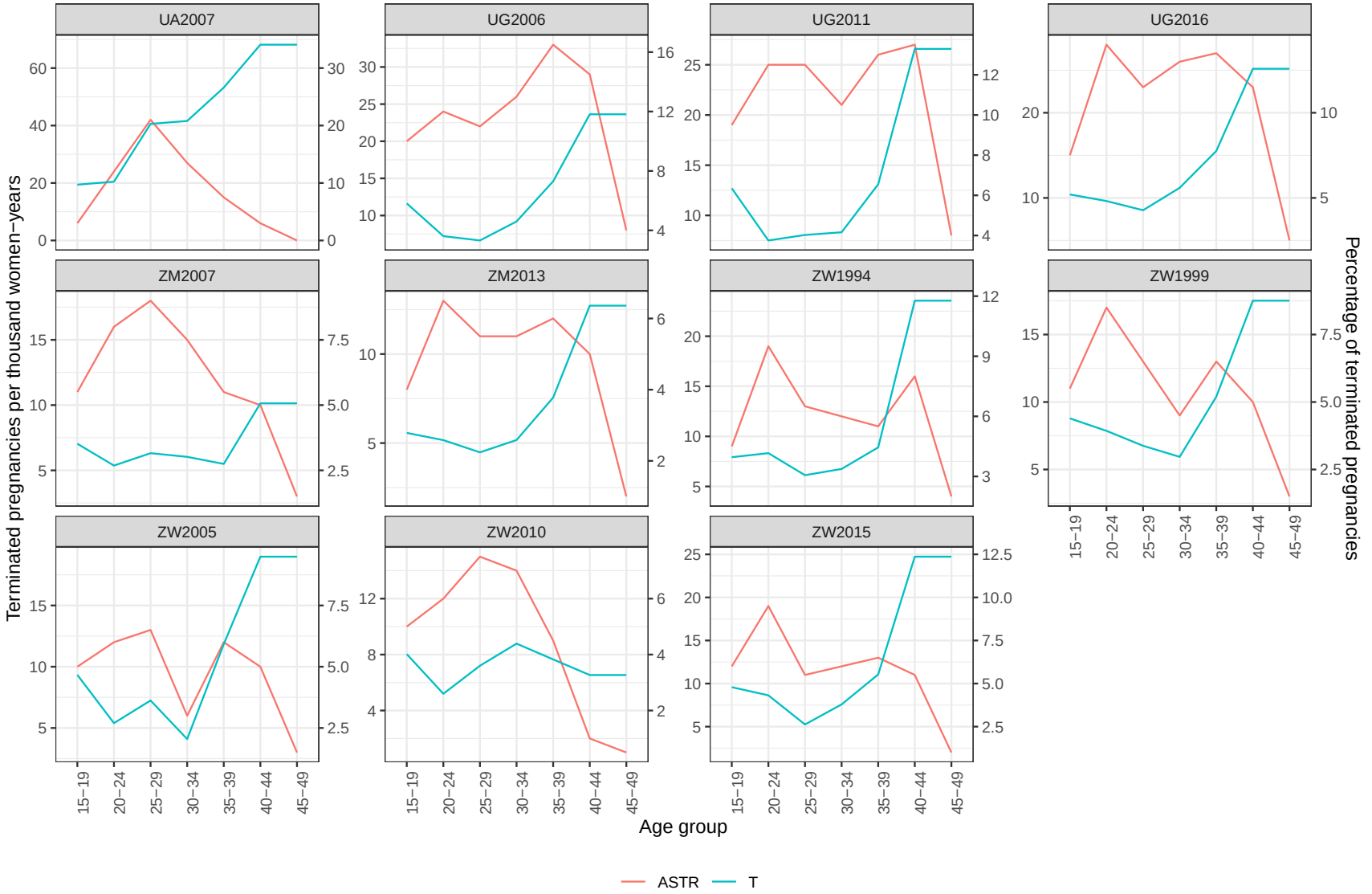


605

S−figure 2: Age−specific termination rate (ASTR) and probability of pregnancy termination (T) by survey.



