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HEALTH INSURANCE COVERAGE AND ITS IMPACT ON MATERNAL HEALTH CARE UTILIZATION IN LOW- AND MIDDLE-INCOME COUNTRIES

DHS ANALYTICAL STUDIES 45



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**Health Insurance Coverage and Its Impact
on Maternal Health Care Utilization
in Low- and Middle-Income Countries**

Wenjuan Wang
Gheda Temsah
Lindsay Mallick

ICF International
Rockville, Maryland, USA

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Corresponding author: Wenjuan Wang, International Health and Development, ICF International, 530 Gaither Road, Suite 500, Rockville, Maryland, USA; phone: 301-572-0398; fax: 301-572-0950; email: wenjuan.wang@icfi.com

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Preface

The Demographic and Health Surveys (DHS) Program is one of the principal sources of international data on fertility, family planning, maternal and child health, nutrition, mortality, environmental health, HIV/AIDS, malaria, and provision of health services.

One of the objectives of The DHS Program is to analyze DHS data and provide findings that will be useful to policymakers and program managers in low- and middle-income countries. DHS Analytical Studies serve this objective by providing in-depth research on a wide range of topics, typically including several countries and applying multivariate statistical tools and models. These reports are also intended to illustrate research methods and applications of DHS data that may build the capacity of other researchers.

The topics in the DHS Analytical Studies series are selected by The DHS Program in consultation with the U.S. Agency for International Development.

It is hoped that the DHS Analytical Studies will be useful to researchers, policymakers, and survey specialists, particularly those engaged in work in low- and middle-income countries.

Sunita Kishor

Director, The DHS Program

Abstract

This study examined levels of health insurance coverage in 30 low- and middle-income countries (LMICs), using nationally representative data from the Demographic and Health Surveys (DHS). In eight countries with health insurance coverage exceeding 10 percent, we used propensity score matching and estimated the impact of health insurance status on the use of antenatal care and facility-based delivery care.

Health insurance coverage rates were less than 5 percent in most countries. In a few countries (Rwanda, Gabon, Ghana, and Indonesia), more than one-third of interviewed women and men reported coverage of health insurance, with the highest rate found in Rwanda. Educational attainment was associated with a higher likelihood of enrolling in health insurance. Pro-wealthy disparities in health insurance coverage existed in the majority of countries. In Cambodia and Gabon, however, poor women were more likely than the rich to be covered by health insurance, suggesting that in these countries policies focusing on providing insurance for the poor have been effective.

Our analysis found significant positive effects of health insurance coverage on at least one measure of maternal health care use in seven of the eight countries evaluated. Indonesia stands out for the most systematic effect of health insurance across all measures, followed by Cambodia, Rwanda, and Ghana. The positive impact of health insurance appeared more consistent on the use of facility-based delivery than use of antenatal care. The analysis provides clear evidence that health insurance has contributed to the increased use of maternal health care services.

Keywords: health insurance, maternal healthcare, impact evaluation, low- and middle-income countries

Executive Summary

With health insurance on the rise in low- and middle-income countries (LMICs), a growing body of research literature documents the impact of health insurance on access and use of general health care. However, there is limited empirical evidence on whether health insurance coverage has contributed to the improved use of maternal health services. Using nationally representative data from the Demographic and Health Surveys (DHS), this report assessed levels of health insurance coverage in 30 LMICs and examined the impact of health insurance status on use of maternal health care use in eight countries spanning sub-Saharan Africa (Burundi, Gabon, Ghana, Namibia, and Rwanda), West Asia (Albania), and South and Southeast Asia (Cambodia and Indonesia).

Methods

Data on all interviewed women age 15-49 and men age 15-59 were used to describe levels of health insurance coverage for all 30 countries based on the most recent DHS survey. For evaluating the effects of health insurance on use of maternal health services, we focused on women who reported a live birth in the five years preceding the survey in eight countries where the health insurance coverage rate exceeded 10 percent.

Use of maternal health services was measured by four indicators: making at least one antenatal care visit; making four or more antenatal care visits; initiating antenatal care within the first trimester; and giving birth in a health facility. The main independent variable of interest was a dichotomous measure of health insurance coverage. We evaluated the impact of health insurance on antenatal care and facility-based delivery care using propensity score matching to determine the differences in care seeking behavior that can be attributable to health insurance.

Results

Levels and differentials of health insurance coverage. Most study countries had fairly low levels of coverage—below 5 percent. In a few countries (Rwanda, Gabon, Ghana, and Indonesia), more than one-third of interviewed women and men reported coverage of health insurance, with the highest rate found in Rwanda, at 71 percent for women and 67 percent for men. In all 30 countries the gender gap in health insurance coverage favored men, with the exceptions of Cambodia, Gabon, Ghana, and Rwanda. The gender gap was small in magnitude given low coverage rates among both women and men.

In most countries educational attainment was associated with a greater likelihood of participating in health insurance even after adjusting for other covariates. Our results also indicated that the education of the head of the household matters, in addition to the individual's level of education. Household wealth status was another important determinant of participating in health insurance. Disparities in health insurance coverage that favor the rich were evident in five countries. In Cambodia and Gabon, however, poor women were more likely to be covered by health insurance than the rich, suggesting that policies targeting the poor have been effective.

Effects of health insurance on use of maternal health care. After propensity score matching, health insurance status was significantly associated with an increased likelihood of making at least one antenatal care visit in Indonesia and Rwanda. Among women who reported at least one antenatal visit, the raw differences between insured and uninsured women in the prevalence of four or more antenatal care visits ranged from 4 to 21 percentage points and were statistically significant in all countries. However, after matching on covariates that could potentially introduce bias, the positive effect of health insurance coverage only remained in Ghana and Indonesia. Health insurance coverage contributed to an increase of 8

percentage points in access to four or more antenatal care visits in Ghana and an increase of 3 percentage points in Indonesia.

Concerning the timing of the first antenatal care visit, in the adjusted effect health insurance coverage was found to increase the use of antenatal care within the first trimester of pregnancy in Namibia, Burundi, and Indonesia by 15, 8, and 2 percentage points, respectively.

In all study countries at least one-half of women delivered their most recent birth in a healthcare facility. After matching, the effect of health insurance on delivery in a healthcare facility was positive and statistically significant in four of the eight countries—Cambodia, Ghana, Indonesia, and Rwanda. In these countries, health insurance coverage contributed to an increase of 5-11 percentage points in the receipt of facility-based delivery care. In Gabon, however, health insurance status had a significant negative effect on the use of facility-based delivery care.

In summary, our impact evaluation found statistically significant positive effects of health insurance coverage on at least one measure of maternal health care use in seven of the eight countries evaluated. Indonesia stands out for the most systematic effect of health insurance across all measures, followed by Cambodia, Rwanda, and Ghana. The positive impact of health insurance appeared more consistent on the use of facility-based delivery than on antenatal care services.

Conclusions

Health insurance programs in LMICs are still in the early stages. Despite countries' efforts in targeting the poor by reducing or removing premiums of health insurance, disparities that favor the more affluent are evident in most countries studied. Health insurance schemes in Cambodia and Gabon are effective in increasing coverage among the poor. Overall, there is clear evidence that health insurance has contributed to the increased use of maternal health care.

1. Introduction

With health insurance on the rise in low- and middle-income countries (LMICs), a growing body of literature documents the impact of health insurance on access and use of health care, financial protection, and health status in these countries (Chen et al. 2003; Dixon et al. 2014; Dong 2012; El-Shazly et al. 2000; Escobar et al. 2010; Hong et al. 2011; Jütting 2005; Kozhimannil et al. 2009; Mensah et al. 2010; Smith and Sulzbach 2008; Wang et al. 2009). While a number of rigorous studies have evaluated the impact of health insurance on the use of general health care (i.e., outpatient and inpatient care) (Giedion et al. 2013), there is limited empirical evidence of its impact on the use of maternal health care. In the context of global maternal and child health priorities, as echoed by the 1987 Safe Motherhood Initiative, 1994 International Conference on Population and Development, 1995 Fourth World Conference for Women, and the Millennium Development Goals (AbouZahr 2003), there is an increased need to evaluate whether health insurance has contributed to improved levels of use of maternal health care services.

Using nationally representative data from the Demographic and Health Surveys (DHS), this report assesses levels of health insurance coverage in 30 LMICs and examines the impact of health insurance status on use of maternal health care in eight countries spanning sub-Saharan Africa (Burundi, Gabon, Ghana, Namibia, and Rwanda), West Asia (Albania), and South and Southeast Asia (Cambodia and Indonesia). We evaluate the impact of health insurance on antenatal care and facility-based delivery care using propensity score matching to determine the differences in care seeking behavior that can be attributable to health insurance. The results of this report provide up-to-date information on levels of health insurance coverage in LMICs. The findings help to expand understanding of the effect of health insurance on the use of maternal health services in a range of areas poorly covered in the existing literature.

1.1. Major Health Insurance Schemes in LMICs

The types of health insurance available can greatly influence the use of health care, the financial burden related to health care, and individual health status (Cheng and Chiang 1998). Financial mechanisms impact patterns of delivery and use of maternal care services (Ensor and Ronoh 2005). Various aspects of an insurance scheme, such as its cost, benefits, location of services provided, and to whom the services are targeted affect enrollment (Escobar et al. 2010; Robyn et al. 2013). It is important to consider these variations when examining the effect of health insurance on a particular population. Two types of insurance schemes are commonly implemented in LMICs—namely, Social Health Insurance (SHI) and Community-Based Health Insurance (CBHI)—and individual variances within these programs exist as well. These schemes differ on enrollment requirements, funding, size of the risk pool, and associated fees, including entry fees, out-of-pocket fees, and reimbursement mechanisms.

1.1.1. *Social health insurance*

In countries with SHI, insurance coverage is typically mandated, particularly for those who are employed in the public sector, and is funded by employer/employee contributions along with government funding, usually through taxation. It is managed and regulated by the government, either at the national or district levels, and usually requires employer/employee contributions among the working population (Acharya et al. 2013; Wagstaff 2010). While universal health care may be a goal of SHI programs, these programs run the risk of financial mismanagement or underfunding and underrepresentation of the poor, due to targeting wealthier individuals who can afford to join the programs (Hsiao and Shaw 2007). SHI has become popular in several Asian and African countries including the Philippines, Thailand, Vietnam, Indonesia, Ghana, and Gabon (Hsiao and Shaw 2007; Humphreys 2013; Spaan et al. 2012; Sparrow et al. 2010).

1.1.2 *Community-based health insurance*

In contrast to SHI, CBHI is managed at the community level by non-governmental organizations (NGOs) or providers (Hsiao and Shaw 2007), with subsidies provided by the government or an NGO (Acharya et al. 2013; Wang et al. 2009). Although CBHI programs can vary greatly within and across countries, they tend to target those who are not covered by formal schemes and who are at risk for impoverishment from catastrophic healthcare costs (Hsiao and Shaw 2007). Enrollment is typically voluntary (Aggarwal 2010), which in turn affects the characteristics of the risk pool through adverse selection, whereby the less healthy may be overrepresented in the risk pool (Hsiao and Shaw 2007). These consequences, as well as lack of financial sustainability (Robyn et al. 2013), are inherent to CBHI programs that attempt to avoid potentially inadequate government administration. Some countries, including Rwanda, are moving toward universal coverage by mandating insurance through a decentralized national system that provides regulation and oversight for private and CBHI schemes (Saksena et al. 2011). CBHI has gained in popularity in many African countries, including the Democratic Republic of the Congo and Senegal, as well as Rwanda (Spaan et al. 2012).

1.2. Impact of Health Insurance

1.2.1. Use of health care

The impact of health insurance is usually assessed on use of healthcare services, financial protection, and health status. Among these three outcomes, more research has been done on the use of healthcare services, especially general health care, than on the other two outcomes (Giedion et al. 2013; Giedion et al. 2007; King et al. 2009; Nguyen et al. 2012; Thornton et al. 2010; Wagner et al. 2011; Wagstaff 2007; Wang et al. 2009). In one study, cooperative members enrolled in health insurance had a significantly higher number of outpatient health care visits as well as surgeries, compared with those who were part of uninsured cooperatives (Aggarwal 2010). In another rigorous study using propensity score matching, it was found that in Vietnam health insurance increased use of services, particularly inpatient care (Wagstaff 2007). While this program targets Vietnam's poor and requires members to enroll in Vietnam's SHI program, which provides services at hospitals and essential prescription medication, coverage in 2004 was only around 15 percent among the sample population; these enrollees were disproportionately poor compared with the sample. An evaluation of a CBHI program in Rural China, called RMHC, which included both reduced prices of health care as well as regulations for village doctors that aim to improve quality of care, showed that enrollment in this insurance scheme increased the probability of outpatient care by 70 percent (Wang et al. 2009). Using data from over 50 countries surveyed by the World Health Organization (WHO), a regression analysis showed that insured families (some or all members) were more likely to have had access to care or adult chronic care when last needed, compared with those without insurance (Wagner et al. 2011).

Maternal and child health services are typically covered in benefit packages of health insurance. However, few studies, especially those using rigorous methodology, have assessed the impact of health insurance on use of maternal and child health care. After employing propensity score matching to balance demographic characteristics such as region, age, marital status, and wealth assets, Mensah, Oppong and Schmidt (2010) found that in Ghana women with insurance under the National Health Insurance Scheme (NHIS), compared with women without insurance, had significantly fewer birth complications (1.4 versus 7.5 percent), had more births at a hospital (75 versus 53 percent), received professional assistance more commonly during birth (65 versus 47 percent), and had at least three prenatal check-ups (86 versus 72 percent) (Mensah et al. 2010). Postnatal women with insurance had check-ups and vaccinations for their children on average more than uninsured women (86 versus 71 percent). In assessing a pilot voucher program in Bangladesh, the authors compared the intervention and comparison areas with difference-in-differences methods and found that women in intervention areas had significantly higher probability of using antenatal care, institutional delivery, and postnatal care (Nguyen et al. 2012). Confirmed with both propensity score matching and difference-in-differences methods, Giedion and coauthors suggested that in Colombia the subsidized health insurance program increased the use of professionally attended delivery care as well as complete

immunization coverage among children, even though immunization was provided free in the public sector (Giedion et al. 2007). Several other studies have also demonstrated a positive association between use of maternal health care and health insurance coverage, but with less rigorous methodology (Kozhimannil et al. 2009; Smith and Sulzbach 2008).

Some research, however, has reported mixed findings regarding the impact of health insurance on use of health care. An evaluation of CBHI in one province in India employed a propensity score matching technique and did not find differences in maternal health care by health insurance coverage, either in use of prenatal services or delivery in private facilities (Aggarwal 2010). The author suggests that this was most likely because, at the time of the study, coverage of normal deliveries in private settings had been only recently added to the insurance scheme so that there was not enough time to measure meaningful change. Additionally, in this province in India maternal health fees were already negligible in government facilities.

1.2.2. Financial protection

Individuals with health insurance are more likely to use healthcare services and to use them more frequently than those without insurance; additionally, having insurance reduces out-of-pocket expenditures, although results are more pronounced in wealthier households (Aggarwal 2010; Acharya 2013). This can be seen in the reduction of borrowing or selling of assets in order to pay for care (Aggarwal 2010). While health insurance may not influence out-of-pocket spending on health care within the poorest households, it can help to avoid catastrophic costs (Wagstaff 2007). Likewise, Thornton and colleagues concluded from a one-year experimental study of pre-and post-insurance implementation in Nicaragua that insurance does not provide cost savings, as out-of-pocket cost reductions are offset by the cost of the insurance premiums (Thornton et al. 2010). However, several rigorous studies confirm that both CBHI and SHI protect enrollees by reducing out-of-pocket spending and guard against catastrophic expenditures (Bauhoff et al. 2011; Nguyen and Wang 2013; Nguyen et al. 2011).

Studies on SHI in China and CBHI in Senegal and Ghana have demonstrated that out-of-pocket expenditures for facility-based delivery decrease with insurance coverage (Long et al. 2010; Smith and Sulzbach 2008). Both studies employed linear regression models of a logarithmic scale of out-of-pocket expenditures on facility-based delivery and found that the insurance significantly reduced expenditures on delivery care, even after controlling for covariates.

1.2.3. Health outcomes

Although it is generally expected that health insurance enrollment can improve health outcomes by reducing financial barriers to use of health services, research has not clearly demonstrated a causal link between health status and health insurance in developing countries (Escobar et al. 2010). Measuring changes in health status through indicators of mortality is not only methodologically difficult, but may not be sensitive enough to provide evidence of the impact of health insurance, particularly given that health insurance and thus research on it are relatively recent in developing countries (Escobar et al. 2010; Long et al. 2010).

2. Data and Methods

This study uses a propensity score matching method to assess the impact of health insurance status on antenatal and delivery care in eight countries spanning sub-Saharan Africa (Burundi, Gabon, Ghana, Namibia, and Rwanda), West Asia (Albania), and South and Southeast Asia (Cambodia and Indonesia).

2.1. Data Used in the Analysis

The data used in this study come from Demographic and Health Surveys (DHS). The DHS Program has been providing technical assistance in the implementation of more than 300 surveys spanning more than 90 developing countries. DHS surveys are a key source of nationally representative and comparative data on population and health indicators, including maternal health and health insurance coverage. We use data from DHS surveys that collected information on health insurance coverage of women and men. We focus on countries in Africa and Asia due to the lack of empirical data demonstrating the effects of health insurance on the use of healthcare services in these regions.

The study uses data on all interviewed women age 15-49 and men age 15-59¹ to describe levels of health insurance coverage for 30 countries based on the most recent survey. To ensure adequate sample size, only countries in which levels of health insurance coverage among women exceed 10 percent are analyzed for the effects of health insurance on use of maternal health care. Eight countries are included in the evaluation of the effects of health insurance, with surveys conducted between 2008 and 2012. Data on women's sexual and reproductive health behavior and outcomes are obtained by interviewing women of reproductive age (15-49). Information on socioeconomic characteristics of the women and their households is also collected. Our target population for assessing the effects of health insurance is women who reported a live birth in the five years preceding the survey.

2.2. Definitions of Variables

2.2.1. *Dependent variables*

The study explores four outcomes of use of maternal health care for the most recent birth: whether a woman made at least one antenatal care visit (ANC1); whether a woman made at least four antenatal care visits (ANC4); whether the first antenatal care visit occurred within the first three months (ANCMONTH); and whether the woman gave birth in a healthcare facility (FACBIRTH). The selection of these outcomes is based on standards of prenatal and delivery care recommended by the World Health Organization (WHO 2004).

The DHS asked women about the number of antenatal care visits during pregnancy of the most recent birth, the timing of the first antenatal care visit, and the place of delivery. We constructed two measures of the number of visits: whether the woman made at least one visit, and whether the woman made at least four antenatal care visits. Because receiving good-quality care during pregnancy promotes better health outcomes for mothers and their children throughout the life course (AbouZahr and Wardlaw 2003), the study distinguishes between women who made at least one visit and those who made the standard of a minimum of four visits recommended by WHO.

WHO (2004) recommends that in order to detect and effectively treat underlying problems the first antenatal care visit occur as early as possible, and preferably within the first trimester. We constructed a measure of

¹ In Albania, Cambodia, and Namibia, men age 15-49 were interviewed; in Indonesia, men age 15-54 were interviewed.

whether the woman made her first antenatal care visit during the first three months of her pregnancy based on the question on timing of the first antenatal care visit. Additionally, we constructed an indicator of the quality of delivery care based on women's response to where the most recent delivery occurred.

All of the use measures are dichotomous, coded as 0 or 1. ANC1 and FACBIRTH include all women age 15-49 who had a live birth in the five years preceding the survey. However, ANC4 and ANCMONTH are specific to women who reported at least one antenatal care visit.

2.2.2. Independent variable

The main independent variable of interest is health insurance coverage. The DHS asked respondents whether they are covered by health insurance and the type of health insurance by which they are covered. We constructed a dichotomous measure of health insurance coverage. A variety of health insurance schemes exist and may differ, for example, in the range of services offered and reimbursement, which may have a different effect on use of health care. Data limitations did not enable us to distinguish between different types of health insurance. However, results are interpreted based on each country's health insurance mechanisms. Appendix A provides a summary of characteristics of health insurance schemes in the study countries.

2.2.3. Covariates

We controlled for a host of background characteristics of women and their households that can have a confounding effect on the use of pregnancy-related care seeking behavior (Acharya et al. 2013; Mensah et al. 2010). Use of maternal health care is shaped by a myriad of additional factors such as financial, geographic, and cultural barriers (Borghi et al. 2006). Because this is a secondary data analysis, our selection of covariates was limited to those variables available in the DHS.

Variables controlled for included: maternal age at the most recent birth, marital status, and employment status; mother's education, education of household head, and household wealth; mother's exposure to mass media; and child's birth order. Because place of residence can shape both access to health insurance and to healthcare services, we included regional dummies and a measure of whether the household is located in an urban area (coded 0 or 1) based on country-specific definitions. Similar variables have been controlled for in other analyses of the association between health insurance and use of health care (Dixon et al. 2014; Ettenger et al. 2014; Hong et al. 2011; Jütting 2004).

Maternal age at the time of the most recent birth was included as a continuous variable. Because the association between age and health insurance and use of health care may be non-linear, we also included a quadratic term of the variable. Mother's education is a self-reported measure reflecting the highest education level at the time of the survey and grade within that level. Our analysis used a recoded variable of mother's education and education of household head categorized into three groups: no education, primary education, and secondary education or higher. Marital status at the time of the survey was coded as never married, currently married, and formerly married. Employment status was coded as a dichotomous variable and includes both paid and unpaid work on family farms and businesses. The DHS collects data on various household assets and characteristics from which a country-specific wealth quintile index is then calculated based on a principal components analysis (Rutstein and Johnson 2004). Birth order was categorized in four groups: eldest, second, third, and fourth or higher.

2.3. Statistical Methods

We applied a propensity scoring matching (PSM) approach to evaluate the effect of health insurance coverage on women’s use of antenatal and delivery care. The propensity to seek health services is likely to be correlated with factors that influence the propensity to enroll in health insurance, thereby introducing bias both due to observed and unobserved heterogeneity. Multivariate regression does not address the issue of selection bias. PSM methods are non-parametric estimation methods that address selection bias due to observed heterogeneity by matching a pool of treatment cases to control cases that are identical in their propensity to receive treatment whereby the set of observable characteristics X are independent of assignment to treatment.

