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Global Trends in Care Seeking and Access to Diagnosis and Treatment of Childhood Illnesses

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2015 No. 116

DEMOGRAPHIC AND HEALTH SURVEYS

March 2015

This document was produced for review by the United States Agency for International Development.

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March 2015

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Acknowledgments:
Lia Florey (ICF International), Erin Eckert (USAID), and Rene Salgado (USAID) are thanked for their review and comment on the draft report. Zhe Xu (Tulane University) is sincerely thanked for his help with data management and data processing.

Editor: Sidney Moore
Document Production: Natalie La Roche

This study was carried out with support provided by the United States Agency for International Development (USAID) through The DHS Program (#GPO–C–00–08–00008–00). The views expressed are those of the authors and do not necessarily reflect the views of USAID or the United States Government.

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Recommended citation:

Bennett, Adam, Thom Eisele, Joseph Keating, and Josh Yukich. 2015. *Global Trends in Care Seeking and Access to Diagnosis and Treatment of Childhood Illnesses*. DHS Working Papers No. 116. Rockville, Maryland, USA: ICF International.

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EXECUTIVE SUMMARY

Diarrhea, malaria, and acute respiratory infection (ARI) are among the leading causes of child mortality worldwide, with the greatest burden concentrated in developing countries. Child mortality has declined in recent years as a result of socioeconomic development and affordable and effective prevention and treatment options, yet many countries in Asia and Africa are not on track to meet Millennium Development Goal (MDG) 4—to reduce child mortality by two-thirds by 2015. Although evidence suggests that an increase in targeted interventions can accelerate child survival, a strong health care system is a necessary prerequisite for sustained reductions in preventable child deaths.

An investigation into commonalities across countries and regions is needed to understand trends in treatment-seeking behavior and how sociodemographic and cultural factors interact to influence treatment-seeking modalities. This information will strengthen efficient delivery of care across all levels of the health system. Although many studies have documented barriers to accessing quality care, systematic analysis of these barriers is lacking. Yet large amounts of data are currently available (1) to identify and quantify the major barriers hindering access to quality care, and (2) to specify where these barriers are most prominent, relative to health care needs at the subnational level.

This analysis used 258 publically-available datasets from nationally-representative household surveys that included individual-level information on treatment-seeking for diarrhea, fever, and the symptoms of ARI. The surveys were conducted between 2000 and 2013 and came from three sources: Demographic and Health Surveys (DHS), Malaria Indicator Surveys (MIS), and Multiple Indicator Cluster Surveys (MICS). Each survey included information on treatment seeking for children under age 5, based on reports of the child's mother or caregiver. For this analysis, the survey datasets provided information on treatment seeking for a total of 1,922,225 children under age 5. The purpose of this paper is as follows:

1. To assess trends in treatment seeking for diarrhea, fever, and symptoms of ARI among children under age 5, across countries and regions, using nationally-representative, cross-sectional survey datasets (2000-2013)

2. To identify individual, household, and community factors influencing treatment seeking for diarrhea, fever, and symptoms of ARI among children under age 5, at the country and regional level
3. To perform a meta-analysis at the subregional level to understand factors related to treatment seeking for diarrhea, fever, and symptoms of ARI among children under age 5.

Most of the subregions covered in this analysis showed substantial variation between 2000 and 2013 in treatment seeking for the three childhood illnesses: diarrhea, fever, and symptoms of ARI. There was no consistent upward trend in treatment-seeking behavior. The results of the analysis—which explored both barriers to and facilitators of treatment seeking for childhood illness—were, for the most part, in the expected directions. The analysis for Zambia and Malawi supports previous research showing that access to treatment, as measured by distance from the nearest health facility, is strongly correlated with whether treatment is received.

Several conclusions can be drawn from the results of this study. First, between 2000 and 2013, there was considerable variation across countries and regions in progress toward improvements in treatment seeking and access to health care for childhood illnesses. Second, many factors act as barriers to treatment seeking and accessing treatment for young children with diarrhea, fever, and the symptoms of ARI. These factors include mother's level of education, household wealth status, and distance from the nearest health facility. Children of mothers with little or no education, children living in households that are in the lowest wealth quintiles, and children who live far from the nearest health facility are less likely to be taken for treatment when sick than other children. Third, health systems need to be strengthened to improve access to high quality and appropriate health services for childhood illnesses. Finally, the data indicate that efforts to improve access to health care, such as the ongoing scale-up of community case management, need to focus on less-educated mothers in low income households in rural areas to have the greatest program impact.