S−figure 2: Age−specific termination rate (ASTR) and probability of pregnancy termination (T) by survey.



607

S-table 5: Contraceptive prevalence, total and general rates, and probability of pregnancy termination by survey.

			Probability PT (%)										
				Model estimates		Contraception (%)		Total rates			General rates		
Code	Survey	Cluster	T	IA	ST	Any	Modern	TFR	TTR	TPR	GFR	GTR	GPR
Africa													
AO	Angola 2015	1	6.7	1.6	5.1	13.3	12.5	6.2	0.5	6.7	216	15.4	231.4
BF	Burkina Faso 2010	1	5.0	1.1	3.9	15.3	14.3	6.0	0.3	6.3	206	10.8	216.8
BJ	Benin 2011	1	3.8	0.8	3.1	14.0	9.0	4.9	0.2	5.1	175	7.0	182.0
BU	Burundi 2010	1	7.3	1.8	5.5	13.4	11.0	6.4	0.6	7.0	203	16.0	219.0
BU	Burundi 2016	1	8.2	2.1	6.1	17.9	14.6	5.5	0.5	6.0	180	16.0	196.0
ET	Ethiopia 2005	1	4.3	0.9	3.4	10.3	9.7	5.4	0.3	5.7	179	8.1	187.1
ET	Ethiopia 2011	1	6.3	1.4	4.8	19.6	18.7	4.8	0.4	5.2	161	10.7	171.7
ET	Ethiopia 2016	1	5.3	1.2	4.1	25.3	24.9	4.6	0.3	4.9	156	8.7	164.7
GH	Ghana 2008	2	14.2	4.8	9.4	19.3	13.5	4.0	0.7	4.7	136	22.6	158.6
GH	Ghana 2014	2	18.2	7.2	10.9	22.8	18.2	4.2	0.9	5.1	143	31.7	174.7
KE	Kenya 1998	1	5.5	1.2	4.3	29.9	23.6	4.7	0.3	5.0	166	9.7	175.7
KE	Kenya 2003	1	5.6	1.2	4.3	28.4	22.7	4.9	0.3	5.2	171	10.1	181.1
KE	Kenya 2008	1	5.9	1.3	4.6	32.0	28.0	4.6	0.3	4.9	161	10.2	171.2
KM	Comoros 2012	1	7.6	1.9	5.7	13.7	9.9	4.3	0.4	4.7	142	11.7	153.7
LB	Liberia 2013	2	12.0	3.7	8.3	21.7	20.5	4.7	0.7	5.4	168	22.9	190.9
LS	Lesotho 2009	1	5.3	1.2	4.2	35.9	34.9	3.3	0.2	3.5	119	6.7	125.7
LS	Lesotho 2014	1	8.2	2.1	6.1	48.9	48.5	3.3	0.3	3.6	118	10.6	128.6
MA	Morocco 1992	1	8.5	2.2	6.3	22.9	19.7	4.0	0.4	4.4	127	11.8	138.8
MA	Morocco 2003	1	11.8	3.6	8.2	33.3	29.0	2.5	0.4	2.8	81	10.9	91.9
MD	Madagascar 2008	1	7.3	1.8	5.5	31.7	23.0	4.8	0.4	5.2	168	13.3	181.3
ML	Mali 2012	1	4.1	0.8	3.2	9.9	9.6	6.1	0.3	6.4	214	9.0	223.0
MW	Malawi 2004	1	4.9	1.1	3.9	25.7	22.4	6.0	0.3	6.3	215	11.2	226.2
MW	Malawi 2010	1	5.5	1.2	4.3	35.4	32.6	5.7	0.4	6.1	202	11.8	213.8
MW	Malawi 2015	1	5.7	1.3	4.4	46.0	45.2	4.4	0.3	4.7	158	9.5	167.5
MZ	Mozambique 2011	1	6.3	1.4	4.8	12.3	12.1	5.9	0.4	6.3	206	13.8	219.8
NG	Nigeria 2008	1	7.1	1.7	5.4	15.4	10.5	5.7	0.5	6.2	195	15.0	210.0
NG	Nigeria 2013	1	7.6	1.9	5.7	16.0	11.1	5.5	0.5	6.0	190	15.5	205.5