Developed by Rosenbum and Rubin (1983), this method has been used increasingly in a variety of research fields. Unlike other methods that match on a set of covariates X , which can lead to ‘the curse of dimensionality’ when there are many covariates, PSM methods match on the propensity to receive treatment (propensity score), since observations with the same propensity score share similar distributions of the covariates (Mocan and Tekin 2006). The propensity score is defined as a function of a vector of covariates X such the covariates are independent of the assignment to treatment (D_i) (Rosenbaum and Rubin 1983). The average effect of treatment (ATE) on an outcome variable Y can then be estimated as the difference in outcomes between treatment and control cases after the control cases are reweighted by the propensity score of the distribution of treatment cases (Caliendo and Kopeinig 2008):

$$\tau_{ATE} = E(\tau) = E[Y(1) - Y(0)]$$

The average treatment effect on the treated (ATT) is a more popular metric since it estimates the effect of treatment for individuals for whom the intervention was intended, in contrast to ATE which provides an estimate of the population average treatment effect (Caliendo and Kopeinig 2008):

$$\tau_{ATT} = E(\tau | D = 1) = E[Y(1) | D = 1] - E[Y(0) | D = 1]$$

The ATT is thus the difference between the expected outcome values with and without treatment for cases that received treatment (Caliendo and Kopeinig 2008). Since the counterfactual for cases that received treatment without treatment is not observed, it is estimated based on assumption that after adjusting for observed characteristics it is the same for $D=1$ and $D=0$ (Aggarwal 2010).

2.3.1. Estimating the propensity score

The first step in the PSM method was estimating the propensity score using a logit regression. This involved determining the covariates to be included in the specification of the propensity score. The selection of covariates can bias the estimate. Only variables unaffected by treatment (e.g. fixed over time or measured before treatment) should be included (Caliendo and Kopeinig 2008). A variable should be excluded if it is not correlated with the outcome, or if it is weakly correlated because it does not address confounding (Brookhart et al. 2006; Brooks and Ohsfeldt 2013) and can potentially add bias (Brookhart et al. 2006; Garrido et al. 2014; Ho et al. 2007; Imbens 2004). The inclusion of unrelated variables may make it harder to fulfill the common support condition—namely, ensuring that every treated case is matched to a control case (Bryson et al. 2002). In small samples, over-parameterized models may increase the variance of the propensity scores without necessarily increasing their bias (Augurzky and Schmidt 2001; Bryson et al. 2002).

Our selection of variables was guided by theory and consensus within the literature (Caliendo and Kopeinig 2008; Rubin and Thomas 1996), as well as data available in the DHS. A variable was dropped only if it was not simultaneously correlated with both the treatment and outcome. Because the analytical sample differed by outcome, for every country the propensity score was estimated for two samples: all women who had a live birth in the last five years (ANC1 and FACBIRTH) and women who had at least one antenatal care visit (ANC4 and ANCMONTH). Propensity scores were generated using STATA's *pscore* command.

2.3.2. Balancing test

The recoding of the covariates is determined by satisfying the balancing property—that is, that the average propensity score of treatment and control units do not differ within each group (Becker and Ichino 2002). We implemented several iterations of the estimation of the propensity score in which we recoded variables in order to satisfy the balancing property. The recoded variables are reflected in the results tables.

We imposed the common support as it may improve the quality of the match (Heckman et al. 1997). Imposing the common support condition ensures that each treated unit (women with health insurance) is matched with a corresponding control unit (women with no health insurance). However, this can result in loss of sample size (Lechner 2001) due to the exclusion of cases whose propensity score is greater than the maximum or less than the minimum score in the comparison group (Aggarwal 2010), possibly producing misleading results (Caliendo and Kopeinig 2008). We reported the number of off-support cases for each estimation of the propensity score.

2.3.3. Algorithm for matching and estimation of the effects of health insurance

Various methods of matching are available to create a comparison group that can be used to construct counterfactual outcomes for estimating treatment effects. No method is superior but each has a different tradeoff between quantity and quality of results (Becker and Ichino 2002) because of the different ways in which the method defines the neighborhood for matching and assigns weights (Caliendo and Kopeinig 2008). We used STATA's *teffects psmatch* command to estimate ATT using several different algorithms and selected the one that yielded the best match. The following matching algorithms were tested: nearest neighbor with and without replacement and radius matching within various calipers.² The estimation of the variance of treatment effects includes variation due to the estimation of the propensity score and imputation of the common support (Aggarwal 2010). Unlike other STATA commands, *teffects psmatch* accounts for additional variance due to the estimation of the propensity score.³

2.3.4. Quality of matching

Several measures can be used to assess the quality of matching to ensure that the distribution of the covariates between the treatment and control group are the same. STATA's *pstest* command summarizes the balance of covariates between treatment and control groups both before and after matching. It also provides the standardized bias, pseudo- R^2 , likelihood ratio test for joint insignificance, and two-sample t-test results, which can serve as indicators of the quality of matching. Standardized bias ranging between 3-5 percent post-matching is deemed sufficient (Caliendo and Kopeinig 2008). Pseudo- R^2 indicates the extent to which the covariates explain the probability of receiving treatment; lower R^2 indicates reasonably good

² Kernel matching is not available in STATA's *teffects psmatch* package.

³ Several commands can be used to estimate the average treatment effect in STATA and these include *att**, *psmatch2* and *teffects psmatch*. *Psmatch2* does not provide as much detail as *att**, but provides more matching options, and it conveniently illustrates side-by-side comparisons of unmatched and matched cases. However, *psmatch2* does not take into consideration that the propensity score is estimated when calculating standard errors. *Teffects psmatch* produces more robust standard errors because it accounts for additional variance due to the estimation of the propensity score.

matches. For logit models, to indicate a good match the likelihood ratio test of joint insignificance should be insignificant after matching (Caliendo and Kopeinig 2008). We selected the matching method that produced the best quality matching and reported its outcomes as well as the standardized bias, pseudo- R^2 , likelihood ratio test for joint insignificance, and two-sample t-test.

3. Results

3.1. Health Insurance Coverage, Types, and Differentials

This section presents levels of health insurance coverage among adult women and men in 30 countries. In eight countries, Albania, Burundi, Cambodia, Gabon, Ghana, Indonesia, Namibia, and Rwanda, where the overall level of coverage was at 10 percent or higher, the section analyzes prevalence rates of specific types of insurance and differentials in coverage by respondents' background characteristics.

3.1.1. Levels of health insurance coverage

Figure 1 presents the percentage of interviewed women and men with any type of health insurance in 25 African countries. Most countries had fairly low levels of coverage. Women in 14 countries and men in 10 countries reported a coverage rate below 5 percent. In three countries—Rwanda, Gabon, and Ghana—over 30 percent of women and men had health insurance at the time of the survey. The highest level of coverage was found in Rwanda, at 71 percent for women and 67 percent for men.

Figure 1. Percentage of women and men covered by health insurance in Africa

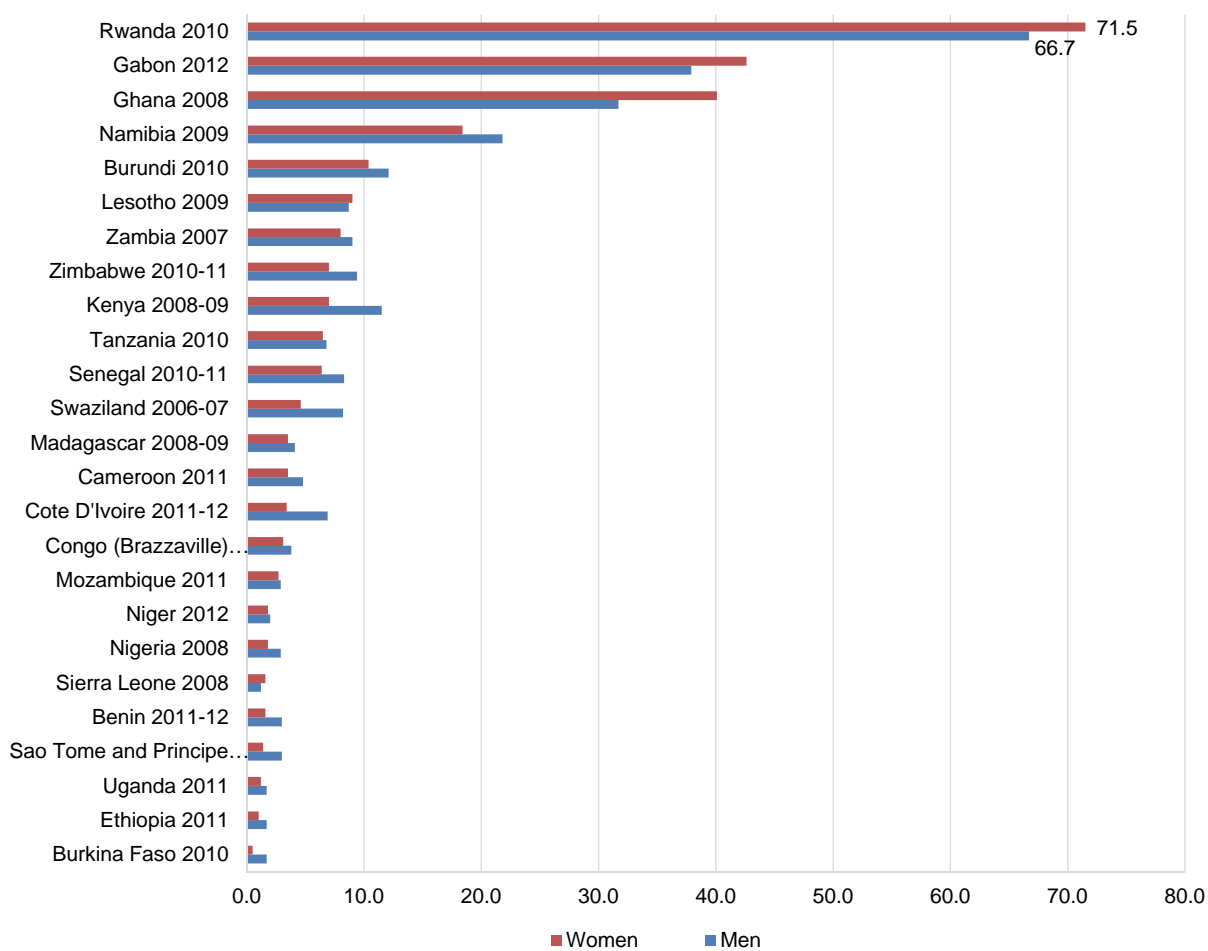
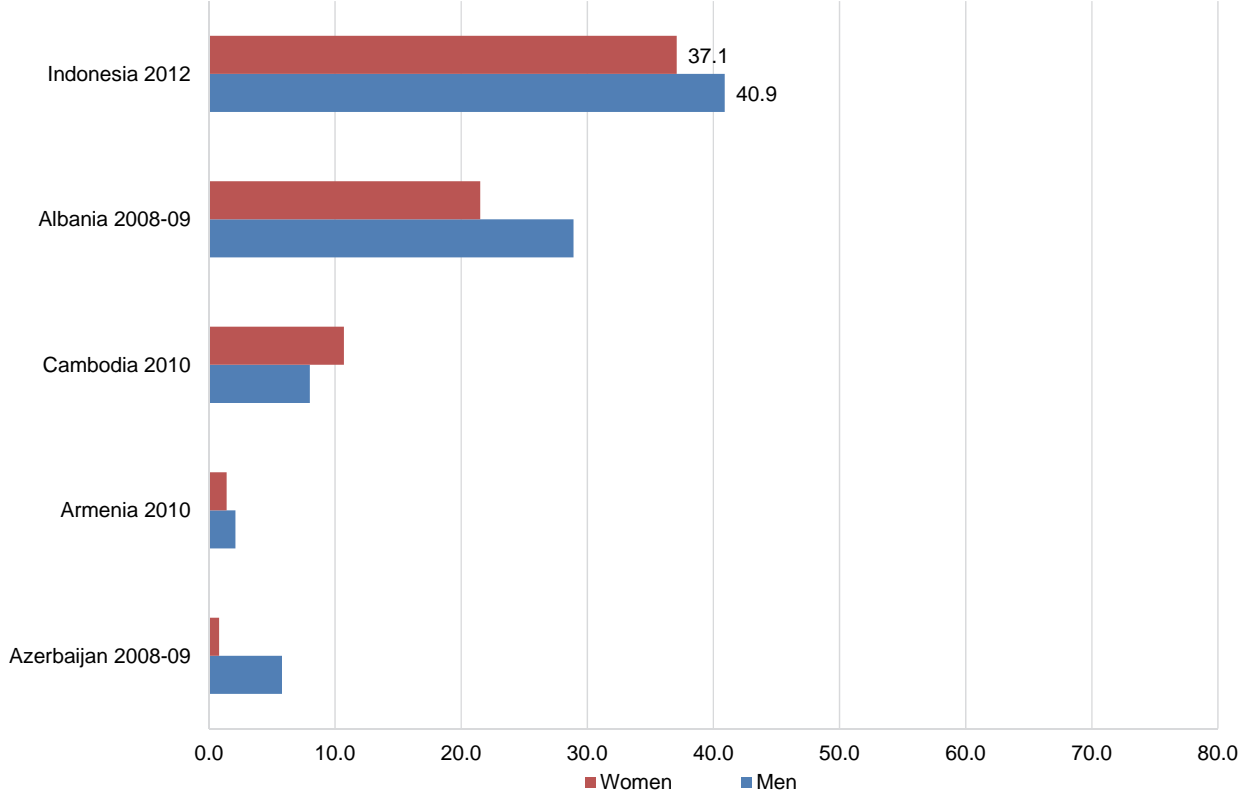


Figure 2 shows levels of coverage in five Asian countries for which the most recent DHS collected data on health insurance. Indonesia had the highest levels of health insurance coverage, at 37 percent for women and 41 percent for men in 2012. The Albania 2008-09 DHS showed a coverage rate of 22 percent for women and 29 percent for men. In Armenia and Azerbaijan the level of health insurance coverage was very low, especially among women.

In all 30 countries the gender gap in health insurance coverage favored men, with the exception of Cambodia, Gabon, Ghana, and Rwanda. Among the four countries where women had higher levels of coverage than men, the largest gap was found in Ghana, at an 8 percentage-point difference in 2008. However, in most countries the gender gap was small, with low coverage rates among both women and men.

Figure 2. Percentage of women and men covered by health insurance in Asia



3.1.2. Types of health insurance

Table 1 presents the percentage of women and men with specific types of health insurance in seven countries with relatively high levels of coverage. Gabon is not included in this table because the 2012 Gabon DHS did not collect data on types of insurance. Respondents could report more than one type of health insurance. Several major types of insurance schemes were observed in these countries.

Table 1. Percentage of women and men covered by specific types of health insurance in selected countries

Country	Type of insurance	Women	Men
Albania	State health insurance	15.0	21.3
	State social insurance	10.9	12.6
	Private/commercial purchased	2.2	1.7
	Other	2.5	4.5
	Total	21.5	28.9
Burundi	Mutual/community organization	4.8	4.7
	Provided by employer	4.4	5.5
	Private/commercially purchased	0.9	0.0
	Other	0.4	2.0
	Total	10.4	12.1
Cambodia	Health equity fund	8.5	6.4
	Provided by employer	0.2	0.4
	Private	0.1	0.2
	Other	1.9	1.0
	Total	10.7	8.0
Ghana	National/ district (nhis)	38.8	29.7
	Provided by employer	0.1	0.2
	Private/commercially purchased	0.1	0.0
	Other	1.1	1.2
	Total	40.1	31.0
Indonesia	Social security	25.7	25.9
	Provided by employer	6.9	10.5
	Private/commercially purchased	2.9	3.9
	Other	2.6	2.5
	Total	37.1	40.9
Namibia	Provided by employer	8.9	11.4
	Social security	4.5	5.7
	Mutual/community organization	3.6	4.5
	Private	2.5	4.6
	Other	0.6	0.3
	Total	18.4	21.8
Rwanda	Mutual/community based health insurance	68.0	63.9
	Rama	2.1	1.8
	Privately purchased/commercial health	0.3	0.3
	other	0.9	0.7
	Total	71.4	66.7

Note: In all the countries except Rwanda, respondents were allowed to report multiple types of insurance; so the sum of the percentages may exceed the total prevalence.

Gabon is not included in this table due to unavailability of data on types of insurance.

Social health insurance was the primary type of coverage in five countries (Albania, Cambodia, Ghana, Indonesia, and Namibia). Almost all Ghanaian women and men with health insurance were enrolled in the National Health Insurance Scheme (NHIS). In Indonesia about a fourth (26 percent) of women and men were covered by social security.

Community-based health insurance was reported in a few countries. In Rwanda the vast majority of people who reported health insurance coverage were covered by Mutual Health Insurance, a community-based health insurance scheme. Community-based health insurance was also reported in Burundi and Namibia, although at much lower levels compared with Rwanda.

Employer-based health insurance was rarely reported except in Namibia, where it was the most common type of insurance, reported by 9 percent of women and 11 percent of men in 2009. Private or commercially purchased health insurance was uncommon in the study countries. The highest level of private insurance coverage was observed in Namibia, at less than 5 percent for both women and men.

3.1.3. Differentials in health insurance coverage

Table 2 and Table 3 report the percentage of women and men with any health insurance coverage at the time of the interview by background characteristics including respondents' age, marital status, education, employment status, household wealth status, and urban-rural residence.

Overall, women age 15-24 were less likely than older women to be covered by health insurance. The age differences were not substantial among women age 25-49 with the exception of Gabon, where coverage was considerably higher among women age 40-49 compared with all other age groups. A similar age difference in health insurance coverage was observed among men, with the lowest rates reported among men age 15-24. In five countries (Albania, Burundi, Gabon, Ghana, and Namibia) the oldest group(s) reported the highest level of health insurance coverage. In Namibia, for example, 40 percent of men age 40-49 were covered by health insurance, more than double the rate among men under age 30.

Across all eight countries studied, there was no clear pattern in health insurance coverage by marital status for both women and men. In four countries (Burundi, Ghana, Namibia, and Rwanda) currently married women and currently married men reported the highest levels of coverage. In three countries (Albania, Cambodia, and Gabon) never-married women had the lowest coverage.

Generally among women and men in the eight countries studied, health insurance coverage was positively associated with educational attainment. In Cambodia, however, health insurance rates were highest among women and men with no education, and lowest among those with a secondary education or higher.

In terms of employment status, in all of the countries except Rwanda employed women had higher coverage rates than unemployed women. The greatest disparity in health insurance coverage by employment status was found in Albania. One-half of employed women reported health insurance coverage compared with less than one-tenth of women unemployed at the time of the interview. The difference in coverage between employed and unemployed women was also notable in Namibia, at 31 percent among employed women compared with 8 percent among women who were unemployed. In Rwanda, conversely, a slightly higher percentage of unemployed women reported health insurance coverage compared with employed women. Aside from Albania and Namibia, employment-related differences in health insurance coverage in all countries were not as prominent among men as among women.

Table 2. Percentage of women with health insurance coverage, according to background characteristics

	Albania		Burundi		Cambodia		Gabon		Ghana		Indonesia		Namibia		Rwanda	
	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
Age																
15-19	11.6	1,478	7.5	2,359	10.0	3,734	35.9	1,784	38.5	1,025	32.8	6,927	10.4	2,245	64.4	2,945
20-24	12.6	976	8.9	1,832	10.2	3,155	37.1	1,637	34.7	878	34.5	6,305	11.6	1,854	73.1	2,683
25-29	26.0	848	11.8	1,608	11.1	3,262	37.4	1,485	41.6	832	33.9	6,959	18.7	1,622	75.3	2,494
30-34	22.3	866	14.1	1,064	10.7	2,167	47.2	1,211	43.0	644	36.8	6,876	22.1	1,416	75.0	1,822
35-39	25.3	1,097	11.5	1,067	10.3	2,044	46.9	986	42.5	638	42.1	6,882	24.1	1,045	73.2	1,447
40-44	27.5	1,232	13.2	745	12.2	2,300	56.8	746	45.0	470	39.3	6,252	29.9	928	70.2	1,168
45-49	28.3	1,088	10.6	714	10.6	2,093	57.8	574	39.4	429	41.4	5,407	29.6	688	70.2	1,112
Marital status																
Never married	17.2	2,357	8.2	3,121	8.6	5,783	39.5	3,047	37.3	1,593	36.3	9,919	14.0	5,671	68.1	5,285
Currently married	23.1	4,910	14.9	3,760	10.8	11,515	41.2	1,597	44.4	2,232	37.4	33,291	37.8	1,949	80.3	4,799
Living together	26.1	91	5.2	1,661	32.7	112	45.4	2,878	36.5	644	39.7	174	10.1	1,500	65.6	2,098
Widowed	34.2	116	11.6	411	20.6	564	46.3	131	30.3	101	42.5	935	15.2	250	66.5	743
Divorced/separated	27.1	109	5.8	436	14.3	781	47.1	769	35.2	345	31.4	1,288	18.5	425	58.7	746
Education																
None	0.0	26	5.4	4,211	17.4	2,973	19.0	373	32.6	1,042	31.6	1,500	3.7	650	66.2	2,119
Primary	9.2	3,813	10.8	4,042	12.6	9,265	47.0	1,786	31.2	988	31.8	15,125	6.1	2,433	70.5	9,337
Secondary and higher	34.2	3,745	27.5	1,136	4.9	6,516	42.8	6,263	45.9	2,886	40.2	28,982	24.2	6,716	80.1	2,216
Employment status																
Not currently employed	9.2	5,308	9.4	2,494	9.5	5,592	39.7	4,742	39.2	1,240	35.0	20,348	8.4	5,445	73.4	3,761
Currently employed	50.3	2,276	10.7	6,895	11.2	13,162	46.4	3,680	40.4	3,676	38.8	25,259	30.8	4,354	70.6	9,910
Wealth quintile																
Lowest	8.0	1,513	4.8	1,898	24.4	3,388	61.6	1,222	29.9	783	38.4	7,767	2.0	1,621	59.8	2,622
Second	11.6	1,486	4.8	1,910	15.0	3,516	39.0	1,621	32.4	900	34.6	8,784	3.9	1,667	68.8	2,661
Middle	16.0	1,533	6.3	1,854	8.9	3,594	35.9	1,784	38.5	979	31.7	9,243	8.9	1,882	73.4	2,736
Fourth	25.9	1,480	9.4	1,811	5.9	3,827	35.2	1,879	45.7	1,119	34.0	9,743	18.4	2,291	77.6	2,677
Highest	45.2	1,573	26.4	1,916	2.4	4,428	47.2	1,915	49.4	1,135	46.3	10,071	47.6	2,338	76.6	2,976
Residence																
Rural	11.5	4,204	8.3	8,387	12.2	14,818	59.7	957	36.9	2,533	32.3	21,802	8.3	5,028	71.4	11,614
Urban	34.0	3,380	27.7	1,002	5.2	3,936	40.4	7,465	43.6	2,383	41.5	23,805	29.0	4,771	71.4	2,057
Total	21.5	7,584	10.4	9,389	10.7	18,754	42.6	8,422	40.1	4,916	37.1	45,607	18.4	9,799	71.4	13,671

Table 3. Percentage of men with health insurance coverage, according to background characteristics