1. INTRODUCTION

Diarrhea, malaria, and acute respiratory infection (ARI) are the leading causes of child mortality across most regions of the world, with the greatest burden concentrated in low- and middle-income countries [1, 2]. While child mortality has been declining in recent years, as a result of socioeconomic development and increasing access to effective new-born and child survival interventions, many countries in Asia and Africa are not on track to meet Millennium Development Goal (MDG) 4—to reduce child mortality by two-thirds by 2015 [1-3]. While there is evidence suggesting that an increase in targeted interventions can accelerate child survival [4-6], a strong health care system is a necessary prerequisite for sustained reductions in preventable child deaths.

Ensuring prompt diagnosis and appropriate management of diarrhea, malaria (fever), and ARI is crucial for reducing morbidity and mortality among young children. Although an estimated 43% of fevers among children under age 5 in Africa are due to malaria, only 28% of these children were taken for treatment to a public health facility, and only 20% received an anti-malarial drug within 24 hours of onset of symptoms (during the period before rapid diagnostic tests for malaria) [7]. Additionally, in many low income countries, few children receive appropriate treatment for symptoms of diarrhea and ARI. For example, coverage of oral rehydration salts (ORS), used in the treatment of diarrhea, was 35% globally between 2008 and 2012. At the same time, while globally 78% of children with symptoms of ARI were taken to a health care provider, coverage is only 43% in low income countries [8]. Less than 30% of children under age 5 with symptoms of ARI in low income countries received antibiotics. It is likely that many children are not taken for treatment at all, making surveillance and disease management difficult in these countries. To meet MDG 4, all cases of diarrhea, fever, and symptoms of ARI must be diagnosed and treated. The main challenge is delivering these interventions at scale within the context of sometimes fragile health care systems [9].

Current policy focuses on providing prompt and effective access to treatment of childhood illnesses. The success of this policy hinges on a family's decisions regarding (1) whether to access health care and (2) where to seek health care. These decisions are largely determined by availability of health care services but also by social and economic factors, such as religious and cultural norms, cost of seeking health care, and acceptability of treatment practices [10]. Barriers to accessing the formal health system result from a lack of availability, affordability, or acceptability.

Individual sociocultural factors play an important role in the decision to seek treatment for common childhood illnesses. These factors have been examined in a variety of settings. In communities less familiar with the formal health sector, treatment delays often result from low treatment seeking for childhood illnesses. This pattern is due to a number of factors including limited understanding of disease causation, symptomology, and severity of illness. Delays in treatment seeking have also been shown to result from lack of understanding of disease etiologies and cultural traditions that prescribe seeking treatment first from nonmedical traditional healers [11].

Many qualitative studies have examined care-seeking patterns for childhood illness such as diarrhea [12], malaria [13], and symptoms of ARI [14]. These studies collectively identify a range of individual and contextual factors that influence treatment-seeking behavior: cultural beliefs and illness perceptions, severity of illness, location, gender, wealth, and treatment cost [10]. These studies conclude that the decision to initiate treatment seeking outside the home is a dynamic process characterized by uncertainty and debate. However, few of the studies offer a comprehensive quantitative framework for understanding treatment-seeking behavior for childhood illness.

Quantitative studies have concluded that improvements in education may be associated with seeking care in public health clinics, as opposed to informal drug shops or use of home remedies [15, 16]. The persistence of illness is a primary driver for whether treatment is sought for diarrhea or symptoms of ARI. For all three diseases, access to treatment seeking is often hindered in other, more fundamental ways. Costs—user fees, lost work time, travel expenses—are frequently the primary factor determining health care utilization and the greatest barrier to accessing prompt and effective care [9]. Numerous studies have documented a strong relationship between low household wealth status, inadequate treatment seeking for fever, and overall lack of access to prompt and effective treatment of malaria [17]. The inability to gain access to health services is often a direct result of poverty [18].

Numerous small-scale studies have shown that distance from the nearest health facility acts as a significant barrier to seeking and accessing care for childhood illnesses. Distance can be a barrier because of the direct cost of travel to the health facility and the indirect cost of time lost during travel to the facility [19-23]. However, research has shown that other factors may supersede distance from the nearest facility, including facility characteristics, cost of services, and perceived quality of services at the facility [24, 25]. Assessing distance from the nearest health facility requires that all facilities be listed and geocoded, which is relatively rare at the national level in developing countries. We were unable to identify any studies at the national level that quantitatively assess the association between distance from the nearest health facility and treatment-seeking behavior for childhood illnesses.