S-table 5: Contraceptive prevalence, total and general rates, and probability of pregnancy termination by survey. *(continued)*

			Probability PT (%)										
				Model estimates		Contraception (%)		Total rates			General rates		
Code	Survey	Cluster	T	IA	ST	Any	Modern	TFR	TTR	TPR	GFR	GTR	GPR
NI	Niger 2012	1	7.0	1.7	5.4	12.5	11.0	7.6	0.7	8.3	269	20.4	289.4
NM	Namibia 2006	1	5.3	1.2	4.1	46.6	45.7	3.6	0.2	3.8	122	6.8	128.8
NM	Namibia 2013	1	6.9	1.6	5.3	50.2	49.7	3.6	0.3	3.9	125	9.3	134.3
RW	Rwanda 2010	1	7.1	1.7	5.4	28.6	25.2	4.6	0.4	5.0	151	11.6	162.6
RW	Rwanda 2014	1	7.9	2	5.9	30.9	27.8	4.2	0.4	4.6	142	12.2	154.2
SL	Sierra Leone 2008	1	6.3	1.5	4.9	10.2	8.2	5.1	0.4	5.5	180	12.1	192.1
SL	Sierra Leone 2013	1	6.8	1.6	5.2	22.1	20.9	4.9	0.4	5.3	169	12.3	181.3
SN	Senegal 2012	1	9.3	2.5	6.8	12.6	11.4	5.3	0.6	5.9	172	17.6	189.6
SN	Senegal 2014	1	8.3	2.1	6.2	16.0	14.7	5.0	0.5	5.5	167	15.2	182.2
SN	Senegal 2015	1	9.1	2.4	6.7	16.9	15.3	4.9	0.6	5.5	161	16.1	177.1
SN	Senegal 2016	1	9.1	2.4	6.7	18.0	16.6	4.7	0.5	5.2	156	15.6	171.6
SN	Senegal 2017	1	10.3	2.9	7.4	19.9	18.9	4.6	0.6	5.2	152	17.5	169.5
TZ	Tanzania 2004	1	8.8	2.3	6.5	22.5	17.6	5.7	0.6	6.3	199	19.2	218.2
TZ	Tanzania 2010	1	8.1	2	6.0	28.8	23.6	5.4	0.5	5.9	188	16.5	204.5
TZ	Tanzania 2015	1	9.8	2.7	7.1	32.4	27.1	5.2	0.6	5.8	178	19.3	197.3
UG	Uganda 2006	1	9.7	2.7	7.1	19.6	15.4	6.7	0.8	7.5	230	24.7	254.7
UG	Uganda 2011	1	10.0	2.8	7.2	23.6	20.7	6.2	0.8	7.0	217	24.1	241.1
UG	Uganda 2016	2	10.9	3.2	7.8	30.3	27.3	5.4	0.7	6.1	189	23.2	212.2
ZM	Zambia 2007	1	6.2	1.4	4.8	29.9	24.6	6.2	0.4	6.6	214	14.2	228.2
ZM	Zambia 2013	1	5.6	1.3	4.4	35.1	32.5	5.3	0.3	5.6	184	11.0	195.0
ZW	Zimbabwe 1994	1	8.2	2.1	6.1	35.1	31.1	4.3	0.4	4.7	148	13.3	161.3
ZW	Zimbabwe 1999	1	8.2	2.1	6.1	37.7	35.6	4.0	0.4	4.4	141	12.5	153.5
ZW	Zimbabwe 2005	1	7.3	1.8	5.5	40.1	39.1	3.8	0.3	4.1	137	10.7	147.7
ZW	Zimbabwe 2010	1	7.0	1.7	5.3	41.3	40.5	4.1	0.3	4.4	150	11.3	161.3
ZW	Zimbabwe 2015	1	8.5	2.2	6.3	48.6	47.9	4.0	0.4	4.4	144	13.3	157.3
Central and West Asia & Europe													
AL	Albania 2008	2	16.0	**7.2**	8.7	48.0	7.9	1.6	0.3	1.9	46	8.7	54.7
AL	Albania 2017	1	9.2	2.4	6.7	33.2	2.8	1.8	0.2	2.0	57	5.8	62.8
AM	Armenia 2000	4	62.8	58.5	4.4	39.0	14.4	1.7	3.1	4.8	56	94.7	150.7