	Albania		Burundi		Cambodia		Gabon		Ghana		Indonesia		Namibia		Rwanda	
	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
Age																
15-19	17.1	670	9.3	932	7.5	1,863	40.3	1,012	34.6	911	41.3	28	12.4	910	62.1	1,449
20-24	13.0	393	5.9	732	7.0	1,402	33.9	805	23.4	704	33.3	345	11.5	749	61.7	1,159
25-29	29.0	269	10.4	584	8.4	1,377	29.4	813	20.8	624	31.9	1,127	18.5	702	70.2	1,038
30-34	35.5	273	15.0	442	8.6	1,014	35.2	776	36.0	533	37.8	1,674	28.8	586	73.5	710
35-39	33.4	372	17.2	388	9.1	835	36.1	715	32.4	528	42.4	1,775	32.2	398	67.3	490
40-44	37.3	501	15.2	349	8.0	956	40.6	534	31.7	394	46.8	1,693	40.1	331	70.3	430
45-49	41.0	536	15.0	331	8.2	792	44.5	453	30.0	364	45.4	1,371	40.0	235	67.0	412
50+	na	na	17.2	520	na	na	49.8	546	41.0	510	40.4	1,292	na	na	69.7	642
Marital status																
Never married	19.1	1,291	9.6	1,653	6.9	3,181	34.4	2,346	29.4	1,942	na	na	15.1	2,544	62.3	2,879
Currently married	36.0	1,671	16.4	1,945	8.5	4,815	37.2	1,423	35.0	2,163	41.0	9,286	44.9	705	76.1	2,433
Living together	51.2	32	5.4	604	9.0	37	44.8	1,469	19.8	241	15.5	20	27.4	498	59.6	854
Widowed	58.9	4	10.4	31	16.4	54	25.6	29	29.4	26	na	na	24.4	12	43.0	54
Divorced/separated	38.9	15	4.7	47	10.4	152	36.3	387	16.8	195	na	na	7.6	151	40.0	108
Education																
None	15.7	18	6.7	1,348	13.5	641	9.8	378	18.7	639	29.2	265	6.1	360	60.2	757
Primary	16.7	1,219	10.2	2,089	9.8	3,394	32.9	864	22.3	665	32.1	3,489	11.2	1,108	65.5	4,323
Secondary and higher	37.5	1,775	25.4	843	5.7	4,205	41.3	4,412	35.2	3,264	47.0	5,552	28.9	2,443	74.5	1,249
Employment status																
Not currently employed	14.5	1,026	14.2	540	7.3	1,556	41.4	1,748	33.6	928	37.2	155	10.3	1,471	65.6	593
Currently employed	36.4	1,987	11.8	3,740	8.1	6,683	36.3	3,906	30.3	3,640	41.0	9,151	28.7	2,441	66.8	5,736
Wealth quintile																
Lowest	14.5	475	5.0	686	16.4	1,454	48.3	830	17.6	809	41.3	1,596	1.8	560	53.9	937
Second	20.6	600	6.3	789	11.8	1,544	28.1	1,183	23.0	815	36.3	1,866	7.6	605	64.2	1,108
Middle	26.3	661	7.6	818	6.6	1,637	27.0	1,246	27.9	784	32.8	2,008	12.6	875	66.4	1,306
Fourth	32.5	625	11.8	907	4.4	1,696	36.0	1,204	37.7	1,079	38.7	1,962	24.9	963	73.0	1,391
Highest	46.3	652	24.3	1,080	2.8	1,908	53.5	1,191	42.6	1,081	56.3	1,875	49.2	909	70.6	1,586
Residence																
Rural	21.0	1,622	9.7	3,649	8.8	6,542	48.9	739	26.1	2,443	34.5	4,567	10.0	1,951	66.7	5,324
Urban	38.1	1,391	25.5	631	4.7	1,697	36.2	4,915	36.6	2,125	47.2	4,739	33.5	1,960	66.4	1,005
Total	28.9	3,013	12.1	4,280	8.0	8,239	37.9	5,654	31.0	4,568	40.9	9,306	21.8	3,911	66.7	6,329

Health insurance coverage for women was positively associated with household wealth in five countries (Albania, Burundi, Ghana, Namibia, and Rwanda). Coverage was highest among women in the richest households and lowest among women in the poorest households. The most striking disparity between rich and poor was found in Albania and Namibia. In Namibia 48 percent of women in the richest households were covered by a health insurance compared with 2 percent of women in the poorest households. In Albania the difference between women in the highest and lowest wealth quintiles was 37 percentage points. An opposite relationship between household wealth and health insurance coverage was observed in Cambodia. While the coverage rate at the national level was only 11 percent for women, almost one in every four women in the poorest households reported health insurance coverage; a higher level than in any other wealth quintile. In Gabon and Indonesia the relationship between household wealth and insurance coverage was somewhat non-linear; coverage rates were highest among the poorest and the richest groups. It is important to note that in Gabon 62 percent of the poorest women were covered by health insurance; this represents the highest level of health insurance coverage among this wealth group in any of the eight countries. A similar pattern of wealth disparities in health insurance coverage was also observed among men.

With regard to the urban-rural differences, in five countries (Albania, Burundi, Ghana, Indonesia, and Namibia) both women and men in urban areas were more likely to report health insurance than their rural counterparts. In contrast, in Cambodia and Gabon coverage rates were higher in rural than urban areas for both women and men. The absolute urban-rural difference ranged from 7 to 20 percentage points for women, and from 4 to 10 percentage points for men. Rwandans in urban and rural areas had similar coverage rates, at 71 percent for women and 66-67 percent for men.

3.2. Propensity Score Estimation and the Quality of Matching

3.2.1. Propensity score estimation

As described in the section on methods, we assessed the effects of health insurance status on maternal health care use in eight countries in which health insurance rates exceeded 10 percent in order to ensure adequate sample size. We took three steps to implement the assessment. First, we ran logit models to estimate the propensity score, which is the predicted probability of being insured given a set of covariates. Second, the estimated propensity scores were used to match a group of individuals who were not insured but had comparable scores to those who were insured. Finally, we compared the outcomes of the insured and the uninsured to obtain the effects of health insurance on the insured (ATT).

This section describes the estimation results of the logit models in each of the eight countries. As the four outcomes of interest were based on two different samples, in each country there were two models for estimating propensity scores—the full-sample model and the sub-sample model. Appendices B-I report the coefficients and standard errors of covariates that were included in the propensity score estimation in individual countries.

Across all eight countries, household wealth status was a significant determinant of participation in health insurance. However, the direction of the relationship varied among countries. Net of the effects of other background characteristics, and consistent with the results of the bivariate analyses, wealth status was positively associated with women's participation in health insurance in five countries (Albania, Burundi, Ghana, Namibia, and Rwanda). In Cambodia and Gabon, however, the relationship was the inverse; women in poorer households were more likely to have health insurance coverage than women in wealthier households.

Women's education and the education of the head of household were important predictors of women's enrollment in health insurance. In most countries, women with higher levels of education were more likely

to report health insurance coverage, with the exception of Namibia, where the association was statistically non-significant. Since it is common for individuals to enroll in health insurance as part of households, the education of the household head was expected to affect women's participation in health insurance. A positive association between education of the household head and women's health insurance status was observed in Burundi, Ghana, Indonesia, and Namibia. Results from Cambodia illustrate a counterintuitive relationship: both women's education and education of household head were negatively associated with health insurance coverage.

Women's employment status was excluded from several models because it was neither associated with health insurance status nor associated with the outcomes of interest. When included, current employment was positively associated with health insurance status in most countries except Rwanda, where the relationship was reversed.

Birth order (which can be interpreted as the number of children a woman had) was negatively associated with women's health insurance status in most models. Higher parity was associated with lower chances of being covered by health insurance. In Cambodia, however, women with more children were more likely to be enrolled in health insurance.

The urban-rural gap in insurance status that was observed in the bivariate analysis was largely diminished after controlling for other covariates. As expected, in all eight countries regional differences in health coverage remained statistically significant even after controlling for background characteristics. The magnitude and statistical significance of age, marital status, and mass media exposure on health insurance enrollment differed by country, with no consistent pattern.

3.2.2. The quality of propensity score matching

After the propensity score was estimated, common support between the control and treatment groups was examined by assessing the range of propensity scores for both groups on a histogram graph. The distribution of the propensity scores illustrated a satisfactory overlap between the insured and the uninsured in all countries (graphs are available upon request from the authors).

As discussed previously, we experimented with various propensity score matching algorithms. The final approach was chosen according to the quality of matching, which was assessed based on several model parameters including the mean and median of absolute biases of covariates, pseudo- R^2 , and standard Likelihood ratio test X^2 . The pre- and post-matching comparisons on means and percent of absolute bias reduced for individual covariates were also taken into consideration in assessing the quality of matching.

Table 4 presents the results of the best quality matching method as well as quality measurements before and after matching for full and sub-samples in each country.

Radius matching generally resulted in the best quality of matching in most countries with caliper width ranging from 0.01 to 0.05. It is expected that smaller calipers result in better quality of matching but also entail a greater possibility of losing treated cases that do not have a matched control (Grilli and Rampichini 2011). Therefore, to achieve a good-quality matching and maximize the use of data from treated cases, the choice of caliper was determined by two criteria: the quality of matching and the least number of unmatched treated cases. The nearest neighbor matching was chosen for both samples in Burundi for its best quality of matching over other algorithms.

Table 4. Propensity score matching performance: results of the mean and median absolute bias, pseudo- R^2 and Likelihood ratio (LR) tests

Country	Matching approach	Sample	Mean	Median	Std. dev.	Pseudo- R^2	LR χ^2	$p > \chi^2$
Albania	Full sample	Radius matching (caliper=0.025)	Unmatched 36.9	22.1	34.6	0.312	420.24	0.000
			Matched 7.0	4.9	7.4	0.022	16.01	0.523
	Subsample	Radius matching (caliper=0.025)	Unmatched 42.4	22.4	36.3	0.305	411.28	0.000
			Matched 6.6	5.0	5.8	0.016	11.04	0.683
Burundi	Full sample	Nearest neighbor	Unmatched 33.3	17.1	32.2	0.271	1,080.66	0.000
			Matched 5.3	4.2	3.9	0.016	30.52	0.106
	Subsample	Nearest neighbor	Unmatched 37.8	33.6	34.9	0.255	1,016.15	0.000
			Matched 3.8	1.7	4.6	0.013	24.78	0.100
Cambodia	Full sample	Radius matching (caliper=0.01)	Unmatched 20.5	13.7	19.0	0.111	626.33	0.000
			Matched 1.2	1.1	0.6	0.001	2.39	1.000
	Subsample	Radius matching (caliper=0.01)	Unmatched 20.5	13.7	19.0	0.111	626.33	0.000
			Matched 1.6	1.4	1.1	0.001	3.15	1.000
Gabon	Full sample	Radius matching (caliper=0.01)	Unmatched 20.0	18.6	12.1	0.137	736.87	0.000
			Matched 2.1	1.4	1.8	0.003	16.13	0.950
	Subsample	Radius matching (caliper=0.05)	Unmatched 21.4	20.4	12.0	0.135	727.22	0.000
			Matched 2.0	1.5	1.9	0.002	11.57	0.984
Ghana	Full sample	Radius matching (caliper=0.012)	Unmatched 16.4	14.6	12.0	0.158	403.83	0.000
			Matched 1.8	1.7	1.2	0.002	4.47	1.000
	Subsample	Radius matching (caliper=0.011)	Unmatched 17.0	16.4	11.9	0.158	403.64	0.000
			Matched 2.0	1.7	1.2	0.002	4.33	1.000
Indonesia	Full sample	Radius matching (caliper=0.020)	Unmatched 8.4	7.3	5.7	0.038	756.85	0.000
			Matched 0.6	0.5	0.5	0.000	4.96	1.000
	Subsample	Radius matching (caliper=0.01)	Unmatched 8.9	8.1	5.7	0.038	756.66	0.000
			Matched 0.5	0.4	0.4	0.000	2.83	1.000
Namibia	Full sample	Radius matching (caliper=0.05)	Unmatched 36.0	28.1	32.9	0.383	1,082.65	0.000
			Matched 3.2	2.8	2.1	0.008	8.75	1.000
	Subsample	Radius matching (caliper=0.02)	Unmatched 36.8	28.1	33.5	0.366	1,033.89	0.000
			Matched 3.6	3.9	2.6	0.009	9.57	0.999

(Continued...)

Table 4. – Continued

Country	Matching approach	Sample	Mean	Median	Std. dev.	Pseudo-R ²	LR χ^2	p > χ^2
Rwanda	Full sample	Unmatched	11.1	9.2	8.9	0.066	472.45	0.000
		<i>Matched</i>	3.1	2.3	2.4	0.006	75.87	0.000
	Subsample	Unmatched	11.1	9.2	8.9	0.066	472.45	0.000
		<i>Matched</i>	1.1	1.0	1.0	0.001	14.08	0.899

Overall, in all countries matching substantially reduced the mean and median biases between the insured and the uninsured with respect to the observed covariates included in the models. The mean absolute bias was less than 5 percent in the majority of models—the threshold for decent quality matches (Rosenbaum and Rubin 1983). In 9 of the 16 models, mean absolute bias was 2 percent or less. Despite a significant reduction in bias after matching, mean absolute bias was the highest in the models for Albania (approximately 7 percent), but statistically non-significant.

Comparisons on individual covariates are reported in Appendices J-Q. In four countries (Cambodia, Ghana, Indonesia, and Rwanda), the post-matching standardized biases of all covariates across all models were less than 5 percent. In Albania and Namibia several covariates showed post-matching bias greater than 5 percent, but not statistically significant. Post-matching standardized bias of individual covariates in Burundi and Gabon was less satisfactory, although mean bias was 5 percent or less. In Gabon significant bias between the insured and uninsured persisted after matching for two education categories in the full-sample model and the fifth wealth quintile in the sub-sample model. In Burundi, six variables in the full-sample model and one variable in the sub-sample model showed significant bias after matching.

Pseudo- R^2 comes from the regressions of the propensity score on all covariates used in matching on both matched and unmatched samples. It should be substantially reduced after matching if the covariates are well matched between the insured and uninsured groups (Aggarwal 2010). Table 4 indicates fairly low Pseudo- R^2 in all models. In all models except the full-sample model for Rwanda, the Likelihood-ratio test of joint insignificance of all covariates was insignificant after matching, indicating similar distributions of observed covariates after matching.

Due to imposing the common support, some women (mostly from the uninsured group) were excluded from the analysis after the matching process. Table 5 presents the number of women off the common support.

Table 5. Number of cases off the common support in propensity score matching

	Full sample	Sub-sample
Albania	8	12
Burundi	18	4
Cambodia	21	17
Gabon	3	0
Ghana	37	43
Indonesia	4	1
Namibia*	339	141
Rwanda	28	25

* Among those off the common support, only one case is from the insured group for both samples

3.3. Effects of Health Insurance Using Propensity Score Matching (PSM)

This section reports the results of the PSM used to estimate the effects of health insurance on four outcomes: having at least one antenatal visit (ANC1), four or more antenatal visits (ANC4), first antenatal visit in first three months of the pregnancy (ANCMONTH), and delivery in a healthcare facility (FACBIRTH). ANC1 and FACBIRTH are based on the full sample of all women who had a live birth in the five years preceding the survey. ANC4 and ANCMONTH are based on a sub-sample of women who had at least one antenatal

care visit. Table 6 presents the differences in outcomes between the insured and uninsured before matching as well as the effects of health insurance (ATT) estimated based on the matched samples.

Table 6. The average treatment effect on the treated (ATT) of health insurance on utilization of selected maternal health services

Outcomes	Means before matching				Average treatment effect on the treated			Number of cases on support
	Insured	Uninsured	Difference	p-value	ATT	SE	p-value	
Albania								
ANC 1 ¹	0.964	0.964	0.000	0.989				
ANC 4	0.830	0.624	0.207	0.000	0.064	0.056	0.247	1,265
First ANC visit in first 3 months	0.894	0.746	0.148	0.000	0.092	0.053	0.084	1,265
Facility delivery	0.985	0.956	0.029	0.023	0.014	0.022	0.519	1,317
Burundi								
ANC 1 ¹	0.990	0.990	0.000	0.967				
ANC 4	0.402	0.332	0.070	0.000	-0.019	0.039	0.622	4,771
First ANC visit in first 3 months	0.348	0.196	0.153	0.000	0.075	0.036	0.039	4,771
Facility delivery	0.827	0.624	0.203	0.000	0.014	0.030	0.642	4,806
Cambodia								
ANC 1	0.824	0.884	-0.059	0.000	0.0408	0.0176	0.020	5,978
ANC 4	0.563	0.683	-0.119	0.000	-0.0104	0.0252	0.680	5,211
First ANC visit in first 3 months	0.595	0.686	-0.091	0.000	-0.0029	0.02618	0.913	5,211
Facility delivery	0.479	0.586	-0.107	0.000	0.073	0.0226	0.001	5,978
Gabon								
ANC 1	0.909	0.938	-0.030	0.000	-0.023	0.014	0.105	3,932
ANC 4	0.728	0.781	-0.053	0.000	-0.003	0.024	0.914	3,626
First ANC visit in first 3 months ¹	0.574	0.602	-0.028	0.086				
Facility delivery	0.818	0.882	-0.065	0.000	-0.043	0.019	0.025	3,932
Ghana								
ANC 1	0.986	0.946	0.039	0.000	-0.0036	0.0085	0.672	1,837
ANC 4	0.895	0.770	0.126	0.000	0.0771	0.0257	0.003	1,753
First ANC visit in first 3 months	0.619	0.545	0.074	0.000	0.0184	0.0365	0.614	1,753
Facility delivery	0.740	0.471	0.269	0.000	0.1058	0.0319	0.001	1,837
Indonesia								
ANC 1	0.975	0.945	0.030	0.000	0.016	0.004	0.000	14,954
ANC 4	0.911	0.870	0.041	0.000	0.026	0.006	0.000	14,318
First ANC visit in first 3 months	0.810	0.775	0.036	0.000	0.017	0.008	0.033	14,318
Facility delivery	0.625	0.529	0.096	0.000	0.049	0.009	0.000	14,954

(Continued...)

Table 6. – Continued

Outcomes	Means before matching				Average treatment effect on the treated			Number of cases on support
	Insured	Uninsured	Difference	p-value	ATT	SE	p-value	
Namibia								
ANC 1	0.986	0.957	0.029	0.000	-0.0012	0.0114	0.916	2,950
ANC 4	0.909	0.800	0.110	0.000	0.0209	0.03	0.486	3,005
First ANC visit in first 3 months	0.538	0.292	0.246	0.000	0.1585	0.0509	0.002	3,005
Facility delivery	0.969	0.798	0.171	0.000	0.0325	0.0206	0.115	2,950
Rwanda								
ANC 1	0.990	0.965	0.025	0.000	0.0154	0.0056	0.006	6,122
ANC 4	0.379	0.318	0.061	0.000	0.0195	0.0203	0.337	6,016
First ANC visit in first 3 months	0.411	0.332	0.080	0.000	0.017	0.0206	0.410	6,016
Facility delivery	0.765	0.613	0.152	0.000	0.0745	0.0186	0.000	6,122

¹ ATT was not estimated because the raw difference in the outcome between the insured and uninsured was statistically non-significant.

3.3.1. Effect of health insurance on number of ANC visits

Irrespective of health insurance status, most women in all eight countries made at least one antenatal care visit. In four countries (Ghana, Indonesia, Namibia, and Rwanda) the proportion of women reporting at least one antenatal care visit was higher among insured women than uninsured women. In Cambodia and Gabon health insurance coverage seemed to have a negative impact on ANC access. In Albania and Burundi the difference between the two groups was statistically non-significant; therefore this outcome was not analyzed using PSM.

After matching, health insurance status no longer significantly influenced women's probability of making one antenatal care visit in three countries (Gabon, Ghana, and Namibia), which means the differences seen in the unmatched sample were due to the biases in covariates that were both related to participation in health insurance and the outcome. After the bias was eliminated or reduced, the differences in the outcomes were no longer significant. However, in Indonesia and Rwanda after matching, the impact of health insurance on increasing women's chance of accessing antenatal care remained significant, although the magnitude of the impact decreased compared with before matching. It is noteworthy that in Cambodia the impact of health insurance was negative before matching but positive and statistically significant after matching. This could be because some of the covariates on which we matched, such as education and household wealth, were negatively associated with women's health insurance status, as described earlier, but positively associated with access to antenatal care.

The prevalence of four or more antenatal care visits varied by country. Among women who reported at least one antenatal visit, over 70 percent in Gabon, Ghana, Indonesia, and Namibia had four or more visits, regardless of health insurance status. In contrast, the prevalence of four or more antenatal care visits was relatively low in the other four countries, especially Burundi and Rwanda. The raw differences in the prevalence of four or more antenatal care visits between insured and uninsured women ranged from 4 percentage points in Indonesia to 21 percentage points in Albania and were statistically significant in all countries. In Cambodia health insurance status appeared to have a negative impact on making four or more antenatal care visits.

After matching on covariates that could potentially introduce bias, the positive effect of health insurance coverage was eliminated in all countries except Ghana and Indonesia. Health insurance coverage contributed to an 8 percentage-point increase in access to four or more antenatal care visits in Ghana and a 3 percentage-point increase in Indonesia.

3.3.2. Effect of health insurance on timing of the first ANC visit

In terms of the timing of the first antenatal care visit, Table 6 shows that more than one-half of women in Albania, Cambodia, Gabon, Ghana, and Indonesia started antenatal care in the first trimester regardless of insurance status. Most women in the remaining three countries waited until the second or third trimester before making the first visit. Before matching, the difference between insured and uninsured women was significant in all countries except Gabon. Health insurance seemed to increase the likelihood of women starting antenatal care early, with the exception of Cambodia, where insured women seemed less likely to make the first visit in the first trimester.

After matching, a similar effect was observed as with the above two outcomes—the effect of health insurance on the timing of the first antenatal care visit disappeared in several countries including Cambodia, Ghana, and Rwanda. Its effect remained significant in Namibia, Burundi, and Indonesia. In these three countries, health insurance coverage increased the use of antenatal care within the first trimester of pregnancy by 15, 8, and 2 percentage points, respectively.

3.3.3. Effect of health insurance on facility delivery

At least one-half of women in all study countries delivered their most recent birth in a healthcare facility. The raw differences between insured and uninsured women were significant in all countries. Health insurance seemed to be associated with a greater likelihood of delivering in a healthcare facility, with the exception of Cambodia and Gabon, where insured women appeared less likely to do so.

After matching, the effect of health insurance on delivery in a healthcare facility was positive and statistically significant in four of the eight countries (Cambodia, Ghana, Indonesia, and Rwanda). In these countries, health insurance coverage contributed to a 5-11 percentage-point increase in the receipt of facility-based delivery care. In Albania, Burundi, and Namibia health insurance coverage had a small positive but statistically non-significant effect, at a 1-3 percentage-point increase. Even after adjusting for possible bias due to observed characteristics, health insurance status had a negative and statistically significant effect in Gabon.

4. Discussion and Conclusion

This study examined levels of health insurance coverage in 30 low- and middle-income countries using nationally representative DHS data. We also assessed the impact of health insurance status on the use of maternal health care in eight countries.

Health insurance coverage is generally low across all countries. Many countries have coverage rates under 5 percent for both women and men. The observation of low enrollment is not surprising. Health insurance programs in the developing world are still in the early stages, although they are attracting increasing attention as countries seek the means to address financial barriers that limit access to health care and try to find ways to protect families from catastrophic out-of-pocket expenditures (Spaan et al. 2012).