Study Objectives

An investigation into commonalities across countries and regions is needed to understand trends in treatment-seeking behavior and how socioeconomic, cultural, behavioral, and contextual factors interact to influence treatment seeking for the major childhood illnesses of diarrhea, malaria (fever), and ARI. This information will strengthen the delivery of care across all levels of the health system. While many individual studies have documented factors that are barriers to treatment seeking and accessing care, we identified no systematic analyses of these factors in the published literature. Large amounts of data currently available from nationally-representative household surveys can now be used to identify and quantify individual, household, and community factors influencing treatment seeking for childhood illnesses.

Using available population-based data, the purpose of this paper is as follows:

1. To assess trends in treatment seeking for diarrhea, fever, and symptoms of ARI among children under age 5, across countries and regions, using nationally-representative, cross-sectional survey datasets (2000-2013)
2. To identify individual, household, and community factors influencing treatment seeking for diarrhea, fever, and symptoms of ARI among children under age 5, at the country and regional level; and
3. To perform a meta-analysis at the subregional level to understand factors related to treatment seeking among children under age 5, for diarrhea, fever and symptoms of ARI.

2. METHODS

This analysis uses data from all publically-available, nationally-representative household surveys conducted between 2000 and 2013 that included individual-level information on treatment-seeking for diarrhea, fever, and symptoms of ARI. These surveys included the Demographic and Health Surveys (DHS), Malaria Indicator Surveys (MIS), and Multiple Indicator Cluster Surveys (MICS). Each survey included information on treatment seeking for children under age five based on responses of the child's mother or caregiver to questions on the Woman's Questionnaire. Although the questions about symptoms of childhood illness and treatment seeking were not identical between the DHS/MIS and the MICS, they are analyzed here in a standardized way.

A total of 248 nationally-representative datasets (DHS, MICS, and MIS) were included in this analysis conducted between 2000 and 2013. The number of datasets available for analysis of each illness varied—diarrhea (118), fever (200), and symptoms of ARI (223). Child-level information on treatment seeking during the previous two weeks was available for 685,049 children under age 5—diarrhea (151,607), fever (358,821), and symptoms of ARI (174,621).

Datasets with more than 15% missing for treatment seeking for diarrhea, fever, and symptoms of ARI outcomes were excluded from the analysis. The analysis of treatment seeking for fevers included 193 datasets with 350,878 children under age 5 with a reported fever in the past two weeks. Many datasets only asked about treatment seeking for children who had both fever and symptoms of ARI and were thus excluded from this analysis. The analysis of treatment seeking for diarrhea included 116 datasets with 27,799 children under age five with reported diarrhea in the past two weeks. The MICS does not ask if treatment was sought for diarrhea, only if oral rehydration therapy was given, while the MIS does not ask about diarrhea at all; these datasets were not included in this analysis. The analysis of treatment seeking for symptoms of ARI included 214 datasets with 151,607 children under age 5 with reported symptoms of ARI in the past two weeks. The MIS does not ask about symptoms of ARI, so these datasets were excluded from the analysis. Appendix B summarizes the prevalence of treatment seeking for diarrhea, fever, and symptoms of ARI in children under five for each survey.