S-table 5: Contraceptive prevalence, total and general rates, and probability of pregnancy termination by survey. *(continued)*

			Probability PT (%)										
				Model estimates		Contraception (%)		Total rates			General rates		
Code	Survey	Cluster	T	IA	ST	Any	Modern	TFR	TTR	TPR	GFR	GTR	GPR
AM	Armenia 2005	4	51.9	**44.8**	7.2	33.1	12.3	1.7	2.1	3.8	58	62.7	120.7
AM	Armenia 2010	3	36.6	**29.6**	7.0	33.9	16.9	1.7	1.1	2.8	61	35.2	96.2
AM	Armenia 2015	3	32.4	**22.2**	10.2	36.7	18.1	1.7	0.9	2.6	64	30.6	94.6
AZ	Azerbaijan 2006	4	52.2	**45.7**	6.5	32.0	9.0	2.0	2.4	4.4	66	72.1	138.1
KK	Kazakhstan 1999	4	46.9	38.6	8.4	48.0	38.7	2.0	1.8	3.8	67	59.3	126.3
KY	Kyrgyz Rep. 2012	3	22.4	**12.3**	10.1	24.4	22.7	3.6	1.1	4.7	125	36.2	161.2
MB	Moldova 2005	4	44.1	**32.6**	11.5	49.8	32.8	1.7	1.4	3.1	55	43.4	98.4
TJ	Tajikistan 2012	3	16.0	**7.8**	8.2	18.9	17.5	3.8	0.8	4.6	134	25.4	159.4
TJ	Tajikistan 2017	2	15.9	**8.2**	7.7	21.3	19.7	3.8	0.8	4.6	141	26.6	167.6
TR	Turkey 1998	3	24.5	12.4	12.1	44.2	26.1	2.6	1.0	3.6	94	30.6	124.6
TR	Turkey 2003	3	23.0	**11.2**	11.8	71.0	42.5	2.2	0.7	2.9	79	23.6	102.6
UA	Ukraine 2007	3	34.0	**25.9**	8.1	50.9	38.3	1.2	0.6	1.8	39	20.1	59.1
Latin America													
BO	Bolivia 1994	1	9.0	2.4	6.6	30.1	11.9	4.8	0.5	5.3	163	16.2	179.2
BO	Bolivia 2008	1	12.9	4.1	8.8	41.3	24.0	3.5	0.6	4.0	121	18.0	139.0
BR	Brazil 1996	2	13.5	4.4	9.1	55.4	51.0	2.5	0.4	2.9	89	13.9	102.9
CO	Colombia 1990	2	12.5	3.9	8.6	39.9	33.0	2.8	0.4	3.2	105	15.0	120.0
CO	Colombia 1995	1	11.3	3.3	8.0	48.1	39.5	3.0	0.4	3.4	107	13.6	120.6
CO	Colombia 2000	2	15.7	5.7	10.1	52.8	43.8	2.6	0.5	3.1	92	17.2	109.2
CO	Colombia 2005	2	17.8	7	10.8	56.4	49.4	2.4	0.5	2.9	84	18.2	102.2
CO	Colombia 2010	2	17.8	7	10.8	61.2	56.9	2.1	0.5	2.6	74	16.0	90.0
CO	Colombia 2015	2	15.4	**3**	12.4	64.9	61.4	2.0	0.4	2.4	70	12.8	82.8
DR	Dominican Rep. 1991	2	14.4	4.9	9.5	36.8	33.9	3.3	0.6	3.9	125	21.0	146.0
DR	Dominican Rep. 1996	2	16.8	6.3	10.5	44.6	41.3	3.2	0.7	3.9	120	24.2	144.2
DR	Dominican Rep. 1999	2	21.8	10	11.8	48.8	45.6	2.7	0.8	3.5	100	27.9	127.9
DR	Dominican Rep. 2002	2	16.2	5.9	10.2	51.2	48.2	3.0	0.6	3.6	110	21.2	131.2
GU	Guatemala 1995	1	6.0	1.3	4.6	21.4	18.4	5.1	0.4	5.4	177	11.2	188.2
GU	Guatemala 1998	1	5.8	1.3	4.5	26.6	21.7	5.0	0.3	5.3	177	11.0	188.0
GU	Guatemala 2014	1	7.8	2	5.9	39.4	32.2	3.1	0.3	3.4	112	9.5	121.5