A few countries included in this study already have widespread health insurance coverage—Rwanda, Gabon, Ghana, and Indonesia. Rwanda has the highest rate of coverage of any study country, with more than two-thirds of women and men reporting health insurance coverage in 2010. The community-based health insurance in Rwanda, known as *Mutuelle de Santé*, was initiated in 2004 and has been heavily promoted and subsidized by the government. The reach of the *Mutuelle* has steadily increased, bringing more Rwandans under the umbrella of health insurance due to effective promotion campaigns and low premiums, including a zero premium for the extremely poor, as well as the broad range of coverage of preventive and curative care services provided at various levels of health facilities in Rwanda (Saksena et al. 2011). Enrollment in the *Mutuelle* has risen further after passage of the mutual health insurance law in 2007 (Ministry of Health of Rwanda 2010).

While in most countries men have slightly higher coverage rates than women, it is important to note that women's rates are higher than men's in several countries with relatively high levels of coverage. This finding could be because women, especially women of reproductive age, have greater demand for maternal health services related to childbearing, which are usually covered by health insurance schemes.

It would be expected that social health insurance and community-based health insurance are more common than employer-based health insurance and commercial health insurance in low- and middle-income countries. Commercial health insurance is the least common scheme in these countries due to the nature of its financing and the complexity of administration and regulation (Drechsleri and Jüttingii 2005).

In all countries except Cambodia, educational attainment is associated with a greater likelihood of participating in health insurance, even after adjusting for other factors that affect participation. This finding is consistent with previous studies in Rwanda and elsewhere (Adebayo et al. 2014; Cofie et al. 2013). Our results also indicate that the education of the head of the household matters, in addition to the individual's education. In many societies household heads are often the primary decision-makers on important family matters, including seeking health care and enrolling in health insurance (Vallieres et al. 2013).

Household wealth is strongly correlated with participation in health insurance. In five of the eight countries studied, we found a positive association between wealth and insurance status after adjusting for other factors. In some countries the relationship is reversed, however, with women in poorer households more likely to have health insurance coverage than women in more affluent households. In several countries health insurance mechanisms primarily target the poor and heavily subsidize or even remove premiums for them. In Rwanda, for example, the extremely poor are not required to pay a premium for the *Mutuelle* program (Saksena et al. 2011). In Indonesia full subsidization is provided to low-income households (Sparrow et al. 2010). Nonetheless, reduced premiums may not equalize access to health insurance. Despite the provisions of the *Mutuelle* program meant to target the poor, Rwandan women in the poorest households remain much less likely to be covered by health insurance than women in the richest households. Health

insurance premiums are just one factor influencing enrollment; many other factors also play a role—for example, perceived need for enrollment, knowledge of health insurance, and cultural factors, as well as an individual's health condition (Acharya et al. 2013; Cofie et al. 2013; Thornton et al. 2010). Additionally, women in poorer households may not be knowledgeable of their health insurance status if membership is household based, thereby leading to underreporting from this segment of the population.

In Cambodia and Gabon poor women are more likely than the rich to have health insurance coverage, suggesting that the targeting of the poor in these countries has been effective. In Cambodia, Health Equity Funds, the main insurance mechanisms, are intended to improve financial access to health care for the poor (Annear et al. 2008). Although national coverage is still low and some areas suffer from program discontinuation, our results confirm that Health Equity Funds are accomplishing their objective of reaching the poor. We were not able to examine specific health insurance types in Gabon due to lack of data. The literature shows that the main scheme in Gabon is a social health insurance known as CNAMGS. Launched in 2008, CNAMGS primarily targets the poorest people in the country (Humphreys 2013).

The urban-rural gap in health insurance coverage disappears in most countries after controlling for background characteristics of women and their households, but there is regional variation in insurance coverage in all of the study countries.

Our results indicate that, even after matching on a number of observed background characteristics that can otherwise bias estimates of the effects of health insurance on use of maternal care, health insurance coverage has a positive impact on women's access to at least one antenatal care visit in Indonesia, Rwanda and Cambodia, and in Ghana and Indonesia insurance coverage has a positive impact on making at least four antenatal visits, as recommended by WHO. The characteristics of health insurance schemes in these countries may partially explain the higher frequency of antenatal visits.

The primary health system in Indonesia consists of three schemes: *Askes*, *Jamsostek*, and *Askeskin*. *Akes* and *Jamsostek* have limited coverage of the population and are for the formal sector. *Askeskin* targets the informal sector and has the largest share of beneficiaries, especially those with low income. *Askeskin* covers most types of care with no cost sharing. The positive effect of health insurance status both on making one antenatal visit and on making four antenatal visits is consistent with previous evaluations of these programs, in increasing the use of public health services (Aji et al. 2013; Sparrow et al. 2010). Our results are also consistent with findings from Taiwan, where the provision of 10 free antenatal care visits under the national health insurance scheme resulted in an increase in the frequency of antenatal care visits with the rollout of the program (Chen et al. 2003).

Rwanda's community-based health insurance aims to increase use of health care, especially for the poor. Our analysis showed that, although the great majority of Rwandan women receive antenatal care, only about one-third meet the recommended standard of at least four antenatal visits. A possible reason might be that many women lack knowledge about the extent of health services covered by insurance.

Similarly, in Cambodia health insurance enrollment has positive effect on women making one antenatal visit but not the recommended four visits. This finding may be partially explained by the overall low coverage of health insurance in Cambodia and the limited coverage of antenatal care in Health Equity Funds, the primary insurance mechanism.

The finding of a positive effect of health insurance on making four antenatal care visits in Ghana is consistent with another study using the same methodology but different data sources (Long et al. 2010; Mensah et al. 2009).

In all countries the number of antenatal care visits can also be influenced by the facility and provider, if health insurance schemes increase financial incentives for clinics and doctors to provide more antenatal care visits compared with hospitals and medical assistants (Chen et al. 2003). Other factors such as the cost of transportation can introduce prohibitive costs not covered by health insurance (Borghi et al. 2006). Our reliance on secondary data did not enable us to account for these factors in our analyses.

We also assessed the effect of health insurance on the timing of the first antenatal visit, which has been largely neglected by existing research that has mostly focused on the frequency of antenatal care visits. Health insurance status shows positive effects on initiating antenatal care in the first trimester in three of the eight countries (Namibia, Burundi, and Indonesia) even after matching on covariates that can bias the estimate of the difference in the timing of the first antenatal care visit that can be attributed to health insurance coverage. Similar findings were observed in a study of community-based health insurance in three West African countries, in which health insurance membership was associated with greater likelihood of starting antenatal care within the first trimester in Senegal, although not in Mali and Ghana (Smith and Sulzbach 2008). While our results indicate that in Ghana health insurance affects frequency of antenatal care, the effect is not statistically significant for the timing of antenatal care. A similar finding was observed in a regression analysis of timing of antenatal care in Ghana (Dixon et al. 2014). The authors argue that it is possible for health insurance status to have a different effect on these two outcomes of using maternal health care because the early use of antenatal care requires that women know that they are pregnant (Dixon et al. 2014).

When assessing the impact of health insurance on the use of facility-based delivery care, we found strong evidence of positive effects of health insurance in Cambodia, Ghana, Indonesia, and Rwanda, where delivery care is fully covered by health insurance. These findings are consistent with other studies (Hong et al. 2011; Mensah et al. 2009; Smith and Sulzbach 2008). Unexpectedly, in Gabon we found that health insurance status contributes to a decrease in facility delivery care. Unintended effects of health insurance status on use of healthcare services have been documented in other studies. In a systematic review of the impact of health insurance in Africa and Asia, the authors identified four studies showing negative effects of social health insurance on resource mobilization (Spaan et al. 2012). Another study in Columbia found that women who were covered by health insurance were less likely to be offered and less likely to receive HIV testing during antenatal visits compared with women without insurance (Ettenger et al. 2014).

A growing number of studies have documented the impact of health insurance on the use of health services in developing countries, but very few have used rigorous methods, such as propensity score matching or a quasi-experimental approach, to assess its impact on use of maternal care across a range of countries. The matching technique eliminates bias due to selection on observable characteristics, but bias can still result from variable omission and unobserved heterogeneity. Because our assessment relied on secondary data, we could not include other factors such as provider type and health insurance characteristics that could influence both enrollment in health insurance and use of maternal care. The matching was carefully done but the results are not free of bias, and the estimates could be improved by including other important confounders, such as the outcome of a previous pregnancy.

Our adjusted estimates of the effects of health insurance show positive and statistically significant effects for at least one measure of the use of maternal health care in seven of the eight countries studied. Indonesia stands out for the most systematic effect of health insurance across all measures of use of maternal health services, followed by Cambodia, Rwanda, and Ghana. Only in Albania is there no significant impact. Sample sizes in Albania were smaller relative to other study countries, making results more sensitive to bias because of model specification.

Overall, our results point to a significant increase in the uptake of recommended standards of adequate maternal health care attributable to health insurance coverage. The results contribute to the body of evidence

available for health insurance policymaking, by using rigorous methods to demonstrate the impact of health insurance. By revealing the positive impact of health insurance on the use of antenatal care and facility-based delivery care, our findings suggest that in some contexts enrollment in health insurance can reduce inequality in access to maternal health care. Additional research is needed to identify what particular aspects of health insurance design can improve these impacts.

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Appendix

Appendix Table A. Characteristics of health insurance schemes in eight study countries

	Albania	Burundi	Cambodia	Gabon	Ghana	Indonesia	Namibia	Rwanda
Date established	1995 (1)	1984 (4)	1998 (7); 2005; 2000 (7)	2008 (9)	2003 (12)	2004; 2008 (15)	Information not available	1999 (24) - 2003
Type of insurance scheme	SHI: Bismark model, National Health, administered by the Health Insurance Institute (1)	La Carte D'Assurance Maladie (CAM); CBHI - 29 schemes in 2009; MSAG w/ 14 and MUSCABU w/15 schemes (6)	CBHI: SKY and CAAFw; SHI for formal sector workers; HEF for extreme poor	National Health Insurance and Social Welfare Fund (CNAMGS)	District Mutual, Private Mutual and Private Commercial Schemes (12)	Askeskin, Jamkesmas SHI, Askes (civil servants), Asabri (police/military) Jamsostek (formal private) (15, 17)	Gov't (Public Service Employee Med Aid Scheme PSEMAS)(19) and private "medical aid funds" (21)	Mutual (CBHI), RAMA (Formal), Military (MMI, formal), Private
Percent of target or total population covered	40% of total population (2)	10-25% (6)	SKY- 3-14% (2008); CAAFw 31% (2009) (7);	40% (11)	33 percent of the Ghanaian population (13)	40% of 100% goal (16)	5% of population has private, 10% has PSEMAS, rest depend on public health care (flat fees) (19,20)	91% of total in 2010 (25)
Participating providers	Public and private, in 2011: 610 personnel, 690 pharmacies, 160 agencies, 80 drugstores, 421 PHC centers, 39 secondary and tertiary facilities (1)	Public, private, NGO	Information not available	Public and private health structures and pharmacies (11)	Local health compounds, health centres, clinics, hospitals (14)	Public (926) and private (220) providers, 1146 facilities (15)	Information not available	Local health centers (dispensaries, health posts, centers, district and national hospitals), public only (26)

(Continued...)

Appendix Table A. – Continued

	Albania	Burundi	Cambodia	Gabon	Ghana	Indonesia	Namibia	Rwanda
Enrollment requirements	Compulsory for all employed	Information not available	CBHI- voluntary, informal sector ; HEF- extreme poor; SHI- compulsory, formal sector (7)	Currently: Poor Gabonese people and government workers; goal is all 1.5 million citizens by the end of 2014 (10)	Every Ghanaian except Armed Forces and Police (12)	Mandatory for civil servants, formal private sector, police and military (17)	PSEMAS- civil servant, Private -voluntary	Every Rwandan (24)
Premium payments	3-7% for workers "active" persons, (50/50 between employer/employee/ state covers (1)	varies	Free for extreme poor through Health Equity Fund HEF (7)	2.5-4.1% of pay, low income 100% subsidized (11)	GH¢7.2 (minimum) to GH¢48.00 (maximum), 0¢ for indigent, pregnant women, children <18 and adults >70 yrs old, annually (12)	Askeskin- fully subsidized, (@ Rp5000/44c per month) (17)	In PSEMAS, employers pay 20% of premium, private plans vary	~ \$6 per person per year + 10% copay at health center/hospital (26), sliding scale
Coverage of maternal health services	Prenatal care is free, but poor quality (3)	100% (4)	Vouchers for women at some facilities starting in 2007: 3-4 ANC visits, delivery, 1 postnatal visit, fees are waived (8)	Maternal health care- 100% (9)	Prenatal – 100%	Antenatal and normal or complicated delivery – 100% (18)	Information not available	ANC- 100%
Antenatal care					Delivery normal – 100%			
Delivery- normal					Delivery complicated- certain procedures 100% (13)			
Delivery- complicated								

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(Continued...)

Appendix Table A. – Continued

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Appendix Table B. Estimates of the (logit) propensity score models, Albania

Variable	Full sample		Sub-sample	
	Coefficient	S.E.	Coefficient	S.E.
Maternal age at most recent birth (continuous)¹	0.191	0.148		
Maternal age at most recent birth squared¹	-0.002	0.002		
Education (ref.: none)				
Primary	16.914	0.000	15.823	0.000
Secondary or higher	17.459***	0.214	16.490***	0.217
Marital status (ref.: never married)¹				
Currently married	-0.653	2.256		
Formerly married	-0.142	2.329		
Birth order (ref.: first child)				
Second	-0.571*	0.233	-0.300	0.212
Third	-0.923**	0.295	-0.524*	0.256
Fourth or more	-1.170**	0.360	-0.652*	0.313
Employment status (ref.: not currently employed)				
Currently employed	2.198***	0.180	2.373***	0.183
Education of head of household (ref.: none)				
Primary	-0.056	0.527	0.230	0.588
Secondary or higher	0.251	0.537	0.497	0.598
Wealth terciles (ref.: first tercile)				
Second	0.269	0.296	0.389	0.305
Third	1.151**	0.367	1.260***	0.377
Mass media exposure²				
Exposed to media at least once a week	0.335	0.829	0.183	0.833
Residence (ref.: rural)				
Urban	0.436	0.284	0.430	0.291
Region (ref.: Coastal)				
Central	0.185	0.257	0.118	0.260
Mountain	0.895***	0.249	0.876***	0.253
Urban Tirana	-0.139	0.298	-0.152	0.298
Constant	-22.948	0.000	-19.591***	1.008
N		1,325		1,277
log pseudolikelihood		-460		-437

* p<0.05. ** p< 0.01, *** p< 0.001

¹ Not included in the estimation of the propensity score for the sub-sample

² Mass media exposure is defined as read newspaper, listen to radio, or watch TV at least once a week

Appendix Table C. Estimates of the (logit) propensity score models, Burundi

Variable	Full sample		Sub-sample	
	Coefficient	S.E.	Coefficient	S.E.
Maternal age at most recent birth (continuous)¹	0.150*	0.067		
Maternal age at most recent birth (squared)¹	-0.002	0.001		
Education (ref.: none)				
Primary	0.611***	0.125	0.531***	0.122
Secondary or higher	1.520***	0.188	1.489***	0.181
Marital status (ref.: never married)¹				
Currently married	0.792**	0.288		
Formerly married	0.140	0.352		
Birth order (ref.: first child)				
Second	-0.072	0.172	0.279	0.161
Third	-0.071	0.189	0.497**	0.164
Fourth or more	-0.488*	0.199	0.455**	0.139
Employment status (ref.: not currently employed)¹				
Currently working	0.463***	0.129		
Education of Household head (ref.: none)				
Primary	0.148	0.126	0.150	0.125
Secondary or higher	1.064***	0.178	1.188***	0.173
Wealth quintiles (ref.: poorest)				
Second quintile	0.193	0.224	0.190	0.223
Third quintile	0.289	0.222	0.303	0.221
Fourth quintile	0.948***	0.206	0.928***	0.206
Richest	1.630***	0.210	1.638***	0.209
Mass media exposure²				
Exposed to media at least once a week	0.205	0.119	0.225	0.118
Residence (ref.: rural)				
Urban	0.723***	0.151	0.612***	0.149
Region (ref.: Bujumbura)				
North	1.123***	0.196	1.182***	0.190
Centre-east	1.521***	0.193	1.568***	0.189
West	0.482*	0.222	0.494*	0.217
South	1.078***	0.196	1.172***	0.190
Constant	-8.652***	1.000	-5.178***	0.279
N		4,824		4,775
log pseudolikelihood		-1,451		-1,470

* p<0.05. ** p< 0.01, *** p< 0.001

¹ Not included in the estimation of the propensity score for the sub-sample

² Mass media exposure is defined as read newspaper, listen to radio, or watch TV at least once a week

Appendix Table D. Estimates of the (logit) propensity score models, Cambodia

Variable	Full sample		Sub-sample	
	Coefficient	S.E.	Coefficient	S.E.
Maternal age at birth	-0.107*	0.048	-0.087	0.054
Maternal age at birth squared	0.002*	0.001	0.001	0.001
Education (ref.: no education)				
Primary education	-0.203*	0.087	-0.153	0.101
Secondary or higher	-0.855***	0.142	-0.760***	0.151
Marital status (ref.: never married)¹				
Currently married	-1.129	1.457		
Formerly married	-1.006	1.466		
Birth order (ref.: first child)				
2	0.291**	0.108	0.230*	0.114
3	0.280*	0.130	0.214	0.140
4 or higher	0.380**	0.141	0.412**	0.153
Employment status (ref.: not currently employed)				
Currently employed	0.104	0.079	0.065	0.086
Education of head of the household (ref.: no education)				
Primary education	-0.082	0.090	-0.177	0.101
Secondary or higher	-0.316**	0.119	-0.423***	0.127
Mass media exposure (ref.: not exposed)²				
Exposed to media at least once a week	-0.009	0.077	-0.066	0.085
Wealth tercile (ref.: first tercile)				
Second	-0.453***	0.085	-0.532***	0.093
Third	-1.286***	0.129	-1.343***	0.136
Residence (ref.: rural)				
Urban	0.130	0.110	0.096	0.118
Provinces (ref.: Northwestern provinces)³				
Southern provinces	-0.110	0.099	-0.257*	0.112
Southwestern provinces	0.535***	0.091	0.451***	0.103
Siem Reap, Takeo, and Kandal	-0.702***	0.135	-0.835***	0.146
Phnom Penh	-1.410***	0.428	-1.454***	0.430
Constant	1.684	1.612	0.576	0.762
N		5,999		5,228
log pseudolikelihood		-2,489		-2,066

* p<0.05. ** p< 0.01, *** p< 0.001

¹ Not included in the estimation of the propensity score for the sub-sample

² Mass media exposure is defined as read newspaper, listen to radio, or watch TV at least once a week

³ Northwestern provinces include Kampong Thom, Kratie, Preah Vihear & Steung Treng, Mondol Kiri/Rattanak Kiri
 Southern provinces include Kampong Cham, Svay Rieng, Kampong Speu, Pursat, and Kampot/Kep
 Southwestern provinces include Kampong Chhang, Preah Sihanouk/Daoh Kong, Battambang/Pailin, Banteay Mean Chey, and Otdar Mean Chey

Appendix Table E. Estimates of the (logit) propensity score models, Gabon

Variable	Full sample		Sub-sample	
	Coefficient	S.E.	Coefficient	S.E.
Maternal age at most recent birth (continuous)	0.101*	0.042	0.075	0.043
Maternal age at most recent birth (squared)	-0.001	0.001	-0.001	0.001
Education (ref.: none)				
Primary	1.345***	0.183	1.480***	0.208
Secondary or higher	1.433***	0.186	1.538***	0.208
Marital status (ref.: never married)¹				
Currently married	-0.089	0.100		
Formerly married	-0.316*	0.149		
Birth order (ref.: first child)				
Second	0.189	0.116	0.175	0.116
Third	0.319*	0.138	0.304*	0.140
Fourth or more	0.484**	0.148	0.416**	0.149
Employment status (ref.: not currently employed)¹				
Currently employed	0.178*	0.077		
Education of household head (ref.: none)				
Primary	-0.015	0.133	0.021	0.140
Secondary	-0.022	0.132	0.047	0.137
Wealth quintiles (ref.: poorest)				
Second quintile	-0.259*	0.106	-0.249*	0.108
Third quintile	-0.348**	0.127	-0.361**	0.128
Fourth quintile	-0.520***	0.144	-0.533***	0.145
Richest	-0.198	0.158	-0.227	0.159
Mass media exposure²				
Exposed to media at least once a week	-0.172	0.111	-0.146	0.118
Residence (ref.: rural)				
Urban	-0.055	0.092	0.009	0.095
Region (ref.: Libreville-Port-Gentil)				
Estuaire	0.458**	0.157	0.463**	0.159
Haut-Ogooué	1.725***	0.151	1.678***	0.151
Moyen-Ogooué	1.206***	0.167	1.221***	0.169
Ngounié	1.522***	0.155	1.480***	0.158
Nyanga	0.691***	0.161	0.666***	0.165
Ogooué Maritime	0.347*	0.165	0.338*	0.168
Ogooué-Ivindo	1.801***	0.156	1.707***	0.161
Ogooué-Lolo	1.413***	0.163	1.384***	0.165
Woleu-Ntem	0.234	0.166	0.303	0.172
Constant	-3.768***	0.590	-3.667***	0.616
N		3,935		3,626
log pseudolikelihood		-2,320		-2,173

* p<0.05. ** p< 0.01, *** p< 0.001

¹ Not included in the estimation of the propensity score for the sub-sample

² Mass media exposure is defined as read newspaper, listen to radio, or watch TV at least once a week

Appendix Table F. Estimates of the (logit) propensity score models, Ghana

Variable	Full sample		Sub-sample	
	Coefficient	S.E.	Coefficient	S.E.
Maternal age at birth	0.326***	0.071	0.320***	0.072
Maternal age at birth squared	-0.005***	0.001	-0.005***	0.001
Education (ref.: no education)				
Primary education	-0.077	0.165	-0.100	0.167
Secondary or higher	0.459**	0.167	0.444**	0.168
Marital status (ref.: never married)				
Currently married	0.682*	0.270	0.664*	0.277
Formerly married	0.484	0.339	0.506	0.346
Birth order (ref.: first child)				
2	-0.689***	0.183	-0.720***	0.186
3	-0.965***	0.206	-0.943***	0.208
4 or higher	-0.875***	0.221	-0.842***	0.222
Employment status (ref.: not currently employed)¹				
Currently employed	0.052	0.161		
Education of head of the household (ref.: no education)				
Primary education	-0.101	0.186	-0.079	0.188
Secondary or higher	0.360*	0.156	0.331*	0.157
Mass media exposure (ref.: not exposed)²				
Exposed to media at least once a week	0.106	0.141	0.129	0.144
Wealth quintile (ref.: first quintile)				
Second	0.786***	0.168	0.678***	0.170
Middle	0.948***	0.197	0.867***	0.199
Fourth	1.552***	0.221	1.455***	0.222
Highest	2.009***	0.275	1.901***	0.276
Residence (ref.: rural)				
Urban	0.002	0.147	0.004	0.148
Region (ref.: Western)				
Central	-0.897***	0.271	-0.858**	0.274
Greater Accra	-1.484***	0.264	-1.443***	0.265
Volta	-0.012	0.245	0.031	0.250
Eastern	0.817***	0.239	0.818***	0.243
Ashanti	0.020	0.212	0.023	0.214
Brong Ahafo	1.236***	0.239	1.247***	0.243
Northern	0.580*	0.244	0.528*	0.246
Upper West	1.336***	0.245	1.251***	0.248
Constant	-7.225***	1.011	-7.002***	1.017
N		1,874		1,796
log pseudolikelihood		-1,064		-1,036