2.1 Outcomes and Covariate Measures

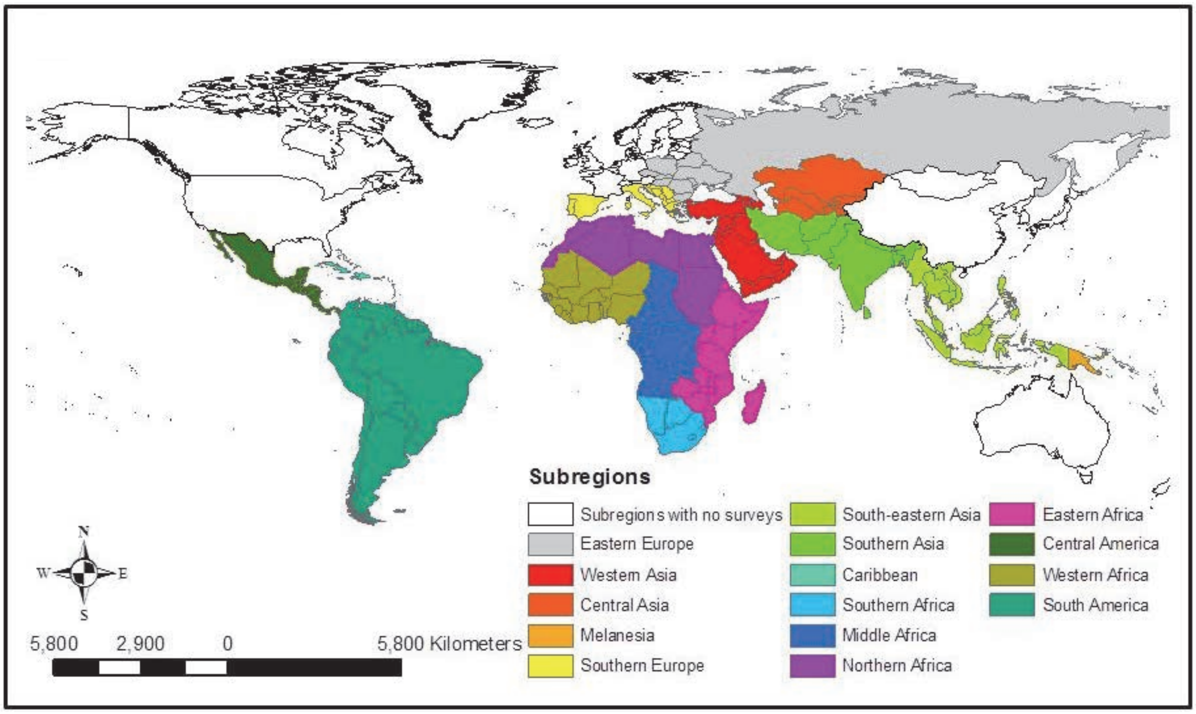
Treatment seeking for diarrhea, fever, and symptoms of ARI was defined as the proportion of children under age 5 (children <5) who experienced an episode of illness (diarrhea, fever, or symptoms of ARI) in the past two weeks, for whom treatment was sought from a formal public or private health facility. Symptoms and treatment seeking were based on responses given by the child's mother/caregiver at the time of the interview. Symptoms of ARI in DHS and MIS datasets were defined as a *cough, plus rapid breathing or shortness of breath.* In MICS datasets, ARI was defined as above, *plus cough in the chest*. Formal public and private health facilities were defined as all public or private health clinics or any higher-level facility, plus community health workers. Places such as stores, shops, pharmacies, and traditional healers were not included as formal public or private health facilities.

For assessing trends in barriers to treatment seeking and facilitators of treatment seeking by country, region, and year, several demographic variables were examined. These included survey year, child's age, household wealth quintile, household residence (urban/rural), household size, mother's age, and mother's level of education. To make covariate point estimates amenable to a meta-analysis, the demographic variables were dichotomized based on the most pronounced cut points from analysis of their expanded categories. For example, child age in the logistic regression models was dichotomized as 0-23 (<24) months and 24-59 months; mother's age was dichotomized as less than age 30 (<30) years and 30 or more (30+) years; mother's education was dichotomized as no education/or only primary and secondary or higher; and household wealth quintiles were dichotomized as the two lowest quintiles (lowest and second) and the three highest quintiles (middle, fourth, and highest).

2.2 Data Analyses

Estimates of treatment seeking were produced for each survey dataset, and aggregate values were calculated for 15 of the 22 United Nations geographical subregions for which datasets were available (Figure 1). The analysis included 95% confidence intervals (CI), calculated using survey-weighted standard errors to account for clustering at the primary sampling unit (PSU) level.

Figure 1. Map of United Nations geographical subregions with datasets included in study



Source: United Nations

2.3 Assessment of Child, Mother, and Household Factors Associated with Treatment Seeking for Diarrhea, Fever, and Symptoms of ARI

Random effects logistic regression models were used to assess child, mother, and household factors associated with treatment seeking for diarrhea, fever, and symptoms of ARI. The primary sampling unit (PSU) within each dataset was used as the random effect. The analysis was limited to children that had diarrhea, fever, or symptoms of ARI in the past two weeks. Each analysis was conducted at the dataset level with a common set of six covariates: (1) child sex, (2) child age, (3) mother's age, (4) mother's education, (5) residence (urban or rural), and (6) household wealth quintile. All the regression models were carried out in SAS.

Results from the regression models for each outcome were then grouped by subregion—UN subregions have been used in this study—and a random effects meta-analysis was conducted to assess common characteristics associated with treatment seeking in each subregion and globally. The meta-analysis was conducted in R using the DerSimonian-Laird random effects estimator option in the *metan* package.