S-table 5: Contraceptive prevalence, total and general rates, and probability of pregnancy termination by survey. *(continued)*

			Probability PT (%)										
				Model estimates		Contraception (%)		Total rates			General rates		
Code	Survey	Cluster	T	IA	ST	Any	Modern	TFR	TTR	TPR	GFR	GTR	GPR
GY	Guyana 2009	2	21.8	10	11.8	34.6	32.5	2.8	0.8	3.6	94	26.3	120.3
HN	Honduras 2005	1	9.1	2.4	6.7	43.2	37.7	3.3	0.4	3.7	117	11.7	128.7
HN	Honduras 2011	1	9.8	2.7	7.1	48.8	42.9	2.9	0.3	3.2	107	11.7	118.7
NC	Nicaragua 1998	1	8.0	2	6.0	40.8	39.0	3.6	0.3	3.9	132	11.5	143.5
PE	Peru 1991	1	10.2	2.9	7.4	35.7	19.9	3.5	0.4	4.0	121	13.8	134.8
PE	Peru 1996	1	10.0	2.8	7.3	40.9	26.4	3.5	0.4	3.9	122	13.6	135.6
PE	Peru 2000	1	10.3	2.9	7.4	44.0	32.0	2.8	0.3	3.1	98	11.2	109.2
PE	Peru 2004	1	11.3	3.3	8.0	45.8	30.9	2.6	0.3	2.9	87	11.1	98.1
PE	Peru 2007	2	14.0	4.7	9.3	48.0	33.0	2.5	0.4	2.9	85	13.8	98.8
PE	Peru 2009	2	14.0	4.7	9.3	49.2	34.2	2.6	0.4	3.0	88	14.4	102.4
PE	Peru 2010	2	15.8	5.7	10.1	50.1	34.7	2.5	0.5	3.0	86	16.1	102.1
PE	Peru 2011	2	15.1	5.3	9.8	50.9	35.3	2.6	0.5	3.1	87	15.5	102.5
PY	Paraguay 1990	1	10.9	3.2	7.8	32.7	23.6	4.7	0.6	5.3	160	19.6	179.6
South and Southeast Asia													
IA	India 2005	2	12.2	3.7	8.4	43.8	38.0	2.7	0.4	3.1	101	14.0	115.0
ID	Indonesia 2012	1	10.6	**0.2**	10.5	45.7	42.7	2.6	0.3	2.9	88	10.4	98.4
KH	Cambodia 2010	3	21.6	9.8	11.8	31.4	21.7	3.0	0.9	3.9	105	28.9	133.9
KH	Cambodia 2014	3	23.9	11.8	12.1	38.5	26.6	2.7	0.9	3.6	98	30.8	128.8
NP	Nepal 2011	2	14.9	**7.1**	7.8	38.2	33.2	2.6	0.5	3.1	96	16.8	112.8
NP	Nepal 2016	3	19.8	**8.9**	10.8	40.8	33.2	2.3	0.6	2.9	88	21.7	109.7
PH	Philippines 1993	1	9.7	2.6	7.0	24.2	15.1	4.1	0.5	4.6	138	14.8	152.8
PH	Philippines 1998	1	10.8	3.1	7.7	28.9	17.2	3.7	0.5	4.2	126	15.2	141.2
PH	Philippines 2003	1	10.4	**0.6**	9.8	31.6	21.6	3.5	0.4	3.9	119	13.8	132.8
TL	Timor Leste 2009	1	2.9	0.6	2.4	13.6	12.8	5.7	0.2	5.9	175	5.3	180.3
TL	Timor Leste 2016	1	3.4	0.7	2.7	16.1	14.8	4.2	0.2	4.4	136	4.8	140.8