* p<0.05. ** p< 0.01, *** p< 0.001

¹ Not included in the estimation of the propensity score for the sub-sample

² Mass media exposure is defined as read newspaper, listen to radio, or watch TV at least once a week

Appendix Table G. Estimates of the (logit) propensity score models, Indonesia

Variable	Full sample		Sub-sample	
	Coefficient	S.E.	Coefficient	S.E.
Maternal age at most recent birth (ref.: 15-19)				
20-24	-0.012	0.104	0.019	0.107
25-29	0.182	0.104	0.194	0.107
30-34	0.344**	0.109	0.353**	0.111
35-39	0.477***	0.114	0.504***	0.115
40-44	0.432***	0.126	0.453***	0.125
45-49	0.342	0.181	0.382*	0.184
Education (ref.: none)				
Primary	0.408**	0.126	0.090	0.143
Secondary or higher	0.707***	0.127	0.375**	0.144
Marital status (ref.: never married)				
Currently married	0.796	0.679	0.347	0.725
Formerly married	0.697	0.687	0.261	0.732
Birth order (ref.: first child)¹				
Second	0.031	0.047		
Third	0.015	0.060		
Fourth or more	0.041	0.068		
Birth order ²				
Second or higher			0.040	0.046
Employment status (ref.: not currently employed)				
Currently employed	0.244***	0.035	0.264***	0.036
Education of household head				
Primary education or higher	0.329***	0.090	0.225*	0.094
Wealth quintiles (ref.: poorest)				
Second quintile	-0.067	0.053	-0.100	0.054
Third quintile	-0.133*	0.058	-0.162**	0.058
Fourth quintile	0.015	0.061	-0.015	0.062
Richest	0.386***	0.067	0.363***	0.068
Mass media exposure³				
Exposed to media at least once a week	0.124*	0.054	0.054	0.055
Residence (ref.: rural)				
Urban	0.250***	0.039	0.241***	0.040
Region (ref.: Sumatera)				
Java	-0.144**	0.050	-0.151**	0.050
Bali and Nusa Tenggara	0.747***	0.066	0.701***	0.067
Kalimantan	0.331***	0.061	0.339***	0.062
Sulawesi	0.322***	0.053	0.332***	0.054
Maluku and Papua	0.558***	0.064	0.630***	0.068
Constant	-2.931***	0.699	-1.989**	0.746
N		14,958		14,319
log pseudolikelihood		-9,690		-9,329

* p<0.05. ** p< 0.01, *** p< 0.001

¹ Not included in the estimation of the propensity score for the sub-sample

² Not included in the estimation of the propensity score for the full sample

³ Mass media exposure is defined as read newspaper, listen to radio, or watch TV at least once a week

Appendix Table H. Estimates of the (logit) propensity score models, Namibia

Variable	Full sample		Sub-sample	
	Coefficient	S.E.	Coefficient	S.E.
Maternal age at birth	0.203*	0.096	0.255**	0.096
Maternal age at birth squared	-0.002	0.002	-0.002	0.002
Education (ref.: no education)				
Primary education	-0.298	0.411	-0.505	0.416
Secondary or higher	0.728	0.384	0.451	0.386
Marital status (ref.: never married)¹				
Currently married	0.894***	0.158		
Formerly married	0.456	0.308		
Birth order (ref.: first child)				
2	-0.560**	0.195	-0.395*	0.191
3	-0.669**	0.229	-0.498*	0.225
4 or higher	-0.990***	0.262	-0.763**	0.260
Employment status (ref.: not currently employed)				
Currently employed	1.230***	0.150	1.262***	0.151
Education of head of the household (ref.: no education)				
Primary education	-0.246	0.277	-0.190	0.278
Secondary or higher	0.654**	0.254	0.750**	0.252
Mass media exposure (ref.: not exposed)²				
Exposed to media at least once a week	0.884*	0.360	1.003**	0.376
Wealth quintile (ref.: first quintile)				
Second	0.245	0.380	0.197	0.381
Middle	1.021**	0.349	0.993**	0.349
Fourth	1.783***	0.363	1.779***	0.360
Highest	3.389***	0.389	3.452***	0.388
Residence (ref.: rural)				
Urban	-0.405*	0.176	-0.507**	0.175
Region (ref.: Caprivi)				
Erongo	0.148	0.385	0.166	0.388
Hardap	0.161	0.430	-0.028	0.438
Karas	0.741	0.400	0.650	0.400
Kavango	0.812*	0.408	0.933*	0.410
Khomas	0.565	0.362	0.458	0.364
Kunene	0.537	0.457	0.624	0.456
Ohangwena	1.849***	0.398	1.610***	0.398
Omusati	1.298***	0.391	1.102**	0.388
Oshana	0.483	0.397	0.329	0.397
Oshikoto	0.979*	0.392	0.888*	0.394
Otjozondjupa	0.695	0.384	0.595	0.386
Constant	-10.931***	1.453	-11.252***	1.471
N		3,289		3,146
log pseudolikelihood		-773		-769

* p<0.05. ** p< 0.01, *** p< 0.001

¹ Not included in the prediction of the propensity score for the sub-sample

² Mass media exposure is defined as read newspaper, listen to radio, or watch TV at least once a week

Appendix Table I. Estimates of the (logit) propensity score models, Rwanda

Variable	Full sample		Sub-sample	
	Coefficient	S.E.	Coefficient	S.E.
Maternal age at birth	0.169***	0.042	0.157***	0.043
Maternal age at birth squared	-0.002***	0.001	-0.002**	0.001
Education (ref.: no education)				
Primary education	0.194*	0.080	0.174*	0.081
Secondary or higher	0.531***	0.150	0.554***	0.153
Marital status (ref.: never married)				
Currently married	0.494***	0.119	0.526***	0.121
Formerly married	-0.142	0.141	-0.102	0.144
Birth order (ref.: first child)				
2	-0.480***	0.102	-0.470***	0.103
3	-0.576***	0.118	-0.559***	0.119
4 or higher	-0.896***	0.123	-0.868***	0.124
Employment status (ref.: not currently employed)				
Currently employed	-0.162*	0.079	-0.155	0.080
Education of head of the household (ref.: no education)				
Primary education	0.026	0.076	0.024	0.077
Secondary or higher	0.146	0.139	0.134	0.140
Mass media exposure (ref.: not exposed)¹				
Exposed to media at least once a week	0.330***	0.068	0.331***	0.070
Wealth quintile (ref.: first quintile)				
Second	0.297***	0.087	0.276**	0.089
Middle	0.536***	0.096	0.515***	0.097
Fourth	0.750***	0.104	0.723***	0.105
Highest	0.962***	0.135	0.923***	0.136
Residence (ref.: rural)				
Urban	0.187	0.126	0.185	0.127
Region (ref.: Kigali city)				
South	1.107***	0.149	1.090***	0.150
West	1.397***	0.154	1.383***	0.155
North	1.534***	0.163	1.506***	0.164
East	0.806***	0.148	0.791***	0.149
Constant	-3.456***	0.624	-3.264***	0.634
N		6,150		6,041
log pseudolikelihood		-3,352		-3,273

* p<0.05. ** p< 0.01, *** p< 0.001

¹ Mass media exposure is defined as read newspaper, listen to radio, or watch TV at least once a week

Appendix Table J. Mean biases of covariates before and after matching, Albania

Variable	Sample	Full sample						Sub-sample					
		Mean			% bias reduction	t-statistic	p> t	Mean			% bias reduction	t-statistic	p> t
		Insured	Uninsured	% bias reduction				Insured	Uninsured	% bias reduction			
Maternal age at most recent birth (continuous)¹	Unmatched	28.869	27.227	30.1	4.36	0.000	0.000	0.014	-17.0	0.014	-17.0	-1.99	0.046
	Matched	28.835	29.630	-14.6	-1.64	0.101	0.000	0.000	-0.3	0.000	-0.3	-0.26	0.795
Maternal age at most recent birth squared¹	Unmatched	860.880	773.100	27.8	4.06	0.000	0.273	0.689	-91.4	0.273	-91.4	-13.35	0.000
	Matched	859.210	912.260	-16.8	-1.85	0.064	0.273	0.293	-4.5	0.273	-4.5	-0.51	0.612
Marital status¹	Unmatched	0.000	0.001	-4.4	-0.51	0.609	0.727	0.297	95.2	0.727	95.2	13.96	0.000
Never married	Matched	0.000	0.000	-0.1	-0.06	0.956	0.727	0.707	4.6	0.727	4.6	0.51	0.607
Currently married	Unmatched	0.982	0.989	-5.6	-0.89	0.376	0.364	0.878	-124.9	0.364	-124.9	-20.82	0.000
	Matched	0.981	0.951	24.8	1.92	0.055	0.364	0.357	1.7	0.364	1.7	0.16	0.871
Formerly married	Unmatched	0.018	0.010	6.5	1.04	0.298	0.636	0.122	124.9	0.636	124.9	20.82	0.000
	Matched	0.019	0.049	-25.2	-1.92	0.055	0.636	0.643	-1.7	0.636	-1.7	-0.16	0.871
Education	Unmatched	0.000	0.014	-17.0	-1.99	0.046	0.636	0.636	98.6	0.636	98.6	20.82	0.000
None	Matched	0.000	0.000	-0.2	-0.21	0.830	0.636	0.122	124.9	0.636	124.9	20.82	0.000
Primary	Unmatched	0.273	0.689	-91.4	-13.35	0.000	0.636	0.122	124.9	0.636	124.9	20.82	0.000
	Matched	0.281	0.289	-1.9	-0.22	0.827	0.636	0.643	-1.7	0.636	-1.7	-0.16	0.871
Secondary or higher	Unmatched	0.727	0.297	95.2	13.96	0.000	0.636	0.643	-1.7	0.636	-1.7	-0.16	0.871
	Matched	0.719	0.710	1.9	0.22	0.824	0.636	0.643	-1.7	0.636	-1.7	-0.16	0.871
Employment status	Unmatched	0.364	0.878	-124.9	-20.82	0.000	0.364	0.878	-124.9	0.364	-124.9	-20.82	0.000
Currently not employed	Matched	0.375	0.372	0.7	0.06	0.949	0.364	0.357	1.7	0.364	1.7	0.16	0.871
Currently employed	Unmatched	0.636	0.122	124.9	20.82	0.000	0.636	0.122	124.9	0.636	124.9	20.82	0.000
	Matched	0.625	0.628	-0.7	-0.06	0.949	0.636	0.643	-1.7	0.636	-1.7	-0.16	0.871
Mass media exposure¹	Unmatched	0.007	0.024	-13.4	-1.73	0.084	0.007	0.024	-13.4	0.007	-13.4	-1.73	0.084
No exposure to media	Matched	0.007	0.006	0.9	0.15	0.881	0.008	0.006	1.9	0.008	1.9	0.32	0.752
Exposure to media at least once a week	Unmatched	0.993	0.976	13.4	1.73	0.084	0.993	0.976	13.4	0.993	13.4	1.73	0.084
	Matched	0.993	0.994	-0.9	-0.15	0.881	0.992	0.994	-1.9	0.992	-1.9	-0.32	0.752
Education of household head	Unmatched	0.018	0.050	-17.4	-2.28	0.023	0.018	0.050	-17.4	0.018	-17.4	-2.28	0.023
None	Matched	0.019	0.019	0.0	0.00	0.999	0.016	0.016	-0.3	0.016	-0.3	-0.05	0.960
Primary	Unmatched	0.349	0.631	-58.8	-8.65	0.000	0.349	0.631	-58.8	0.349	-58.8	-8.65	0.000
	Matched	0.360	0.383	-4.9	-0.56	0.578	0.356	0.398	-8.9	0.356	-8.9	-0.99	0.323
Secondary or higher	Unmatched	0.633	0.319	66.1	9.86	0.000	0.633	0.319	66.1	0.633	66.1	9.86	0.000
	Matched	0.622	0.598	4.9	0.55	0.581	0.628	0.595	9.1	0.628	9.1	0.99	0.320

(Continued...)

Appendix Table J. – *Continued*

Variable	Full sample											Sub-sample			
	Sample	Mean			% bias reduction	t-statistic	p> t	Mean			% bias reduction	t-statistic	p> t		
		Insured	Uninsured	% bias reduction				Insured	Uninsured	% bias reduction					
Birth order															
Eldst	Unmatched	0.342	0.259	18.1	2.74	0.006	0.342	0.259	18.1	2.74	0.006	0.006			
	<i>Matched</i>	0.337	0.334	0.7	0.08	0.939	0.324	0.345	-4.6	-0.50	0.619	0.619			
Second	Unmatched	0.378	0.336	8.8	1.30	0.192	0.378	0.336	8.8	1.30	0.192	0.192			
	<i>Matched</i>	0.378	0.338	8.5	0.98	0.329	0.403	0.377	5.4	0.60	0.549	0.549			
Third	Unmatched	0.182	0.229	-11.6	-1.67	0.095	0.182	0.229	-11.6	-1.67	0.095	0.095			
	<i>Matched</i>	0.184	0.218	-8.6	-1.00	0.320	0.182	0.182	0.1	0.01	0.995	0.995			
Fourth or more	Unmatched	0.098	0.176	-22.8	-3.15	0.002	0.098	0.176	-22.8	-3.15	0.002	0.002			
	<i>Matched</i>	0.101	0.110	-2.7	-0.34	0.731	0.091	0.096	-1.6	-0.21	0.837	0.837			
Wealth terciles															
First	Unmatched	0.200	0.490	-63.9	-8.88	0.000	0.200	0.490	-63.9	-8.88	0.000	0.000			
	<i>Matched</i>	0.206	0.226	-4.4	-0.56	0.579	0.186	0.223	-8.2	-1.04	0.301	0.301			
Second	Unmatched	0.364	0.409	-9.2	-1.35	0.176	0.364	0.409	-9.2	-1.35	0.176	0.176			
	<i>Matched</i>	0.375	0.418	-8.9	-1.03	0.306	0.391	0.437	-9.4	-1.04	0.297	0.297			
Third	Unmatched	0.436	0.102	81.3	14.03	0.000	0.436	0.102	81.3	14.03	0.000	0.000			
	<i>Matched</i>	0.419	0.356	15.4	1.50	0.134	0.423	0.340	20.2	1.92	0.055	0.055			
Residence															
Rural	Unmatched	0.273	0.615	-73.4	-10.56	0.000	0.273	0.615	-73.4	-10.56	0.000	0.000			
	<i>Matched</i>	0.281	0.308	-5.9	-0.70	0.485	0.265	0.299	-7.2	-0.84	0.400	0.400			
Urban	Unmatched	0.727	0.385	73.4	10.56	0.000	0.727	0.385	73.4	10.56	0.000	0.000			
	<i>Matched</i>	0.719	0.692	5.9	0.70	0.485	0.735	0.701	7.2	0.84	0.400	0.400			
Region															
Coastal	Unmatched	0.167	0.257	-22.1	-3.12	0.002	0.167	0.257	-22.1	-3.12	0.002	0.002			
	<i>Matched</i>	0.172	0.166	1.5	0.19	0.846	0.182	0.138	10.8	1.35	0.177	0.177			
Central	Unmatched	0.233	0.291	-13.4	-1.93	0.053	0.233	0.291	-13.4	-1.93	0.053	0.053			
	<i>Matched</i>	0.240	0.200	9.1	1.11	0.267	0.213	0.173	9.2	1.15	0.252	0.252			
Mountain	Unmatched	0.349	0.344	1.1	0.16	0.870	0.349	0.344	1.1	0.16	0.870	0.870			
	<i>Matched</i>	0.333	0.384	-10.7	-1.23	0.219	0.332	0.431	-20.9	-2.31	0.021	0.021			
Urban Tirana	Unmatched	0.251	0.108	38.0	6.23	0.000	0.251	0.108	38.0	6.23	0.000	0.000			
	<i>Matched</i>	0.255	0.250	1.3	0.13	0.896	0.273	0.258	4.0	0.38	0.701	0.701			

¹ Not included in the estimation of the propensity score for the sub-sample

² Mass media exposure is defined as read newspaper, listen to radio, or watch TV at least once a week

Appendix Table K. Mean biases of covariates before and after matching, Burundi

Variable	Sample	Full sample						Sub-sample					
		Mean			% bias reduction	t-statistic	p> t	Mean			% bias reduction	t-statistic	p> t
		Insured	Uninsured	% bias reduction				Insured	Uninsured	% bias reduction			
Maternal age at most recent birth (continuous)¹	Unmatched	29.446	28.296	17.1	4.04	0.000	0.196	0.538	-75.9	-17.24	0.000		
	Matched	29.394	30.206	-12.1	-2.28	0.023	0.198	0.202	-1.0	-0.20	0.840		
Maternal age at most recent birth squared¹	Unmatched	907.900	850.520	14.1	3.35	0.001	0.402	0.407	-1.1	-0.26	0.793		
	Matched	905.460	957.270	-12.7	-2.38	0.017	0.406	0.403	0.6	0.11	0.913		
Marital status¹	Unmatched	0.030	0.034	-2.1	-0.50	0.618	0.397	0.395	0.4	0.06	0.956		
Never married	Matched	0.031	0.023	4.2	0.83	0.405	0.196	0.538	-75.9	-17.24	0.000		
Currently married	Unmatched	0.927	0.877	17.0	3.85	0.000	0.198	0.202	-1.0	-0.20	0.840		
	Matched	0.925	0.954	-9.9	-2.28	0.023	0.402	0.407	-1.1	-0.26	0.793		
Formerly married	Unmatched	0.043	0.090	-18.9	-4.15	0.000	0.406	0.403	0.6	0.11	0.913		
	Matched	0.044	0.022	8.9	2.28	0.023	0.402	0.055	90.9	30.23	0.000		
Education	Unmatched	0.196	0.538	-75.9	-17.24	0.000	0.196	0.538	-75.9	-17.24	0.000		
None	Matched	0.201	0.238	-8.1	-1.64	0.102	0.198	0.202	-1.0	-0.20	0.840		
Primary	Unmatched	0.402	0.407	-1.1	-0.26	0.793	0.402	0.407	-1.1	-0.26	0.793		
	Matched	0.413	0.404	1.8	0.33	0.741	0.406	0.403	0.6	0.11	0.913		
Secondary or higher	Unmatched	0.402	0.055	90.9	30.23	0.000	0.402	0.055	90.9	30.23	0.000		
	Matched	0.386	0.358	7.3	1.06	0.287	0.397	0.395	0.4	0.06	0.956		
Employment status¹	Unmatched	0.167	0.210	-10.8	-2.57	0.010	0.167	0.210	-10.8	-2.57	0.010		
Not currently employed	Matched	0.172	0.164	1.9	0.36	0.717	0.172	0.164	1.9	0.36	0.717		
Currently employed	Unmatched	0.833	0.790	10.8	2.57	0.010	0.833	0.790	10.8	2.57	0.010		
	Matched	0.828	0.836	-1.9	-0.36	0.717	0.828	0.836	-1.9	-0.36	0.717		
Mass media exposure	Unmatched	0.197	0.443	-54.6	-12.43	0.000	0.197	0.443	-54.6	-12.43	0.000		
No access to any media	Matched	0.203	0.217	-3.3	-0.66	0.506	0.199	0.193	1.3	0.27	0.786		
Exposure to media at least once a week	Unmatched	0.803	0.557	54.6	12.43	0.000	0.803	0.557	54.6	12.43	0.000		
	Matched	0.797	0.783	3.3	0.66	0.506	0.801	0.807	-1.3	-0.27	0.786		
Education of household head	Unmatched	0.193	0.478	-63.3	-14.34	0.000	0.193	0.478	-63.3	-14.34	0.000		
None	Matched	0.198	0.188	2.3	0.48	0.631	0.192	0.179	2.9	0.62	0.533		
Primary	Unmatched	0.378	0.462	-17.1	-4.14	0.000	0.378	0.462	-17.1	-4.14	0.000		
	Matched	0.388	0.392	-0.9	-0.17	0.868	0.382	0.385	-0.6	-0.11	0.912		
Secondary or higher	Unmatched	0.429	0.060	95.0	31.16	0.000	0.429	0.060	95.0	31.16	0.000		
	Matched	0.414	0.420	-1.5	-0.22	0.826	0.426	0.436	-2.6	-0.38	0.703		

(Continued...)