2.4 Assessment of Trends in Treatment Seeking for Diarrhea, Fever, and Symptoms of ARI

Trends over time were assessed for each country in which multiple datasets were available over time and each subregion, using locally-weighted regression (LOESS). Loess regression curves were estimated using the *loess* function in R. In loess regression the α parameter defines the span of the data included in calculation of the local slope as well as the weight given to closer-versus-farther away points in the time series. The α parameter was varied between 0.5 and 2, where smaller values give greater weight to recent data trends. Statistical estimates of trends over time were produced for each outcome by subregion using a child-level logistic regression model with year as the primary covariate and controlling for socio-demographic factors across children. Forest plot figures were produced to illustrate which factors were associated with each of the three treatment-seeking outcomes, after controlling for year.

2.5 Assessment of Distance from the Nearest Health Facility in Malawi and Zambia

In Malawi and Zambia geo-coordinates of all public and private health care providers as of 2010 were available. These coordinates were matched with the geo-coordinates of the primary sampling units in five survey datasets: Malawi 2004 DHS [26], Malawi 2010 DHS [27], Malawi 2012 MIS [28], Zambia 2007 DHS [29], and Zambia 2010 MIS [30]. The datasets were pooled for this analysis, with the Primary Sampling Unit (PSU) used as the random effect. Euclidean distance between each PSU centroid and the nearest facility was estimated within ArcGIS.

Following exploratory analysis, households were categorized into four distance categories: <1.9 km from the nearest facility; 1.9 km to 3.5 km from the nearest facility; 3.6 km to 5.8 km from the nearest facility; and >5.8 km from the nearest facility. Other covariates included in this analysis were child's sex, child's age (in years), mother's age (categorized as <20 years, 20-29 years, 30-39 years, and 40+ years), residence (urban or rural), and household wealth quintile. Type of facility attended and dataset were included as fixed effect control variables. It was hypothesized that the effect of distance from the nearest health facility might be modified by urban-rural residence. This interaction (distance *x* urban-rural) was tested and found to be non-significant; the analysis was therefore pooled across urban-rural areas.

The combined Malawi and Zambia (DHS and MIS) datasets comprise a total of 42,349 children under age 5. The analysis of *treatment seeking for diarrhea* included three datasets with 10,868 children under age 5 with reported diarrhea in the past two weeks. The analysis of *treatment seeking for fever* included four datasets with 8,953 children under age 5 with a reported fever in the past two weeks. The analysis of *treatment seeking for symptoms of ARI* included four datasets with 5,142 children under age 5 with reported symptoms of ARI in the past two weeks. The MIS did not ask about diarrhea and symptoms of ARI.

3. RESULTS

3.1 Trends in Treatment Seeking for Diarrhea, Fever, and Symptoms of ARI in Children by Subregions

Appendix B presents the Loess regression and linear regression results for trends in treatment seeking for diarrhea, fever, and symptoms of ARI by subregions. Subregions with fewer than two survey datasets were not included.

Trends in treatment seeking for diarrhea, fever, and symptoms of ARI between 2000 and 2013 were highly variable by subregion. There was a significant increase in treatment seeking for diarrhea over this period in Western Africa (p=0.004), Eastern Africa (p=0.002), South-eastern Asia (p=0.026), and Western Asia (p=0.025); other regions saw no significant increase. For treatment seeking for fever, there was a significant increase in Western Africa (p=0.030) and marginally significant increases in South-eastern Asia (p=0.050) and Southern Africa (p=0.073) over this period; other regions saw no significant increase. For treatment seeking for symptoms of ARI, there was a marginally significant increase in South-eastern Asia (p=0.063), Western Asia (p=0.066), and Central America (p=0.072); other regions saw no significant increase.

A more in-depth look between 2000 and 2013 indicates that among those subregions with a reasonable number of point estimates—Eastern Africa, Western Africa, South-eastern Asia, and South America—treatment seeking is highly variable by illness symptoms as well as subregion. Treatment seeking across countries in Eastern Africa ranged from 14% to 72% for symptoms of diarrhea, 18% to 100% for fevers, and 21% to 76% for symptoms of ARI, with a significant increase over this period in treatment seeking for diarrhea [Figure 2, Appendices A-D].

Treatment seeking across countries in Western Africa, between 2000 and 2013, ranged from 12% to 51% for symptoms of diarrhea, 19% to 74% for symptoms of fever, and 28% to 79% for symptoms of ARI, with a significant increase over this period in treatment seeking for diarrhea and fever [Figure 3, Appendices A-D]. Treatment seeking overall between 2000 and 2013 appears to have been slightly lower for symptoms of diarrhea, especially before 2005, compared with treatment seeking for fever and symptoms of ARI.