Note: IA estimates in **bold** correspond to reported values.

References

[1] Bradley SEK, Croft TN, Rutstein SO. The impact of contraceptive failure on unintended births and induced abortions: Estimates and strategies for reduction. Rockville: DHS Analytical Studies No. 22; 2011.

[2] Rossier C. Estimating induced abortion rates: A review. Stud Fam Plann 2003;34:87–102. doi:10.1111/j.1728-4465.2003.00087.x.

[3] Sedgh G, Bearak J, Singh S, Bankole A, Popinchalk A, Ganatra B, et al. Abortion incidence between 1990 and 2014: Global, regional, and subregional levels and trends. Lancet 2016;388:258–67. doi:10.1016/S0140-6736(16)30380-4.

[4] Christou A, Dibley MJ, Raynes-Greenow C. Beyond counting stillbirths to understanding their determinants in low- and middle-income countries: A systematic assessment of stillbirth data availability in household surveys. Trop Med Int Health 2017;22:294–311. doi:10.1111/tmi.12828.

[5] Bongaarts J, Casterline JB. From fertility preferences to reproductive outcomes in the developing world. Popul Dev Rev 2018;44:793–809. doi:10.1111/padr.12197.

[6] Bearak JM, Popinchalk A, Sedgh G, Ganatra B, Moller AB, Tunçalp Ö, et al. Pregnancies, abortions, and pregnancy intentions: A protocol for modeling and reporting global, regional and country estimates. Reproductive Health 2019;16:36. doi:10.1186/s12978-019-0682-0.

[7] Casterline JB. Collecting data on pregnancy loss: A review of evidence from the World Fertility Survey. Stud Fam Plann 1989;20:81–95. doi:10.2307/1966462.

[8] MacQuarrie KLD, Winfrey W, Meijer-Irons J, Roback Morse A. Consistency of reporting of terminated pregnancies in DHS calendars. Rockville: DHS Program; DHS Metodological Reports No. 25; 2018.

[9] Singh S, Remez L, Sedgh G, Kwok L, Onda T. Abortion worldwide 2017: Uneven progress

633 and unequal access. New York: Guttmacher Institute; 2018.

634 [10] Marston C, Cleland J. The effects of contraception on obstetric outcomes. Geneva: World
635 Health Organization, Department of Reproductive Health and Research; 2004.

636 [11] Cleland J, Ali M. Reproductive consequences of contraceptive failure in 19 developing
637 countries. Obstet Gynecol 2004;104:314–20. doi:10.1097/01.AOG.0000134789.73663.fd.

638 [12] Polis CB, Bradley SEK, Bankole A, Onda T, Croft T, Singh S. Typical-use contraceptive
639 failure rates in 43 countries with Demographic and Health Survey data: Summary of a
640 detailed report. Contraception 2016;94:11–7. doi:10.1016/j.contraception.2016.03.011.

641 [13] Chae S, Desai S, Crowell M, Sedgh G, Singh S. Characteristics of women obtaining
642 induced abortions in selected low- and middle-income countries. PLOS ONE 2017;12:e0172976.
643 doi:10.1371/journal.pone.0172976.

644 [14] Dankwah E, Steeves M, Ramsay D, Feng C, Farag M. The relationship between sociode-
645 mographic factors and reporting having terminated a pregnancy among Ghanaian women: A
646 population-based study. Hum Res Dev 2018;10:333–9. doi:10.1093/inthealth/ihy035.