Appendix Table K. – Continued

Variable	Full sample										Sub-sample									
	Sample	Mean		% bias reduction	t-statistic	p> t	Mean		% bias reduction	t-statistic	p> t									
		Insured	Uninsured				Insured	Uninsured												
Birth order																				
Elders	Unmatched	0.185	0.185	-0.2	-0.06	0.955	0.185	0.185	-0.2	-0.06	0.955	0.185	0.185	-0.2	-0.06	0.955				
	Matched	0.184	0.132	13.2	2.61	0.009	0.183	0.180	0.7	0.14	0.889	0.183	0.180	0.7	0.14	0.889				
Second	Unmatched	0.193	0.177	4.2	1.05	0.296	0.193	0.177	4.2	1.05	0.296	0.196	0.163	8.6	1.62	0.106				
	Matched	0.189	0.185	1.1	0.21	0.835	0.182	0.151	8.4	2.10	0.035	0.182	0.151	8.4	2.10	0.035				
Third	Unmatched	0.182	0.151	8.4	2.10	0.035	0.182	0.151	8.4	2.10	0.035	0.179	0.157	5.9	1.08	0.280				
	Matched	0.181	0.201	-5.5	-0.96	0.335	0.182	0.157	5.9	1.08	0.280	0.179	0.157	5.9	1.08	0.280				
Fourth or higher	Unmatched	0.441	0.487	-9.4	-2.28	0.022	0.441	0.487	-9.4	-2.28	0.022	0.441	0.487	-9.4	-2.28	0.022				
	Matched	0.446	0.482	-7.1	-1.30	0.193	0.442	0.500	-11.7	-24.6	0.031	0.442	0.500	-11.7	-24.6	0.031				
Wealth quintile																				
Poorest	Unmatched	0.056	0.222	-49.5	-10.31	0.000	0.056	0.222	-49.5	-10.31	0.000	0.056	0.222	-49.5	-10.31	0.000				
	Matched	0.057	0.065	-2.2	-0.57	0.571	0.057	0.057	0.0	100.0	1.000	0.057	0.057	0.0	100.0	1.000				
2nd quintile	Unmatched	0.072	0.220	-43.1	-9.20	0.000	0.072	0.220	-43.1	-9.20	0.000	0.072	0.220	-43.1	-9.20	0.000				
	Matched	0.073	0.084	-3.0	-0.70	0.481	0.073	0.073	0.0	100.0	1.000	0.073	0.073	0.0	100.0	1.000				
3rd quintile	Unmatched	0.080	0.200	-35.2	-7.65	0.000	0.080	0.200	-35.2	-7.65	0.000	0.080	0.200	-35.2	-7.65	0.000				
	Matched	0.082	0.079	0.9	0.20	0.842	0.081	0.076	1.7	95.2	0.40	0.081	0.076	1.7	95.2	0.40				
4th quintile	Unmatched	0.149	0.181	-8.6	-2.06	0.040	0.149	0.181	-8.6	-2.06	0.040	0.149	0.181	-8.6	-2.06	0.040				
	Matched	0.153	0.159	-1.6	-0.30	0.765	0.147	0.154	-2.0	77.3	0.706	0.147	0.154	-2.0	77.3	0.706				
Richest	Unmatched	0.644	0.176	108.0	28.81	0.000	0.644	0.176	108.0	28.81	0.000	0.644	0.176	108.0	28.81	0.000				
	Matched	0.634	0.614	4.7	0.78	0.434	0.642	0.641	0.3	99.7	0.06	0.642	0.641	0.3	99.7	0.06				
Residence																				
Rural	Unmatched	0.519	0.864	-80.3	-22.76	0.000	0.519	0.864	-80.3	-22.76	0.000	0.519	0.864	-80.3	-22.76	0.000				
	Matched	0.533	0.545	-2.7	-0.43	0.664	0.523	0.560	-8.5	89.5	0.176	0.523	0.560	-8.5	89.5	0.176				
Urban	Unmatched	0.481	0.136	80.3	22.76	0.000	0.481	0.136	80.3	22.76	0.000	0.481	0.136	80.3	22.76	0.000				
	Matched	0.467	0.455	2.7	0.43	0.664	0.477	0.440	8.5	89.5	0.176	0.477	0.440	8.5	89.5	0.176				
Region																				
Bujumbura	Unmatched	0.213	0.074	40.5	11.82	0.000	0.213	0.074	40.5	11.82	0.000	0.213	0.074	40.5	11.82	0.000				
	Matched	0.219	0.201	5.1	0.80	0.425	0.214	0.218	-1.3	96.9	0.844	0.214	0.218	-1.3	96.9	0.844				
North	Unmatched	0.202	0.243	-9.9	-2.37	0.018	0.202	0.243	-9.9	-2.37	0.018	0.202	0.243	-9.9	-2.37	0.018				
	Matched	0.206	0.160	11.0	2.18	0.030	0.205	0.132	17.5	-76.4	0.000	0.205	0.132	17.5	-76.4	0.000				
Center East	Unmatched	0.296	0.283	3.0	0.73	0.466	0.296	0.283	3.0	0.73	0.466	0.296	0.283	3.0	0.73	0.466				
	Matched	0.279	0.308	-6.5	-1.19	0.234	0.294	0.321	-6.1	-105.0	0.267	0.294	0.321	-6.1	-105.0	0.267				
West	Unmatched	0.083	0.192	-32.1	-7.04	0.000	0.083	0.192	-32.1	-7.04	0.000	0.083	0.192	-32.1	-7.04	0.000				
	Matched	0.085	0.082	0.9	0.20	0.845	0.084	0.090	-1.7	94.7	0.703	0.084	0.090	-1.7	94.7	0.703				
South	Unmatched	0.206	0.208	-0.6	-0.13	0.893	0.206	0.208	-0.6	-0.13	0.893	0.206	0.208	-0.6	-0.13	0.893				
	Matched	0.211	0.248	-9.1	-1.61	0.108	0.203	0.238	-8.6	-1461.6	0.955	0.203	0.238	-8.6	-1461.6	0.955				

¹ Not included in the estimation of the propensity score for the sub-sample

² Mass media exposure is defined as read newspaper, listen to radio, or watch TV at least once a week

Appendix Table L. Mean biases of covariates before and after matching, Cambodia

Variable	Sample	Full sample						Sub-sample					
		Mean			% bias reduction	t-statistic	p-value	Mean			% bias reduction	t-statistic	p-value
		Insured	Uninsured	% bias				Insured	Uninsured	% bias			
Maternal age at birth	Unmatched	27.636	26.938	10.8	3.29	0.001	27.636	26.938	10.8	3.29	0.001		
	<i>Matched</i>	27.627	27.498	2.0	0.45	0.656	27.105	27.006	1.5	0.32	0.747		
Maternal age at birth squared	Unmatched	809.390	763.760	11.9	3.67	0.000	809.390	763.760	11.9	3.67	0.000		
	<i>Matched</i>	808.990	800.340	2.3	0.50	0.618	776.650	769.550	1.9	0.39	0.695		
Education													
No education	Unmatched	0.331	0.174	36.9	11.78	0.000	0.331	0.174	36.9	11.78	0.000		
	<i>Matched</i>	0.330	0.323	1.7	0.35	0.723	0.274	0.266	1.9	0.37	0.709		
Primary education	Unmatched	0.573	0.512	12.2	3.61	0.000	0.573	0.512	12.2	3.61	0.000		
	<i>Matched</i>	0.574	0.584	-2.0	-0.47	0.642	0.611	0.623	-2.4	-0.51	0.609		
Secondary or higher	Unmatched	0.096	0.314	-56.2	-14.74	0.000	0.096	0.314	-56.2	-14.74	0.000		
	<i>Matched</i>	0.096	0.093	0.7	0.22	0.829	0.114	0.110	1.0	0.26	0.792		
Marital status¹													
Never married	Unmatched	0.001	0.000	3.1	1.20	0.231							
	<i>Matched</i>	0.000	0.001	-2.9	-0.86	0.389							
Currently married	Unmatched	0.949	0.952	-1.4	-0.41	0.684							
	<i>Matched</i>	0.950	0.952	-0.7	-0.15	0.878							
Formerly married	Unmatched	0.050	0.048	1.0	0.31	0.759							
	<i>Matched</i>	0.050	0.048	1.0	0.23	0.820							
Birth order													
1	Unmatched	0.226	0.315	-20.0	-5.72	0.000	0.226	0.315	-20.0	-5.72	0.000		
	<i>Matched</i>	0.227	0.233	-1.3	-0.33	0.744	0.259	0.263	-0.7	-0.15	0.884		
2	Unmatched	0.269	0.281	-2.8	-0.83	0.408	0.269	0.281	-2.8	-0.83	0.408		
	<i>Matched</i>	0.269	0.268	0.3	0.08	0.939	0.279	0.280	-0.2	-0.04	0.970		
3	Unmatched	0.177	0.178	0.0	0.00	0.997	0.177	0.178	0.0	0.00	0.997		
	<i>Matched</i>	0.178	0.183	-1.2	-0.28	0.778	0.174	0.179	-1.5	-0.31	0.758		
4 or higher	Unmatched	0.328	0.227	22.7	6.97	0.000	0.328	0.227	22.7	6.97	0.000		
	<i>Matched</i>	0.326	0.317	2.1	0.45	0.650	0.288	0.278	2.1	0.44	0.659		
Employment status													
Not currently employed	Unmatched	0.294	0.308	-3.1	-0.91	0.362	0.294	0.308	-3.1	-0.91	0.362		
	<i>Matched</i>	0.294	0.302	-1.9	-0.44	0.661	0.306	0.312	-1.3	-0.26	0.792		
Currently employed	Unmatched	0.706	0.692	3.1	0.91	0.362	0.706	0.692	3.1	0.91	0.362		
	<i>Matched</i>	0.706	0.698	1.9	0.44	0.661	0.694	0.688	1.3	0.26	0.792		
Education of head of the household													
No education	Unmatched	0.274	0.171	25.0	7.83	0.000	0.274	0.171	25.0	7.83	0.000		
	<i>Matched</i>	0.273	0.269	0.9	0.20	0.840	0.262	0.257	1.2	0.23	0.818		
Primary education	Unmatched	0.550	0.474	15.3	4.52	0.000	0.550	0.474	15.3	4.52	0.000		
	<i>Matched</i>	0.551	0.556	-1.0	-0.23	0.820	0.543	0.543	-1.7	-0.35	0.725		
Secondary or higher	Unmatched	0.176	0.355	-41.5	-11.47	0.000	0.176	0.355	-41.5	-11.47	0.000		
	<i>Matched</i>	0.176	0.175	0.2	0.06	0.952	0.195	0.192	0.8	0.19	0.850		

(Continued...)

Appendix Table L. – Continued

Variable	Sample	Full sample						Sub-sample								
		Mean			t-statistic	P-value	% bias reduction	Mean			t-statistic	P-value				
		Insured	Uninsured	% bias				Insured	Uninsured	% bias						
Mass media exposure²																
Not exposed to media	Unmatched	0.522	0.364	32.2	9.64	0.000	0.522	0.364	32.2	9.64	0.000	0.522	0.364	32.2	9.64	0.000
	Matched	0.523	0.525	-0.4	-0.10	0.919	0.499	0.501	0.3	99.2	-0.05	0.957	0.499	0.501	0.3	99.2
Exposed to media at least once a week	Unmatched	0.478	0.636	-32.2	-9.64	0.000	0.478	0.636	-32.2	-9.64	0.000	0.478	0.636	-32.2	-9.64	0.000
	Matched	0.477	0.475	0.4	0.10	0.919	0.501	0.499	0.3	99.2	0.05	0.957	0.501	0.499	0.3	99.2
Wealth tercile																
First	Unmatched	0.571	0.307	55.1	16.71	0.000	0.571	0.307	55.1	16.71	0.000	0.571	0.307	55.1	16.71	0.000
	Matched	0.570	0.578	-1.6	-0.35	0.725	0.539	0.543	-0.8	98.5	-0.17	0.868	0.539	0.543	-0.8	98.5
Second	Unmatched	0.292	0.281	2.3	0.69	0.489	0.292	0.281	2.3	0.69	0.489	0.292	0.281	2.3	0.69	0.489
	Matched	0.293	0.291	0.3	0.07	0.941	0.305	0.308	-0.7	72.1	-0.13	0.894	0.305	0.308	-0.7	72.1
Third	Unmatched	0.137	0.411	-64.6	-17.31	0.000	0.137	0.411	-64.6	-17.31	0.000	0.137	0.411	-64.6	-17.31	0.000
	Matched	0.137	0.131	1.4	0.41	0.680	0.155	0.149	1.6	97.5	0.40	0.688	0.155	0.149	1.6	97.5
Residence																
Rural	Unmatched	0.842	0.698	34.7	9.60	0.000	0.842	0.698	34.7	9.60	0.000	0.842	0.698	34.7	9.60	0.000
	Matched	0.842	0.848	-1.5	-0.39	0.693	0.831	0.836	-1.3	96.2	-0.31	0.756	0.831	0.836	-1.3	96.2
Urban	Unmatched	0.158	0.302	-34.7	-9.60	0.000	0.158	0.302	-34.7	-9.60	0.000	0.158	0.302	-34.7	-9.60	0.000
	Matched	0.158	0.152	1.5	0.39	0.693	0.169	0.164	1.3	96.2	0.31	0.756	0.169	0.164	1.3	96.2
Provinces³																
Northwestern provinces	Unmatched	0.298	0.247	11.4	3.45	0.001	0.298	0.247	11.4	3.45	0.001	0.298	0.247	11.4	3.45	0.001
	Matched	0.296	0.299	-0.7	-0.16	0.873	0.243	0.246	-0.5	95.3	-0.12	0.907	0.243	0.246	-0.5	95.3
Southern provinces	Unmatched	0.232	0.260	-6.6	-1.93	0.054	0.232	0.260	-6.6	-1.93	0.054	0.232	0.260	-6.6	-1.93	0.054
	Matched	0.232	0.236	-0.8	-0.19	0.846	0.240	0.242	-0.5	93.1	-0.10	0.923	0.240	0.242	-0.5	93.1
Southwestern provinces	Unmatched	0.385	0.252	28.9	8.88	0.000	0.385	0.252	28.9	8.88	0.000	0.385	0.252	28.9	8.88	0.000
	Matched	0.386	0.380	1.3	0.29	0.769	0.422	0.416	1.3	95.6	0.25	0.805	0.422	0.416	1.3	95.6
Siem Reap, Takeo, and Kandal	Unmatched	0.080	0.172	-28.1	-7.57	0.000	0.080	0.172	-28.1	-7.57	0.000	0.080	0.172	-28.1	-7.57	0.000
	Matched	0.080	0.076	1.1	0.30	0.765	0.088	0.085	0.9	96.9	0.21	0.830	0.088	0.085	0.9	96.9
Phnom Penh	Unmatched	0.006	0.069	-33.9	-8.08	0.000	0.006	0.069	-33.9	-8.08	0.000	0.006	0.069	-33.9	-8.08	0.000
	Matched	0.006	0.009	-1.6	-0.81	0.420	0.007	0.011	-2.3	93.2	-0.96	0.338	0.007	0.011	-2.3	93.2

¹ Not included in the estimation of the propensity score for the sub-sample

² Mass media exposure is defined as read newspaper, listen to radio, or watch TV at least once a week

³ Northwestern provinces include Kampong Thom, Kratie, Preah Vihear & Steung Treng, Mondul Kiri/Rattanak Kiri

Southern provinces include Kampong Chhnang, Svay Rieng, Kampong Speu, Pursat, and Kampot/Keap

Southwestern provinces include Kampong Chhnang, Preah Sihanouk/Daoh Kong, Battambang/Pailin, Banteay Mean Chey, and Otdar Mean Chey

Appendix Table M. Mean biases of covariates before and after matching, Gabon

Variable	Sample	Full sample						Sub-sample					
		Mean			% bias reduction	t-statistic	p> t	Mean			% bias reduction	t-statistic	p> t
		Insured	Uninsured	% bias				Insured	Uninsured	% bias			
Maternal age at most recent birth (continuous)	Unmatched	27.618	24.831	38.1	11.75	0.000	0.000	27.618	24.831	38.1	11.75	0.000	
	Matched	27.598	27.883	-3.9	-1.25	0.212	0.648	27.358	27.251	1.5	96.1	0.46	
Maternal age at most recent birth squared	Unmatched	820.640	665.800	37.4	11.51	0.000	0.000	820.640	665.800	37.4	11.51	0.000	
	Matched	819.310	836.860	-4.2	-1.32	0.186	0.563	805.920	798.090	1.9	94.9	0.58	
Marital status¹													
Never married	Unmatched	0.195	0.237	-10.1	-3.16	0.002							
	Matched	0.196	0.189	1.6	0.55	0.585							
Currently married	Unmatched	0.712	0.675	8.0	2.48	0.013							
	Matched	0.712	0.721	-2.0	-0.69	0.491							
Formerly married	Unmatched	0.093	0.088	1.7	0.53	0.597							
	Matched	0.093	0.090	1.0	0.33	0.741							
Education													
None	Unmatched	0.030	0.081	-22.3	-7.16	0.000		0.030	0.081	-22.3	-7.16	0.000	
	Matched	0.030	0.026	2.0	0.93	0.351		0.022	0.020	0.8	96.4	0.41	
Primary	Unmatched	0.439	0.298	29.6	9.14	0.000		0.439	0.298	29.6	9.14	0.000	
	Matched	0.439	0.422	3.5	1.13	0.257		0.409	0.387	4.8	83.8	1.49	
Secondary or higher	Unmatched	0.530	0.621	-18.4	-5.69	0.000		0.530	0.621	-18.4	-5.69	0.000	
	Matched	0.531	0.553	-4.3	-1.44	0.151		0.569	0.593	-5.0	72.6	-1.60	
Employment status¹													
Not currently employed	Unmatched	0.542	0.627	-17.4	-5.38	0.000							
	Matched	0.543	0.553	-2.0	-0.66	0.512							
Currently employed	Unmatched	0.458	0.373	17.4	5.38	0.000							
	Matched	0.457	0.447	2.0	0.66	0.512							
Mass media exposure													
No access to any media	Unmatched	0.234	0.133	26.4	8.08	0.000		0.234	0.133	26.4	8.08	0.000	
	Matched	0.233	0.234	-0.2	-0.05	0.958		0.193	0.187	1.6	94.0	0.49	
Exposure to media at least once a week	Unmatched	0.766	0.867	-26.4	-8.08	0.000		0.766	0.867	-26.4	-8.08	0.000	
	Matched	0.767	0.766	0.2	0.05	0.958		0.807	0.813	-1.6	94.0	-0.49	
Education of household head													
None	Unmatched	0.102	0.108	-1.9	-0.60	0.549		0.102	0.108	-1.9	-0.60	0.549	
	Matched	0.102	0.100	0.7	0.25	0.800		0.094	0.094	0.2	91.0	0.06	
Primary	Unmatched	0.368	0.290	16.6	5.14	0.000		0.368	0.290	16.6	5.14	0.000	
	Matched	0.367	0.337	6.3	2.08	0.037		0.344	0.325	4.1	75.5	1.29	
Secondary or higher	Unmatched	0.530	0.602	-14.6	-4.52	0.000		0.530	0.602	-14.6	-4.52	0.000	
	Matched	0.531	0.563	-6.5	-2.15	0.032		0.562	0.581	-4.0	72.8	-1.27	

(Continued...)

Appendix Table M. – Continued

Variable	Full sample										Sub-sample					
	Sample	Mean		% bias reduction	t-statistic	p> t	Mean		% bias reduction	t-statistic	p> t					
		Insured	Uninsured				Insured	Uninsured								
Birth order																
Eldst	Unmatched	0.181	0.315	-31.4	-9.88	0.000	0.181	0.315	-31.4	-9.88	0.000	0.181	0.315	-31.4	-9.88	0.000
	Matched	0.181	0.185	-1.0	-0.37	0.709	0.192	0.200	-1.8	-0.61	0.542	0.192	0.200	-1.8	-0.61	0.542
Second	Unmatched	0.179	0.227	-12.1	-3.78	0.000	0.179	0.227	-12.1	-3.78	0.000	0.179	0.227	-12.1	-3.78	0.000
	Matched	0.179	0.164	3.7	1.32	0.188	0.189	0.178	2.7	0.91	0.365	0.189	0.178	2.7	0.91	0.365
Third	Unmatched	0.153	0.155	-0.7	-0.22	0.825	0.153	0.155	-0.7	-0.22	0.825	0.153	0.155	-0.7	-0.22	0.825
	Matched	0.153	0.157	-1.2	-0.41	0.683	0.155	0.160	-1.4	-0.45	0.653	0.155	0.160	-1.4	-0.45	0.653
Fourth or higher	Unmatched	0.488	0.303	38.5	11.89	0.000	0.488	0.303	38.5	11.89	0.000	0.488	0.303	38.5	11.89	0.000
	Matched	0.487	0.493	-1.3	-0.41	0.684	0.463	0.462	0.4	0.11	0.911	0.463	0.462	0.4	0.11	0.911
Wealth quintiles																
Poorest	Unmatched	0.530	0.324	42.5	13.13	0.000	0.530	0.324	42.5	13.13	0.000	0.530	0.324	42.5	13.13	0.000
	Matched	0.529	0.508	4.3	1.40	0.162	0.488	0.459	5.9	1.84	0.066	0.488	0.459	5.9	1.84	0.066
2nd quintile	Unmatched	0.206	0.238	-7.6	-2.36	0.018	0.206	0.238	-7.6	-2.36	0.018	0.206	0.238	-7.6	-2.36	0.018
	Matched	0.206	0.203	0.8	0.27	0.790	0.224	0.224	-0.1	-0.03	0.977	0.224	0.224	-0.1	-0.03	0.977
3rd quintile	Unmatched	0.113	0.185	-20.6	-6.48	0.000	0.113	0.185	-20.6	-6.48	0.000	0.113	0.185	-20.6	-6.48	0.000
	Matched	0.113	0.120	-1.9	-0.71	0.478	0.122	0.129	-1.9	-0.64	0.523	0.122	0.129	-1.9	-0.64	0.523
4th quintile	Unmatched	0.076	0.150	-23.6	-7.49	0.000	0.076	0.150	-23.6	-7.49	0.000	0.076	0.150	-23.6	-7.49	0.000
	Matched	0.076	0.076	-0.2	-0.06	0.950	0.083	0.086	-0.8	-0.29	0.771	0.083	0.086	-0.8	-0.29	0.771
Richest	Unmatched	0.076	0.103	-9.5	-2.96	0.003	0.076	0.103	-9.5	-2.96	0.003	0.076	0.103	-9.5	-2.96	0.003
	Matched	0.076	0.093	-5.9	-2.02	0.043	0.083	0.102	-6.7	-2.12	0.034	0.083	0.102	-6.7	-2.12	0.034
Residence																
Rural	Unmatched	0.420	0.293	26.8	8.29	0.000	0.420	0.293	26.8	8.29	0.000	0.420	0.293	26.8	8.29	0.000
	Matched	0.419	0.405	3.0	0.96	0.339	0.379	0.360	4.0	1.26	0.207	0.379	0.360	4.0	1.26	0.207
Urban	Unmatched	0.580	0.707	-26.8	-8.29	0.000	0.580	0.707	-26.8	-8.29	0.000	0.580	0.707	-26.8	-8.29	0.000
	Matched	0.581	0.595	-3.0	-0.96	0.339	0.621	0.640	-4.0	-1.26	0.207	0.621	0.640	-4.0	-1.26	0.207
Region																
Libreville-Port-Gentil	Unmatched	0.079	0.242	-45.4	-14.54	0.000	0.079	0.242	-45.4	-14.54	0.000	0.079	0.242	-45.4	-14.54	0.000
	Matched	0.079	0.084	-1.3	-0.57	0.569	0.086	0.092	-1.6	-0.63	0.531	0.086	0.092	-1.6	-0.63	0.531
Estuaire	Unmatched	0.065	0.111	-16.2	-5.13	0.000	0.065	0.111	-16.2	-5.13	0.000	0.065	0.111	-16.2	-5.13	0.000
	Matched	0.066	0.063	1.0	0.37	0.710	0.070	0.068	0.7	0.26	0.797	0.070	0.068	0.7	0.26	0.797
Haut-Ogooué	Unmatched	0.140	0.073	21.9	6.68	0.000	0.140	0.073	21.9	6.68	0.000	0.140	0.073	21.9	6.68	0.000
	Matched	0.140	0.137	1.2	0.35	0.730	0.151	0.150	0.3	0.08	0.938	0.151	0.150	0.3	0.08	0.938
Moyen-Ogooué	Unmatched	0.081	0.064	6.4	1.97	0.049	0.081	0.064	6.4	1.97	0.049	0.081	0.064	6.4	1.97	0.049
	Matched	0.081	0.088	-2.9	-0.89	0.373	0.085	0.087	-0.9	-0.28	0.782	0.085	0.087	-0.9	-0.28	0.782
Ngounié	Unmatched	0.146	0.082	20.2	6.16	0.000	0.146	0.082	20.2	6.16	0.000	0.146	0.082	20.2	6.16	0.000
	Matched	0.146	0.144	0.6	0.18	0.857	0.144	0.147	-1.0	-0.28	0.779	0.144	0.147	-1.0	-0.28	0.779
Nyanga	Unmatched	0.079	0.092	-4.7	-1.47	0.142	0.079	0.092	-4.7	-1.47	0.142	0.079	0.092	-4.7	-1.47	0.142
	Matched	0.079	0.079	0.2	0.08	0.935	0.078	0.077	0.2	0.07	0.947	0.078	0.077	0.2	0.07	0.947
Ogooué Maritime	Unmatched	0.051	0.089	-14.8	-4.68	0.000	0.051	0.089	-14.8	-4.68	0.000	0.051	0.089	-14.8	-4.68	0.000
	Matched	0.051	0.053	-0.7	-0.26	0.792	0.054	0.056	-0.7	-0.24	0.808	0.054	0.056	-0.7	-0.24	0.808

(Continued...)