Figure 2. Trends in treatment seeking for diarrhea (A), fever (B), and symptoms of ARI (C) in East Africa, 2000-2013

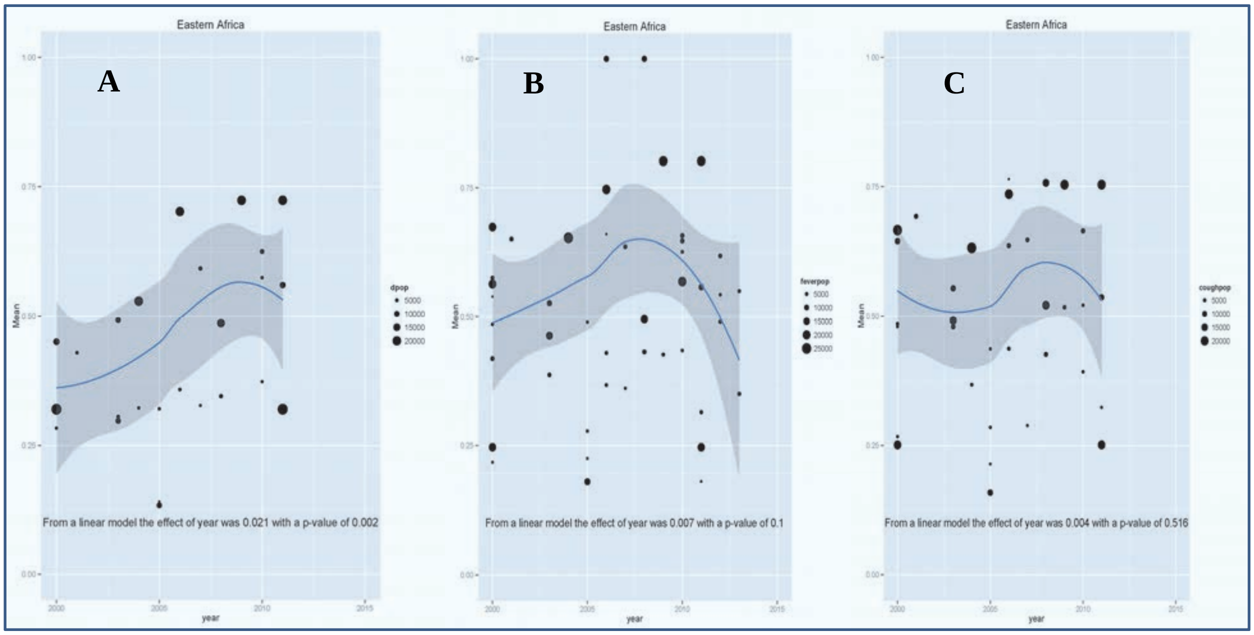
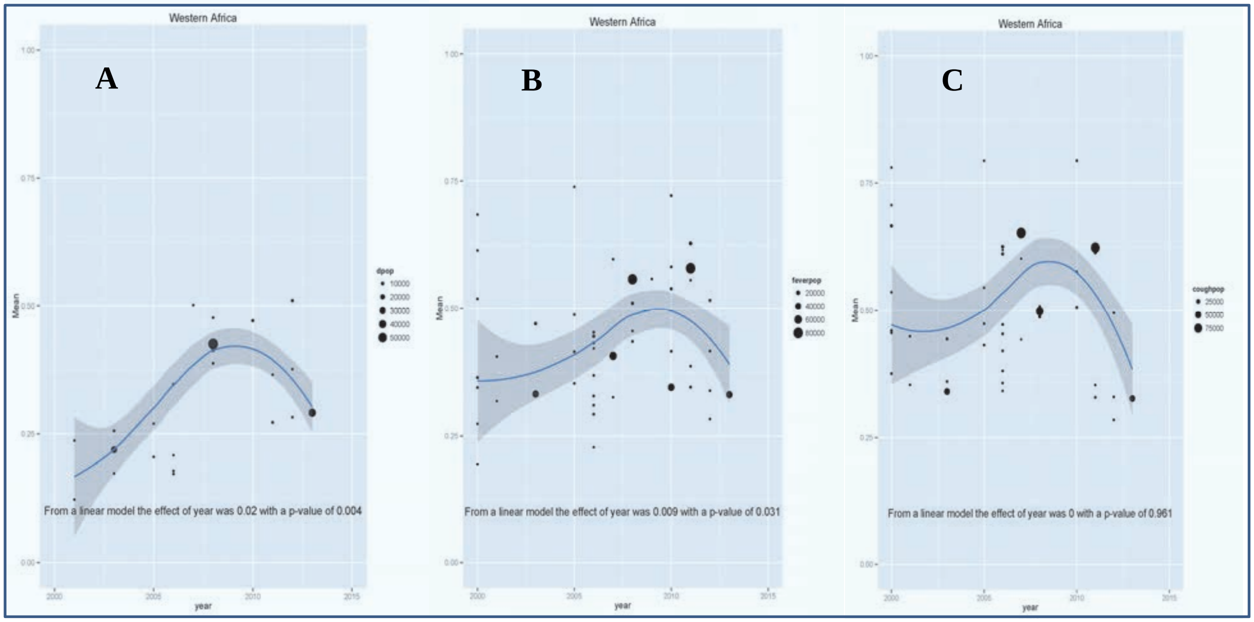
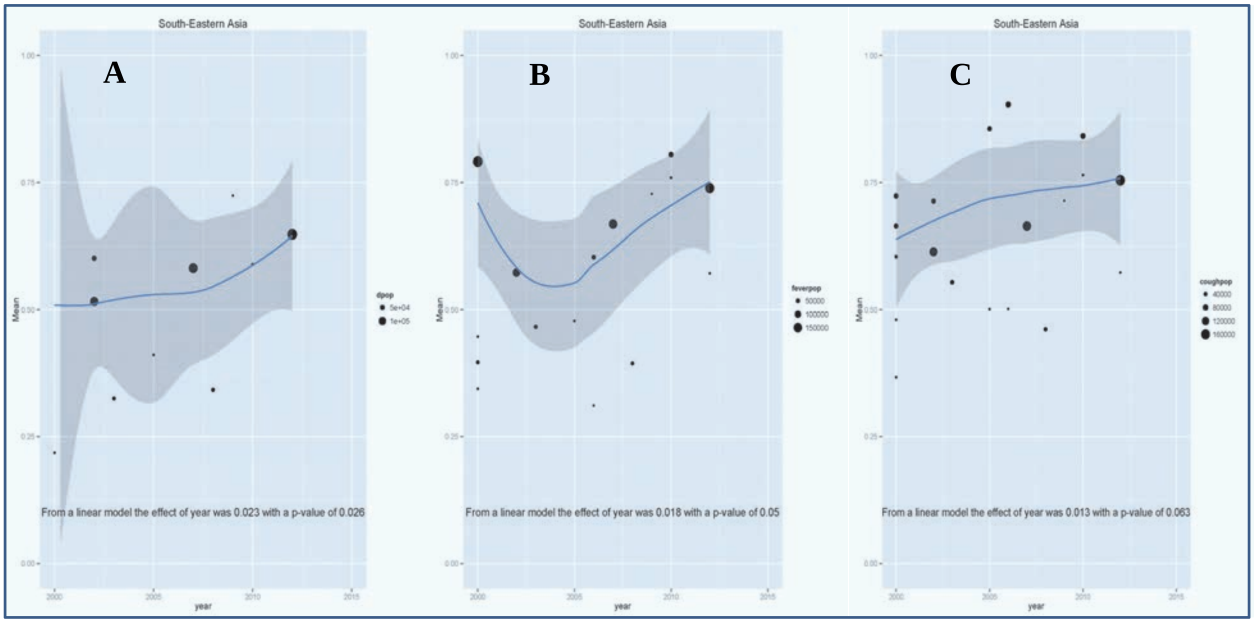