647 [15] Dickson KS, Adde KS, Ahinkorah B. Socio - economic determinants of abortion among
648 women in Mozambique and Ghana: Evidence from Demographic and Health Survey. Arch
649 Public Health 2018;76:36–46. doi:10.1186/s13690-018-0286-0.

650 [16] Ibisomi L, Odimegwu C. Pregnancy termination in sub-Saharan Africa: The
651 need for refined data. International Journal of Health Research 2008;1:207–24.
652 doi:10.4314/ijhr.v1i4.55378.

653 [17] Maharana B. Abortion decision making in India: Whose role is vital? Soc Sci Spectr
654 2017;2:263–74.

655 [18] Mosley WH, Chen LC. An analytical framework for the study of child survival in develop-

ing countries: Public health classics. Int J Public Health 2003;81:140–5. doi:10.2307/2807954.

[19] Nybo-Andersen A, Wohlfahrt J, Christens P, Olsen J, Melbye M. Maternal age and fetal loss: Population based register linkage study. Brit Med J 2000;320:1708–12. doi:10.1136/bmj.320.7251.1708.

[20] Zheng D, Li C, Wu T, Tang K. Factors associated with spontaneous abortion: A cross-sectional study of Chinese populations. Reproductive Health 2017;14:33–41. doi:10.1186/s12978-017-0297-2.

[21] Cai Y, Feng W. Famine, social disruption, and involuntary fetal loss: Evidence from chinese survey data. Demography 2005;42:301–22. doi:10.1353/dem.2005.0010.

[22] Layne LL. Motherhood lost. Women Health 1990;16:69–98. doi:10.1300/J013v16n03_05.

[23] Renner CH, Verdekal S, Brier S, Fallucca G. The meaning of miscarriage to others: Is it an unrecognized loss? Journal of Personal and Interpersonal Loss 2000;5:65–76. doi:10.1080/10811440008407847.

[24] Akker OBA van den. The psychological and social consequences of miscarriage. Expert Review of Obstetrics & Gynecology 2011;6:295–304. doi:10.1586/eog.11.14.

[25] Akker OBA van den. Reproductive Health Psychology. Chichister, UK: John Wiley & Sons; 2012. doi:10.1002/9781119968382.

[26] Kolk BA van der, Hart O van der. The intrusive past: The flexibility of memory and the engraving of trauma. Am Imago 1991;48:425–54.

[27] Hart O van der, Brown P, Kolk BA van der. Rediscovering Pierre Janet: Trauma, dissociation, and a new context for psychoanalysis. In: Craparo G, Ortu F, Hart O van der, editors., New York: Routledge; 2019, pp. 164–77. doi:10.4324/9780429201875.

[28] Ahmed I, Ali SM, Amenga-Etego S, others. Population-based rates, timing, and causes of maternal deaths, stillbirths, and neonatal deaths in south Asia and sub-Saharan Africa:

680 A multi-country prospective cohort study. The Lancet Global Health 2018;6:e1297–308.
681 doi:10.1016/s2214-109x(18)30385-1.

682 [29] Yogi A, Prakash KC, Neupane S. Prevalence and factors associated with abortion and
683 unsafe abortion in Nepal: A nationwide cross-sectional study. BMC Pregnancy and Childbirth
684 2018;18:376. doi:10.1186/s12884-018-2011-y.

685 [30] Moreau C, Bajos N, Bouyer J. Question comprehension and recall: The reporting of
686 induced abortions in quantitative surveys on the general population. Population 2004;59:439–
687 54. doi:10.2307/3654913.

688 [31] United Nations. Transforming our world: The 2030 Agenda for Sustainable Development.
689 New York: United Nations, UNGA Resolution; 2015.

690 [32] Family Planning 2020. FP2020: The way ahead 2016-2017. Washington: FP2020
691 Partnership; 2018.

692 [33] Bongaarts J. A framework for analyzing the proximate determinants of fertility. Popul
693 Dev Rev 1978;4:105–32. doi:10.2307/1972149.