Appendix Table M. – Continued

Variable	Sample	Full sample						Sub-sample					
		Mean			% bias reduction	t-statistic	p> t	Mean			% bias reduction	t-statistic	p> t
		Insured	Uninsured	% bias				Insured	Uninsured	% bias			
Ogooué-Ivindo	Unmatched	0.197	0.079	34.7	10.51	0.000	0.197	0.079	34.7	10.51	0.000		
	Matched ¹	0.196	0.189	1.8	0.52	0.601	0.168	0.156	3.6	1.05	0.294		
Ogooué-Lolo	Unmatched	0.110	0.067	15.3	4.68	0.000	0.110	0.067	15.3	4.68	0.000		
	Matched ¹	0.111	0.109	0.6	0.18	0.856	0.114	0.114	-0.1	-0.03	0.972		
Woleu-Ntem	Unmatched	0.052	0.101	-18.8	-5.96	0.000	0.052	0.101	-18.8	-5.96	0.000		
	Matched ¹	0.052	0.055	-1.1	-0.43	0.667	0.050	0.053	-0.9	-0.35	0.730		

¹ Not included in the estimation of the propensity score for the sub-sample

² Mass media exposure is defined as read newspaper, listen to radio, or watch TV at least once a week

Appendix Table N. Mean biases of covariates before and after matching, Ghana

Variable	Sample	Full sample						Sub-sample					
		Mean			% bias reduction	t-statistic	p-value	Mean			% bias reduction	t-statistic	p-value
		Insured	Uninsured	% bias				Insured	Uninsured	% bias			
Maternal age at birth	Unmatched	28.386	27.715	9.9	2.09	0.037	28.386	27.715	9.9	2.09	0.037		
	Matched	28.380	28.293	1.3	0.26	0.793	28.394	28.278	1.7	0.34	0.730		
Maternal age at birth squared	Unmatched	846.760	819.430	6.8	1.44	0.149	846.760	819.430	6.8	1.44	0.149		
	Matched	846.720	840.050	1.7	0.34	0.730	847.810	839.860	2	0.4	0.686		
Education													
No education	Unmatched	0.260	0.373	-24.4	-5.16	0.000	0.260	0.373	-24.4	-5.16	0.000		
	Matched	0.264	0.249	3.2	0.65	0.513	0.268	0.248	4.3	0.87	0.385		
Primary education	Unmatched	0.180	0.281	-24.1	-5.07	0.000	0.180	0.281	-24.1	-5.07	0.000		
	Matched	0.183	0.182	0.2	0.04	0.967	0.181	0.187	-1.3	-0.27	0.785		
Secondary or higher	Unmatched	0.559	0.346	43.8	9.41	0.000	0.559	0.346	43.8	9.41	0.000		
	Matched	0.553	0.569	-3.2	-0.61	0.544	0.551	0.566	-3	-0.55	0.581		
Marital status													
Never married	Unmatched	0.038	0.071	-14.8	-3.07	0.002	0.038	0.071	-14.8	-3.07	0.002		
	Matched	0.039	0.036	1.5	0.34	0.737	0.039	0.036	1.1	0.25	0.806		
Currently married	Unmatched	0.906	0.865	12.8	2.70	0.007	0.906	0.865	12.8	2.7	0.007		
	Matched	0.907	0.906	0.2	0.05	0.959	0.906	0.903	0.9	0.19	0.851		
Formerly married	Unmatched	0.056	0.063	-3.0	-0.65	0.517	0.056	0.063	-3	-0.65	0.517		
	Matched	0.054	0.058	-1.7	-0.34	0.732	0.055	0.061	-2.3	-0.43	0.664		
Birth order													
1	Unmatched	0.256	0.201	13.2	2.85	0.004	0.256	0.201	13.2	2.85	0.004		
	Matched	0.249	0.249	0	0.01	0.994	0.251	0.258	-1.5	-0.27	0.784		
2	Unmatched	0.216	0.206	2.3	0.50	0.618	0.216	0.206	2.3	0.5	0.618		
	Matched	0.215	0.225	-2.3	-0.44	0.657	0.210	0.216	-1.4	-0.27	0.786		
3	Unmatched	0.157	0.172	-4.0	-0.86	0.391	0.157	0.172	-4	-0.86	0.391		
	Matched	0.159	0.154	1.3	0.26	0.797	0.157	0.159	-0.5	-0.1	0.921		
4 or higher	Unmatched	0.371	0.421	-10.2	-2.18	0.030	0.371	0.421	-10.2	-2.18	0.030		
	Matched	0.377	0.372	0.9	0.18	0.857	0.381	0.367	2.9	0.55	0.581		
Employment status¹													
Not currently employed	Unmatched	0.132	0.137	-1.6	-0.34	0.735	0.132	0.137	-1.6	-0.34	0.735		
	Matched	0.132	0.142	-2.8	-0.54	0.590	0.132	0.142	-2.8	-0.54	0.590		
Currently employed	Unmatched	0.868	0.863	1.6	0.34	0.735	0.868	0.863	1.6	0.34	0.735		
	Matched	0.868	0.858	2.8	0.54	0.590	0.868	0.858	2.8	0.54	0.590		

(Continued...)

Appendix Table N. – Continued

Variable	Sample	Full sample						Sub-sample					
		Mean			% bias reduction	t-statistic	P-value	Mean			% bias reduction	t-statistic	P-value
		Insured	Uninsured	% bias reduction				Insured	Uninsured	% bias reduction			
Education of head of the household													
No education	Unmatched	0.229	0.374	-31.9	-6.74	0.000	0.229	0.374	-31.9	-6.74	0.000		
	Matched	0.230	0.218	2.6	0.54	0.589	0.232	0.217	3.2	89.9	0.67		
Primary education	Unmatched	0.109	0.182	-21.1	-4.41	0.000	0.109	0.182	-21.1	-4.41	0.000		
	Matched	0.110	0.104	1.8	0.38	0.702	0.112	0.108	1.1	94.7	0.24		
Secondary or higher	Unmatched	0.663	0.444	45.1	9.59	0.000	0.663	0.444	45.1	9.59	0.000		
	Matched	0.659	0.677	-3.7	-0.73	0.465	0.656	0.675	-3.8	91.5	-0.75		
Mass media exposure													
Not exposed to media	Unmatched	0.157	0.253	-23.9	-5.03	0.000	0.157	0.253	-23.9	-5.03	0.000		
	Matched	0.843	0.160	2.1	0.45	0.653	0.156	0.150	1.5	93.7	0.32		
Exposed to media	Unmatched	0.840	0.747	23.9	5.03	0.000	0.843	0.747	23.9	5.03	0.000		
	Matched	0.840	0.848	-2.1	-0.45	0.653	0.844	0.850	-1.5	93.7	-0.32		
Wealth quintile													
First	Unmatched	0.150	0.321	-41	-8.54	0.000	0.150	0.321	-41	-8.54	0.000		
	Matched	0.153	0.152	0.4	0.1	0.924	0.156	0.151	1.3	96.9	0.28		
Second	Unmatched	0.212	0.242	-7.3	-1.55	0.121	0.212	0.242	-7.3	-1.55	0.121		
	Matched	0.218	0.228	-2.3	-0.45	0.656	0.214	0.225	-2.5	65	-0.49		
Middle	Unmatched	0.190	0.188	0.5	0.10	0.918	0.190	0.188	0.5	0.1	0.918		
	Matched	0.192	0.201	-2.2	-0.42	0.675	0.196	0.210	-3.6	-651.9	-0.67		
Fourth	Unmatched	0.254	0.154	24.9	5.41	0.000	0.254	0.154	24.9	5.41	0.000		
	Matched	0.253	0.238	3.8	0.67	0.500	0.253	0.235	4.5	82	0.79		
Highest	Unmatched	0.195	0.095	28.6	6.29	0.000	0.195	0.095	28.6	6.29	0.000		
	Matched	0.183	0.182	0.4	0.07	0.942	0.181	0.179	0.4	98.5	0.08		
Residence													
Rural	Unmatched	0.539	0.539	-28.7	-6.18	0.000	0.539	0.678	-28.7	-6.18	0.000		
	Matched	0.548	0.548	-2.2	-0.41	0.682	0.546	0.560	-3.1	89.4	-0.57		
Urban	Unmatched	0.461	0.322	28.7	6.18	0.000	0.461	0.322	28.7	6.18	0.000		
	Matched	0.452	0.442	2.2	0.41	0.682	0.454	0.440	3.1	89.4	0.57		

(Continued...)

Appendix Table N. – Continued

Variable	Region	Full sample						Sub-sample					
		Sample	Mean		% bias reduction	t-statistic	p-value	Sample	Mean		% bias reduction	t-statistic	p-value
			Insured	Uninsured					Insured	Uninsured			
Western	Unmatched	0.094	0.099	-1.5	-0.33	0.742	0.094	0.099	-1.5	-0.33	0.742		
	Matched	0.096	0.088	2.7	0.53	0.596	0.094	0.090	1.2	0.23	0.814		
Central	Unmatched	0.044	0.106	-23.4	-4.83	0.000	0.044	0.106	-23.4	-4.83	0.000		
	Matched	0.046	0.046	-0.2	-0.05	0.961	0.047	0.049	-0.9	-0.21	0.833		
Greater Accra	Unmatched	0.077	0.127	-16.5	-3.45	0.001	0.077	0.127	-16.5	-3.45	0.001		
	Matched	0.077	0.075	0.4	0.10	0.923	0.079	0.075	1.1	0.23	0.815		
Volta	Unmatched	0.077	0.101	-8.5	-1.79	0.073	0.077	0.101	-8.5	-1.79	0.073		
	Matched	0.079	0.084	-1.7	-0.33	0.741	0.080	0.085	-1.8	-0.36	0.718		
Eastern	Unmatched	0.123	0.070	17.8	3.90	0.000	0.123	0.070	17.8	3.9	0.000		
	Matched	0.124	0.127	-1.1	-0.19	0.851	0.124	0.122	0.8	0.13	0.896		
Ashanti	Unmatched	0.183	0.153	7.9	1.71	0.087	0.183	0.153	7.9	1.71	0.087		
	Matched	0.187	0.201	-3.8	-0.69	0.492	0.189	0.202	-3.3	-0.59	0.552		
Brong Ahafo	Unmatched	0.153	0.076	24.4	5.38	0.000	0.153	0.076	24.4	5.38	0.000		
	Matched	0.145	0.146	-0.2	-0.04	0.970	0.141	0.144	-1.1	-0.19	0.851		
Northern	Unmatched	0.119	0.177	-16.4	-3.46	0.001	0.119	0.177	-16.4	-3.46	0.001		
	Matched	0.121	0.120	0.4	0.09	0.930	0.120	0.117	0.9	0.19	0.848		
Upper West	Unmatched	0.129	0.091	12.4	2.69	0.007	0.129	0.091	12.4	2.69	0.007		
	Matched	0.125	0.113	4.0	0.75	0.455	0.126	0.115	3.5	0.65	0.517		

¹ Not included in the estimation of the propensity score for the sub-sample

Appendix Table O. Mean biases of covariates before and after matching, Indonesia

Variable	Sample	Full sample						Sub-sample								
		Mean			% bias reduction	t-statistic	p> t	Mean			% bias reduction	t-statistic	p> t			
		Insured	Uninsured	% bias				Insured	Uninsured	% bias						
Maternal age at most recent birth																
15-19 years	Unmatched	0.028	0.041	-7.0	-4.10	0.000	0.028	0.041	-7.0	-4.10	0.000	0.028	0.041	-7.0	-4.10	0.000
	Matched	0.028	0.029	-0.3	-0.19	0.853	0.027	0.028	-0.4	-0.24	0.813	0.027	0.028	-0.4	-0.24	0.813
20-24 years	Unmatched	0.157	0.217	-15.6	-9.22	0.000	0.157	0.217	-15.6	-9.22	0.000	0.157	0.217	-15.6	-9.22	0.000
	Matched	0.157	0.161	-1.1	-0.66	0.510	0.156	0.160	-1.0	-0.60	0.549	0.156	0.160	-1.0	-0.60	0.549
25-29 years	Unmatched	0.266	0.283	-3.8	-2.27	0.023	0.266	0.283	-3.8	-2.27	0.023	0.266	0.283	-3.8	-2.27	0.023
	Matched	0.267	0.267	-0.2	-0.08	0.933	0.268	0.267	0.0	0.02	0.984	0.268	0.267	0.0	0.02	0.984
30-34 years	Unmatched	0.261	0.228	7.6	4.55	0.000	0.261	0.228	7.6	4.55	0.000	0.261	0.228	7.6	4.55	0.000
	Matched	0.261	0.258	0.5	0.28	0.783	0.261	0.258	0.7	0.36	0.717	0.261	0.258	0.7	0.36	0.717
35-39 years	Unmatched	0.192	0.150	11.1	6.71	0.000	0.192	0.150	11.1	6.71	0.000	0.192	0.150	11.1	6.71	0.000
	Matched	0.191	0.186	1.3	0.69	0.488	0.192	0.188	1.1	0.56	0.579	0.192	0.188	1.1	0.56	0.579
40-44 years	Unmatched	0.082	0.066	5.9	3.57	0.000	0.082	0.066	5.9	3.57	0.000	0.082	0.066	5.9	3.57	0.000
	Matched	0.082	0.083	-0.5	-0.24	0.810	0.081	0.083	-0.8	-0.40	0.689	0.081	0.083	-0.8	-0.40	0.689
45-49 years	Unmatched	0.015	0.015	0.4	0.26	0.795	0.015	0.015	0.4	0.26	0.795	0.015	0.015	0.4	0.26	0.795
	Matched	0.015	0.015	-0.3	-0.14	0.888	0.014	0.015	-0.3	-0.15	0.878	0.014	0.015	-0.3	-0.15	0.878
Marital status																
Never married	Unmatched	0.001	0.001	-1.8	-1.06	0.287	0.001	0.001	-1.8	-1.06	0.287	0.001	0.001	-1.8	-1.06	0.287
	Matched	0.001	0.001	-0.2	-0.16	0.874	0.001	0.001	0.0	0.00	0.999	0.001	0.001	0.0	0.00	0.999
Currently married	Unmatched	0.974	0.971	1.7	1.03	0.301	0.974	0.971	1.7	1.03	0.301	0.974	0.971	1.7	1.03	0.301
	Matched	0.974	0.973	0.5	0.25	0.801	0.974	0.974	0.2	0.10	0.923	0.974	0.974	0.2	0.10	0.923
Formerly married	Unmatched	0.026	0.028	-1.4	-0.86	0.387	0.026	0.028	-1.4	-0.86	0.387	0.026	0.028	-1.4	-0.86	0.387
	Matched	0.026	0.027	-0.4	-0.23	0.817	0.025	0.026	-0.2	-0.10	0.922	0.025	0.026	-0.2	-0.10	0.922
Education																
None	Unmatched	0.018	0.031	-9.0	-5.23	0.000	0.018	0.031	-9.0	-5.23	0.000	0.018	0.031	-9.0	-5.23	0.000
	Matched	0.018	0.019	-0.6	-0.40	0.687	0.015	0.015	0.0	0.01	0.989	0.015	0.015	0.0	0.01	0.989
Primary	Unmatched	0.261	0.338	-16.9	-10.04	0.000	0.261	0.338	-16.9	-10.04	0.000	0.261	0.338	-16.9	-10.04	0.000
	Matched	0.261	0.265	-0.8	-0.47	0.640	0.256	0.259	-0.7	-0.38	0.706	0.256	0.259	-0.7	-0.38	0.706
Secondary or higher	Unmatched	0.722	0.631	19.5	11.60	0.000	0.722	0.631	19.5	11.60	0.000	0.722	0.631	19.5	11.60	0.000
	Matched	0.721	0.717	1.0	0.58	0.563	0.730	0.727	0.6	0.37	0.713	0.730	0.727	0.6	0.37	0.713
Employment status																
Not currently employed	Unmatched	0.462	0.539	-15.6	-9.33	0.000	0.462	0.539	-15.6	-9.33	0.000	0.462	0.539	-15.6	-9.33	0.000
	Matched	0.462	0.469	-1.4	-0.77	0.443	0.462	0.467	-1.0	-0.53	0.598	0.462	0.467	-1.0	-0.53	0.598
Currently employed	Unmatched	0.538	0.461	15.6	9.33	0.000	0.538	0.461	15.6	9.33	0.000	0.538	0.461	15.6	9.33	0.000
	Matched	0.538	0.531	1.4	0.77	0.443	0.538	0.533	1.0	0.53	0.598	0.538	0.533	1.0	0.53	0.598

(Continued...)

Appendix Table O. – Continued

Variable	Full sample							Sub-sample				
	Sample	Mean		% bias reduction	t-statistic	p> t	% bias reduction	Mean		% bias reduction	t-statistic	p> t
		Insured	Uninsured					Insured	Uninsured			
Mass media exposure¹												
No access to any media	Unmatched	0.138	0.157	-5.3	-3.18	0.001	98.0	0.138	0.157	-5.3	-3.18	0.001
	Matched	0.138	0.139	-0.1	-0.06	0.952	98.0	0.134	0.134	-0.1	-0.04	0.967
Exposure to media at least once a week	Unmatched	0.862	0.843	5.3	3.18	0.001	98.0	0.862	0.843	5.3	3.18	0.001
	Matched	0.862	0.861	0.1	0.06	0.952	98.0	0.866	0.866	0.1	0.04	0.967
Education of household head												
No education	Unmatched	0.034	0.058	-11.7	-6.83	0.000	90.5	0.034	0.058	-11.7	-6.83	0.000
	Matched	0.034	0.036	-1.1	-0.69	0.488	90.5	0.032	0.034	-0.8	-0.49	0.621
Primary education or higher	Unmatched	0.966	0.942	11.7	6.83	0.000	90.5	0.966	0.942	11.7	6.83	0.000
	Matched	0.966	0.964	1.1	0.69	0.488	90.5	0.968	0.966	0.8	0.49	0.621
Birth order²												
Eldest	Unmatched	0.317	0.368	-10.6	-6.35	0.000	86.5	0.317	0.368	-10.6	-6.35	0.000
	Matched	0.317	0.319	-0.3	-0.18	0.855	86.5	0.320	0.321	-0.3	-0.18	0.858
Second	Unmatched	0.310	0.299	2.3	1.41	0.160	76.1	0.683	0.632	10.6	6.35	0.000
	Matched	0.309	0.307	0.6	0.31	0.760	76.1	0.680	0.679	0.3	0.18	0.858
Third	Unmatched	0.188	0.168	5.3	3.17	0.002	92.0	0.189	0.189	-0.6	-0.33	0.744
	Matched	0.188	0.186	0.4	0.23	0.822	92.0	0.171	0.195	-6.2	-3.68	0.000
Fourth or higher	Unmatched	0.185	0.166	5.1	3.08	0.002	86.5	0.179	0.173	-0.1	-0.04	0.970
	Matched	0.185	0.188	-0.7	-0.37	0.712	86.5	0.205	0.204	0.1	0.07	0.948
Birth order - recode³												
Eldest	Unmatched	0.261	0.298	-8.2	-4.87	0.000	98.1	0.261	0.298	-8.2	-4.87	0.000
	Matched	0.261	0.261	0.2	0.09	0.932	98.1	0.251	0.252	-0.1	-0.05	0.959
Second or more	Unmatched	0.189	0.213	-6.1	-3.63	0.000	83.5	0.189	0.213	-6.1	-3.63	0.000
	Matched	0.189	0.193	-1.0	-0.56	0.576	83.5	0.189	0.191	-0.6	-0.33	0.744
Wealth quintiles	Unmatched	0.171	0.195	-6.2	-3.68	0.000	95.2	0.171	0.195	-6.2	-3.68	0.000
Poorest	Unmatched	0.171	0.172	-0.3	-0.17	0.867	95.2	0.173	0.173	-0.1	-0.04	0.970
	Matched	0.179	0.171	2.1	1.23	0.217	95.2	0.179	0.171	2.1	1.23	0.217
2nd quintile	Unmatched	0.179	0.175	1.0	0.54	0.589	51.8	0.182	0.180	0.7	0.36	0.719
	Matched	0.179	0.175	1.0	0.54	0.589	51.8	0.182	0.180	0.7	0.36	0.719
3rd quintile	Unmatched	0.200	0.123	21.0	12.85	0.000	99.1	0.200	0.123	21.0	12.85	0.000
	Matched	0.200	0.199	0.2	0.10	0.922	99.1	0.205	0.204	0.1	0.07	0.948
4th quintile	Unmatched	0.200	0.199	0.2	0.10	0.922	99.1	0.205	0.204	0.1	0.07	0.948
	Matched	0.200	0.199	0.2	0.10	0.922	99.1	0.205	0.204	0.1	0.07	0.948
Richest	Unmatched	0.200	0.199	0.2	0.10	0.922	99.1	0.205	0.204	0.1	0.07	0.948
	Matched	0.200	0.199	0.2	0.10	0.922	99.1	0.205	0.204	0.1	0.07	0.948

(Continued...)

Appendix Table O. – Continued

Variable	Full sample										Sub-sample			
	Sample	Mean		% bias reduction	t-statistic	p> t	Mean		% bias reduction	t-statistic	p> t			
		Insured	Uninsured				Insured	Uninsured						
Residence														
Rural	Unmatched	0.485	0.575	-18.1	-10.89	0.000	0.485	0.485	-18.1	-10.89	0.000			
	Matched	0.485	0.483	0.5	0.29	0.773	0.478	0.475	0.5	0.25	0.803			
Urban	Unmatched	0.515	0.425	18.1	10.89	0.000	0.515	0.425	18.1	10.89	0.000			
	Matched	0.515	0.517	-0.5	-0.29	0.773	0.522	0.525	-0.5	-0.25	0.803			
Region														
Sumatera	Unmatched	0.267	0.315	-10.5	-6.29	0.000	0.267	0.315	-10.5	-6.29	0.000			
	Matched	0.267	0.264	0.6	0.36	0.722	0.270	0.266	0.9	0.50	0.617			
Java	Unmatched	0.217	0.259	-9.7	-5.80	0.000	0.217	0.259	-9.7	-5.80	0.000			
	Matched	0.218	0.216	0.3	0.19	0.851	0.221	0.221	0.0	0.00	0.999			
Bali and Nusa Tenggara	Unmatched	0.116	0.070	15.7	9.65	0.000	0.116	0.070	15.7	9.65	0.000			
	Matched	0.116	0.123	-2.5	-1.24	0.216	0.117	0.122	-1.7	-0.80	0.425			
Kalimantan	Unmatched	0.114	0.105	2.9	1.74	0.082	0.114	0.105	2.9	1.74	0.082			
	Matched	0.114	0.113	0.4	0.20	0.844	0.113	0.113	0.0	0.00	1.000			
Sulawesi	Unmatched	0.172	0.162	2.8	1.70	0.089	0.172	0.162	2.8	1.70	0.089			
	Matched	0.173	0.170	0.7	0.36	0.722	0.173	0.170	0.9	0.46	0.648			
Maluku and Papua	Unmatched	0.113	0.089	8.0	4.82	0.000	0.113	0.089	8.0	4.82	0.000			
	Matched	0.113	0.114	-0.2	-0.09	0.925	0.106	0.108	-0.8	-0.44	0.661			

¹ Mass media exposure is defined as read newspaper, listen to radio, or watch TV at least once a week

² Not included in the estimation of the propensity score for the sub-sample

³ Not included in the estimation of the propensity score for the full-sample

Appendix Table P. Mean biases of covariates before and after matching, Namibia

Variable	Sample	Full sample						Sub-sample					
		Mean			% bias reduction	t-statistic	p-value	Mean			% bias reduction	t-statistic	p-value
		Insured	Uninsured	% bias				Insured	Uninsured	% bias			
Maternal age at birth	Unmatched	29.683	26.209	53.2	10.53	0.000	29.683	26.209	53.2	10.53	0.000		
	Matched	29.425	29.117	4.7	91.1	0.477	29.387	29.051	5.1	90.3	0.446		
Maternal age at birth squared	Unmatched	920.570	732.720	49.3	10.01	0.000	920.570	732.720	49.3	10.01	0.000		
	Matched	904.580	886.820	4.7	90.5	0.497	902.640	883.380	5.1	89.7	0.468		
Education													
No education	Unmatched	0.021	0.111	-36.8	-6.15	0.000	0.021	0.111	-36.8	-6.15	0.000		
	Matched	0.024	0.027	-1.1	97.1	0.810	0.025	0.023	0.6	98.4	0.890		
Primary education	Unmatched	0.069	0.334	-69.9	-11.99	0.000	0.069	0.334	-69.9	-11.99	0.000		
	Matched	0.067	0.072	-1.2	98.2	0.792	0.067	0.068	-0.4	99.4	0.929		
Secondary or higher	Unmatched	0.910	0.555	87.4	15.19	0.000	0.910	0.555	87.4	15.19	0.000		
	Matched	0.909	0.901	1.8	97.9	0.36	0.909	0.909	0.0	100.0	0.997		
Marital status¹													
Never married	Unmatched	0.254	0.453	-42.5	-8.26	0.000							
	Matched	0.274	0.323	-10.5	75.4	0.123							
Currently married	Unmatched	0.695	0.485	43.8	8.65	0.000							
	Matched	0.673	0.620	11.0	74.9	0.111							
Formerly married	Unmatched	0.050	0.062	-4.9	-0.97	0.334							
	Matched	0.053	0.057	-1.7	65.4	0.805							
Birth order													
1	Unmatched	0.294	0.312	-4.0	-0.81	0.420	0.294	0.312	-4.0	-0.81	0.420		
	Matched	0.317	0.339	-4.8	-19.9	0.500	0.320	0.343	-5.0	-26.2	0.485		
2	Unmatched	0.284	0.253	7.0	1.44	0.149	0.284	0.253	7.0	1.44	0.149		
	Matched	0.276	0.282	-1.3	82.1	0.859	0.276	0.289	-2.9	58.4	0.683		
3	Unmatched	0.212	0.157	14.3	3.04	0.002	0.212	0.157	14.3	3.04	0.002		
	Matched	0.214	0.203	2.9	79.4	0.686	0.214	0.196	4.8	66.1	0.509		
4 or higher	Unmatched	0.210	0.278	-15.9	-3.12	0.002	0.210	0.278	-15.9	-3.12	0.002		
	Matched	0.192	0.176	3.8	76.3	0.549	0.190	0.172	4.0	74.6	0.523		
Employment status													
Not currently employed	Unmatched	0.214	0.599	-85.0	-16.27	0.000	0.214	0.599	-85.0	-16.27	0.000		
	Matched	0.212	0.222	-2.4	97.2	0.707	0.207	0.221	-3.2	96.3	0.617		
Currently employed	Unmatched	0.786	0.401	85.0	16.27	0.000	0.786	0.401	85.0	16.27	0.000		
	Matched	0.788	0.778	2.4	97.2	0.38	0.793	0.779	3.2	96.3	0.617		

(Continued...)

Appendix Table P. – Continued

Variable	Sample	Full sample						Sub-sample								
		Mean			% bias reduction	t-statistic	P-value	Mean			% bias reduction	t-statistic	P-value			
		Insured	Uninsured	% bias				Insured	Uninsured	% bias						
Education of head of the household																
No education	Unmatched	0.061	0.244	-52.6	-9.08	0.000	0.061	0.244	-52.6	-9.08	0.000	0.061	0.244	-52.6	-9.08	0.000
	Matched	0.067	0.079	-3.3	-0.64	0.520	0.069	0.078	-2.6	-0.48	0.629	0.069	0.078	-2.6	-0.48	0.629
Primary education	Unmatched	0.116	0.390	-66.5	-11.89	0.000	0.116	0.390	-66.5	-11.89	0.000	0.116	0.390	-66.5	-11.89	0.000
	Matched	0.120	0.127	-1.6	-0.29	0.770	0.121	0.132	-2.8	-0.50	0.618	0.121	0.132	-2.8	-0.50	0.618
Secondary or higher	Unmatched	0.824	0.366	105.2	19.79	0.000	0.824	0.366	105.2	19.79	0.000	0.824	0.366	105.2	19.79	0.000
	Matched	0.813	0.794	4.2	0.66	0.507	0.810	0.790	4.7	0.73	0.466	0.810	0.790	4.7	0.73	0.466
Mass media exposure																
Not exposed	Unmatched	0.029	0.177	-49.9	-8.3	0.000	0.029	0.177	-49.9	-8.30	0.000	0.029	0.177	-49.9	-8.30	0.000
	Matched	0.024	0.029	-1.7	-0.46	0.648	0.022	0.023	-0.3	-0.10	0.922	0.022	0.023	-0.3	-0.10	0.922
Exposed to media at least once a week	Unmatched	0.971	0.823	49.9	8.30	0.000	0.971	0.823	49.9	8.30	0.000	0.971	0.823	49.9	8.30	0.000
	Matched	0.976	0.971	1.7	0.46	0.648	0.978	0.977	0.3	0.10	0.922	0.978	0.977	0.3	0.10	0.922
Wealth quintile																
First	Unmatched	0.032	0.229	-61.3	-10.11	0.000	0.032	0.229	-61.3	-10.11	0.000	0.032	0.229	-61.3	-10.11	0.000
	Matched	0.031	0.038	-2.2	-0.56	0.578	0.032	0.034	-0.5	-0.13	0.894	0.032	0.034	-0.5	-0.13	0.894
Second	Unmatched	0.050	0.206	-47.8	-8.21	0.000	0.050	0.206	-47.8	-8.21	0.000	0.050	0.206	-47.8	-8.21	0.000
	Matched	0.053	0.057	-1.3	-0.26	0.794	0.052	0.053	-0.3	-0.06	0.956	0.052	0.053	-0.3	-0.06	0.956
Middle	Unmatched	0.118	0.260	-37.1	-6.83	0.000	0.118	0.260	-37.1	-6.83	0.000	0.118	0.260	-37.1	-6.83	0.000
	Matched	0.118	0.109	2.3	0.40	0.688	0.118	0.104	3.7	0.65	0.518	0.118	0.104	3.7	0.65	0.518
Fourth	Unmatched	0.277	0.223	12.5	2.61	0.009	0.277	0.223	12.5	2.61	0.009	0.277	0.223	12.5	2.61	0.009
	Matched	0.281	0.263	4.1	0.58	0.562	0.283	0.265	4.2	0.58	0.565	0.283	0.265	4.2	0.58	0.565
Highest	Unmatched	0.523	0.082	109.5	28.74	0.000	0.523	0.082	109.5	28.74	0.000	0.523	0.082	109.5	28.74	0.000
	Matched	0.517	0.532	-3.9	-0.45	0.654	0.515	0.545	-7.4	-0.85	0.396	0.515	0.545	-7.4	-0.85	0.396
Residence																
Rural	Unmatched	0.330	0.631	-63.2	-12.73	0.000	0.330	0.631	-63.2	-12.73	0.000	0.330	0.631	-63.2	-12.73	0.000
	Matched	0.332	0.350	-3.9	-0.57	0.571	0.337	0.319	3.9	0.57	0.570	0.337	0.319	3.9	0.57	0.570
Urban	Unmatched	0.670	0.369	63.2	12.73	0.000	0.670	0.369	63.2	12.73	0.000	0.670	0.369	63.2	12.73	0.000
	Matched	0.668	0.650	3.9	0.57	0.571	0.663	0.681	-3.9	-0.57	0.570	0.663	0.681	-3.9	-0.57	0.570

(Continued...)

Appendix Table P. – Continued

Variable	Sample	Full sample						Sub-sample									
		Mean			% bias reduction	t-statistic	P-value	Mean			% bias reduction	t-statistic	P-value				
		Insured	Uninsured	% bias				Insured	Uninsured	% bias							
Region																	
Caprivi	Unmatched	0.032	0.083	-22.2	-3.94	0.000	0.032	0.083	-22.2	-3.94	0.000	0.032	0.083	-22.2	-3.94	0.000	
	Matched	0.036	0.026	4.4	0.85	0.396	0.037	0.028	3.8	0.70	0.487	0.037	0.028	3.8	0.70	0.487	
Erongo	Unmatched	0.084	0.060	9.5	2.06	0.040	0.084	0.060	9.5	2.06	0.040	0.084	0.060	9.5	2.06	0.040	
	Matched	0.096	0.100	-1.7	-0.21	0.836	0.096	0.111	-5.8	-0.69	0.487	0.096	0.111	-5.8	-0.69	0.487	
Hardap	Unmatched	0.057	0.056	0.3	0.06	0.954	0.057	0.056	0.3	0.06	0.954	0.057	0.056	0.3	0.06	0.954	
	Matched	0.050	0.042	3.7	0.59	0.553	0.047	0.035	5.3	0.88	0.379	0.047	0.035	5.3	0.88	0.379	
Karas	Unmatched	0.095	0.042	20.8	4.95	0.000	0.095	0.042	20.8	4.95	0.000	0.095	0.042	20.8	4.95	0.000	
	Matched	0.094	0.079	5.9	0.77	0.444	0.094	0.078	6.0	0.77	0.443	0.094	0.078	6.0	0.77	0.443	
Kavango	Unmatched	0.061	0.146	-28.1	-5.06	0.000	0.061	0.146	-28.1	-5.06	0.000	0.061	0.146	-28.1	-5.06	0.000	
	Matched	0.060	0.053	2.3	0.44	0.659	0.062	0.046	5.1	0.98	0.329	0.062	0.046	5.1	0.98	0.329	
Khomas	Unmatched	0.197	0.087	31.9	7.48	0.000	0.197	0.087	31.9	7.48	0.000	0.197	0.087	31.9	7.48	0.000	
	Matched	0.192	0.188	1.2	0.16	0.875	0.187	0.183	1.2	0.15	0.877	0.187	0.183	1.2	0.15	0.877	
Kunene	Unmatched	0.034	0.060	-12.3	-2.29	0.022	0.034	0.060	-12.3	-2.29	0.022	0.034	0.060	-12.3	-2.29	0.022	
	Matched	0.036	0.042	-2.8	-0.44	0.656	0.037	0.048	-5.3	-0.79	0.432	0.037	0.048	-5.3	-0.79	0.432	
Changwena	Unmatched	0.082	0.100	-6.4	-1.27	0.205	0.082	0.100	-6.4	-1.27	0.205	0.082	0.100	-6.4	-1.27	0.205	
	Matched	0.084	0.077	2.4	0.37	0.715	0.084	0.083	0.2	0.03	0.978	0.084	0.083	0.2	0.03	0.978	
Omusati	Unmatched	0.099	0.092	2.4	0.50	0.619	0.099	0.092	2.4	0.50	0.619	0.099	0.092	2.4	0.50	0.619	
	Matched	0.101	0.114	-4.6	-0.63	0.532	0.103	0.109	-1.8	-0.24	0.809	0.103	0.109	-1.8	-0.24	0.809	
Oshana	Unmatched	0.080	0.091	-4.0	-0.80	0.425	0.080	0.091	-4.0	-0.80	0.425	0.080	0.091	-4.0	-0.80	0.425	
	Matched	0.070	0.072	-1.0	-0.15	0.880	0.069	0.064	1.7	0.27	0.788	0.069	0.064	1.7	0.27	0.788	
Oshikoto	Unmatched	0.086	0.095	-3.2	-0.65	0.517	0.086	0.095	-3.2	-0.65	0.517	0.086	0.095	-3.2	-0.65	0.517	
	Matched	0.079	0.096	-5.9	-0.86	0.391	0.081	0.077	1.4	0.21	0.831	0.081	0.077	1.4	0.21	0.831	
Otjozondjupa	Unmatched	0.095	0.089	2.1	0.43	0.667	0.095	0.089	2.1	0.43	0.667	0.095	0.089	2.1	0.43	0.667	
	Matched	0.101	0.110	-3.1	-0.41	0.679	0.103	0.137	-11.7	-1.48	0.140	0.103	0.137	-11.7	-1.48	0.140	

¹ Not included in the estimation of the propensity score for the sub-sample

Appendix Table Q. Mean biases of covariates before and after matching, Rwanda

Variable	Sample	Full sample						Sub-sample					
		Mean			% bias reduction	t-statistic	p-value	Mean			% bias reduction	t-statistic	p-value
		Insured	Uninsured	% bias				Insured	Uninsured	% bias			
Maternal age at birth	Unmatched	28.415	28.541	-1.9	-0.67	0.503	28.415	28.541	-1.9	-0.7	0.50	0.676	
	Matched	28.410	28.367	0.6	0.31	0.760	28.413	28.354	0.9	53.6	0.42	0.322	
Maternal age at birth squared	Unmatched	849.290	860.610	-2.8	-0.99	0.322	849.290	860.610	-2.8	92.4	-0.99	0.920	
	Matched	849.220	848.910	0.1	0.04	0.970	849.270	848.410	0.2		0.10	0.000	
Education													
No education	Unmatched	0.162	0.231	-17.4	-6.26	0.000	0.162	0.231	-17.4	-6.26	-6.26	0.000	
	Matched	0.163	0.154	2.1	1.05	0.294	0.162	0.154	2.0	88.7	1.00	0.316	
Primary education	Unmatched	0.718	0.703	3.4	1.18	0.239	0.718	0.703	3.4		1.18	0.239	
	Matched	0.723	0.732	-1.9	-0.92	0.358	0.722	0.729	-1.5	55.7	-0.71	0.476	
Secondary or higher	Unmatched	0.120	0.066	18.5	6.11	0.000	0.120	0.066	18.5		6.11	0.000	
	Matched	0.115	0.114	0.2	0.08	0.936	0.116	0.117	-0.4	98.1	-0.15	0.882	
Marital status													
Never married	Unmatched	0.072	0.094	-7.9	-2.85	0.004	0.072	0.094	-7.9		-2.85	0.004	
	Matched	0.073	0.085	-4.2	-2.02	0.044	0.071	0.083	-4.4	45.0	-2.13	0.033	
Currently married	Unmatched	0.852	0.751	25.6	9.36	0.000	0.852	0.751	25.6		9.36	0.000	
	Matched	0.852	0.836	3.9	2.00	0.045	0.855	0.840	4.0	84.6	2.04	0.041	
Formerly married	Unmatched	0.075	0.155	-25.1	-9.44	0.000	0.075	0.155	-25.1		-9.44	0.000	
	Matched	0.075	0.079	-1.2	-0.69	0.491	0.074	0.078	-1.1	95.5	-0.63	0.529	
Birth order													
1	Unmatched	0.245	0.191	13.0	4.45	0.000	0.245	0.191	13.0		4.45	0.000	
	Matched	0.242	0.257	-3.5	-1.58	0.114	0.242	0.257	-3.6	72.5	-1.60	0.110	
2	Unmatched	0.195	0.195	-0.1	-0.05	0.962	0.195	0.195	-0.1		-0.05	0.962	
	Matched	0.195	0.196	-0.1	-0.03	0.978	0.196	0.196	0.1	61.9	0.02	0.981	
3	Unmatched	0.155	0.150	1.4	0.48	0.629	0.155	0.150	1.4		0.48	0.629	
	Matched	0.155	0.147	2.4	1.16	0.248	0.155	0.146	2.7	-91.1	1.26	0.209	
4 or higher	Unmatched	0.405	0.463	-11.7	-4.11	0.000	0.405	0.463	-11.7		-4.11	0.000	
	Matched	0.407	0.401	1.2	0.57	0.566	0.406	0.401	1.0	91.5	0.48	0.634	
Employment status													
Not currently employed	Unmatched	0.214	0.177	9.3	3.19	0.001	0.214	0.177	9.3		3.19	0.001	
	Matched	0.212	0.218	-1.4	-0.65	0.515	0.213	0.219	-1.5	83.6	-0.69	0.491	
Currently employed	Unmatched	0.786	0.823	-9.3	-3.19	0.001	0.786	0.823	-9.3		-3.19	0.001	
	Matched	0.788	0.782	1.4	0.65	0.515	0.787	0.781	1.5	83.6	0.69	0.491	

(Continued...)

Appendix Table Q. – Continued

Variable	Full sample										Sub-sample			
	Sample	Mean		% bias reduction	t-statistic	P-value	Mean		% bias reduction	t-statistic	P-value			
		Insured	Uninsured				Insured	Uninsured						
Education of head of the household														
No education	Unmatched	0.199	0.269	-16.6	-5.95	0.000	0.199	0.269	-16.6	-5.95	0.000			
	Matched	0.200	0.203	-0.7	-0.32	0.746	0.199	0.203	-0.9	-0.47	0.640			
Primary education	Unmatched	0.670	0.648	4.5	1.59	0.112	0.670	0.648	4.5	1.59	0.112			
	Matched	0.674	0.670	0.6	0.31	0.757	0.672	0.668	1.0	0.46	0.647			
Secondary or higher	Unmatched	0.131	0.082	15.8	5.28	0.000	0.131	0.082	15.8	5.28	0.000			
	Matched	0.127	0.127	-0.1	-0.05	0.963	0.128	0.129	-0.2	-0.08	0.935			
Mass media exposure														
Not exposed to media	Unmatched	0.297	0.446	-31.2	-11.09	0.000	0.297	0.446	-31.2	-11.09	0.000			
	Matched	0.298	0.308	-2.1	-1.04	0.300	0.296	0.307	-2.2	-1.06	0.291			
Exposed to media at least once a week	Unmatched	0.703	0.554	31.2	11.09	0.000	0.703	0.554	31.2	11.09	0.000			
	Matched	0.702	0.692	2.1	1.04	0.300	0.704	0.693	2.2	1.06	0.291			
Wealth quintile														
First	Unmatched	0.195	0.319	-28.8	-10.41	0.000	0.195	0.319	-28.8	-10.41	0.000			
	Matched	0.196	0.200	-0.9	-0.47	0.640	0.195	0.198	-0.8	-0.39	0.693			
Second	Unmatched	0.203	0.227	-5.7	-2.00	0.045	0.203	0.227	-5.7	-2.00	0.045			
	Matched	0.205	0.205	0.1	0.03	0.977	0.204	0.202	0.4	0.18	0.859			
Middle	Unmatched	0.198	0.171	7.1	2.45	0.014	0.198	0.171	7.1	2.45	0.014			
	Matched	0.200	0.198	0.4	0.19	0.851	0.200	0.197	0.7	0.33	0.742			
Fourth	Unmatched	0.198	0.138	15.9	5.37	0.000	0.198	0.138	15.9	5.37	0.000			
	Matched	0.198	0.201	-0.7	-0.31	0.753	0.199	0.202	-0.8	-0.37	0.712			
Highest	Unmatched	0.206	0.145	16.1	5.42	0.000	0.206	0.145	16.1	5.42	0.000			
	Matched	0.201	0.197	1.3	0.56	0.573	0.203	0.200	0.6	0.26	0.798			
Residence														
Rural	Unmatched	0.850	0.858	-2.3	-0.79	0.427	0.850	0.858	-2.3	-0.79	0.427			
	Matched	0.850	0.850	0.2	0.08	0.938	0.850	0.849	0.4	0.20	0.838			
Urban	Unmatched	0.150	0.142	2.3	0.79	0.427	0.150	0.142	2.3	0.79	0.427			
	Matched	0.150	0.150	-0.2	-0.08	0.938	0.150	0.151	-0.4	-0.20	0.838			

(Continued...)

Appendix Table Q. – Continued

Variable	Sample	Full sample						Sub-sample									
		Mean			% bias reduction	t-statistic	P-value	Mean			% bias reduction	t-statistic	P-value				
		Insured	Uninsured	% bias				Insured	Uninsured	% bias							
Region																	
Kigali city	Unmatched	0.111	0.134	-7.2	90.6	-2.54	0.011	0.111	0.134	-7.2	94.5	-2.54	0.011				
	Matched	0.111	0.109	0.7	90.6	0.33	0.739	0.112	0.111	0.4	94.5	0.19	0.847				
South	Unmatched	0.247	0.266	-4.4	69.8	-1.53	0.126	0.247	0.266	-4.4	75.7	-1.53	0.126				
	Matched	0.247	0.253	-1.3	69.8	-0.63	0.530	0.247	0.251	-1.1	75.7	-0.50	0.614				
West	Unmatched	0.241	0.203	9.2	93.2	3.15	0.002	0.241	0.203	9.2	97.5	3.15	0.002				
	Matched	0.241	0.239	0.6	93.2	0.28	0.776	0.242	0.241	0.2	97.5	0.11	0.916				
North	Unmatched	0.172	0.108	18.5	89.1	6.18	0.000	0.172	0.108	18.5	89.7	6.18	0.000				
	Matched	0.170	0.177	-2.0	89.1	-0.87	0.384	0.169	0.175	-1.9	89.7	-0.82	0.412				
East	Unmatched	0.229	0.289	-13.6	86.6	-4.83	0.000	0.229	0.289	-13.6	84.9	-4.83	0.000				
	Matched	0.230	0.223	1.8	86.6	0.90	0.370	0.231	0.222	2.1	84.9	1.01	0.314				