694 [34] Bongaarts J. Modeling the fertility impact of the proximate determinants: Time for a
695 tune-up. Demogr Res 2015;33:535–60. doi:10.4054/DemRes.2015.33.19.

696 [35] Stover J, Winfrey W. The effects of family planning and other factors on fertility, abortion,
697 miscarriage, and stillbirths in the Spectrum model. BMC Public Health 2017;17:775–82.
698 doi:10.1186/s12889-017-4740-7.

699 [36] The DHS Program. DHS contraceptive calendar tutorial. Rockville, USA: Demographic
700 and Health Surveys (DHS) Program. url: https://www.dhsprogram.com/data/calendar-
701 tutorial/upload/DHS-Contraceptive-Calendar-Tutorial.pdf; 2017.

702 [37] Watson OJ, Eaton J. Rdhs: API client and dataset management for the Demographic

and Health Survey (DHS) data. R package version 0.6.2. 2019.

[38] R Core Team. R: A language and environment for statistical computing. R version 3.5.2. R Foundation for Statistical Computing 2019.

[39] Wickham H. tidyverse: Easily install and load the 'Tidyverse'. R package version 1.2.1. 2017.

[40] Agresti A, Coull BA. Approximate is better than "exact" for interval estimation of binomial proportions. Am Stat 1998;52:119–26. doi:10.1080/00031305.1998.10480550.

[41] Harrell Jr. FE, Dupont C, others. Hmisc: Harrell Miscellaneous. R package version 4.1-1. 2018.

[42] Chi JT, Chi EC, Baraniuk RG. k-POD a method for k-Means clustering of missing data. Am Stat 2015;70:1–29. doi:10.1080/00031305.2015.1086685.

[43] Chi JT, Chi EC. Kpodclustr: An R package for clustering partially observed data. R package version 1.0. 2014.

[44] Tibshirani R, Walther G, Hastie T. Estimating the number of clusters in a data set via the gap statistic. Stat Methodol- J Roy Stat Soc B 2001;63:411–23. doi:10.1111/1467-9868.00293.

[45] Kassambara A. Multivariate analysis II: Practical guide to Principal Component Methods in R. Marseille: Statistical Tools For High-Throughput Data Analysis (STHDA); 2017.

[46] Kassambara A, Mundt F. factoextra: Extract and visualize the results of multivariate data analyses. R package version 1.0.5. 2017.

[47] Lê S, Josse J, Husson F. FactoMineR: A package for multivariate analysis. J Stat Softw 2008;25:1–18. doi:10.18637/jss.v025.i01.

[48] Potter RG, Ford K, Moots B. Competition between spontaneous and induced abortion.

Demography 1975;12:129–41. doi:10.2307/2060738.

[49] Merdani A, Çanaku D, Tomini E, Toçi E, Roshi E, Xhelilaj B, et al. Monitoring trends of abortion rates in Albania for the period 2010-2015. Albanian Medical Journal 2016;4:49–56.

[50] Jilozian A, Agadjanian V. Is induced abortion really declining in Armenia? Stud Fam Plann 2016;47:163–78. doi:10.1111/j.1728-4465.2016.00053.x.

[51] Westoff CF. Recent trends in abortion and contraception in 12 countries. DHS Analytical Studies No. 8. Calverton, Maryland, USA: ORC Macro; 2005.

[52] Sedgh G, Keogh SC. Novel approaches to estimating abortion incidence. Reproductive Health 2019;16:44–53. doi:10.1186/s12978-019-0702-0.

[53] Miller G, Valente C. Population policy: Abortion and modern contraception are substitutes. Demography 2016;53:979–1009. doi:10.1007/s13524-016-0492-8.

[54] Prada E, Atuyambe LM, Blades NM, Bukenya JN, Orach CG, Bankole A. Incidence of induced abortion in Uganda, 2013: New estimates since 2003. PLOS ONE 2016;11:1–19. doi:10.1371/journal.pone.0165812.