Figure 3. Trends in treatment seeking for diarrhea (A), fever (B), and symptoms of ARI (C) in West Africa, 2000-2013



Treatment seeking across countries in South-eastern Asia between 2000 and 2013 appeared slightly higher (compared with Eastern and Western Africa), ranging from 22% to 72% for symptoms of diarrhea, 31% to 80% for fevers, and 37% to 90% for symptoms of ARI [Figure 4, Appendices A-D]. There was a significant increase over this period in treatment seeking for diarrhea, and a marginally significant increase for fever and symptoms of ARI. Similar to Western Africa, treatment seeking overall between 2000 and 2013 appears to have been slightly lower in South-eastern Asia for diarrhea, compared with treatment seeking for fever and symptoms of ARI.

Figure 4. Trends in treatment seeking for diarrhea (A), fever (B), and symptoms of ARI (C) in South-eastern Asia, 2000-2013

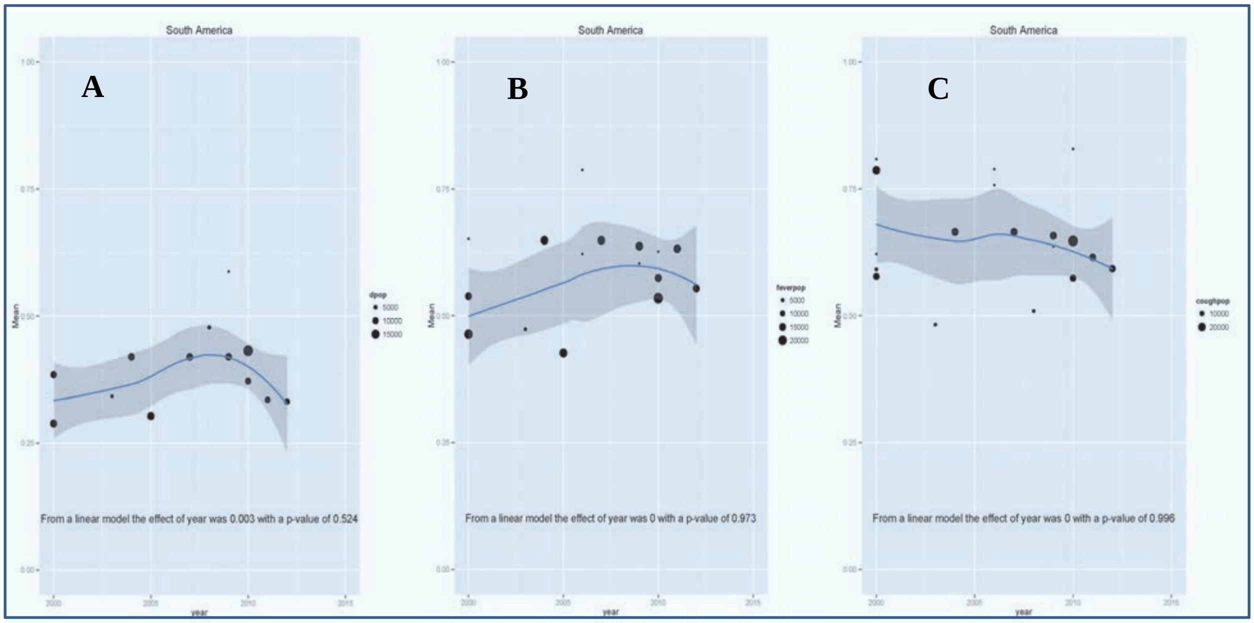


Treatment seeking across countries in South America between 2000 and 2013 appeared to be higher than in the African regions and South-eastern Asia, ranging from 29% to 59% for diarrhea, 43% to 79% for fevers, and 48% to 83% for symptoms of ARI [Figure 5, Appendices A-D]. Overall, treatment seeking in South America between 2000 and 2013 appears to have been slightly lower for diarrhea than for fever and symptoms of ARI.

3.2 Meta-analysis of Predictors of Treatment Seeking for Diarrhea, Fever, and Symptoms of ARI by Subregions

Appendix C presents results of subregional and global meta-analyses of predictors of treatment seeking for diarrhea, fever, and symptoms of ARI. Similar patterns emerged across subregions according to individual and household factors associated with treatment seeking. The patterns were similar across types of illness symptoms.

Figure 5. Trends in treatment seeking for diarrhea (A), fever (B), and symptoms of ARI (C) in South America, 2000-2013



3.2.1 Child's age

Diarrhea. Child's age was a strong predictor of treatment seeking for diarrhea overall, with younger children more likely to have been brought for care than older children [*Adjusted odds ratio AOR*] (AOR=1.26, 95%, CI 1.22-1.31). This effect was noted across all regions with the exception of Southern Africa and Southern Europe (one survey - Albania), with the strongest effect in Northern Africa (AOR=1.59, 95% CI 1.40-1.80).

Fever. Across all subregions, child's age was a strong predictor of treatment seeking for fever as well, with younger children (<24 months) more likely to have been brought for care than older children (24-59 months) (AOR=1.28, 95% CI 1.25-1.32). The strongest effect of child's age was seen in Southern Africa (AOR=1.55, 95% CI 1.29-1.88) and South America (AOR=1.44, 95% CI 1.35-1.54).

Symptoms of ARI. Across all subregions, child's age was a strong predictor of treatment seeking for symptoms of ARI, irrespective of fever, with younger children (<24 months) more likely to have been brought for care than older children (24-59 months) (AOR=1.34, 95% CI 1.29-1.38). In the Caribbean, younger children (<24 months) were 1.3 times more likely to have been brought for care than older children (24-59 months) (AOR=1.32, 95% CI 1.20-1.44). Child's age was also a significant predictor in Central Africa (AOR=1.22, 95% CI 1.12-1.33), Eastern Africa (AOR=1.36, 95% CI 1.26-1.47), Northern Africa (AOR=1.48, 95% CI 1.28-1.70), Southern Africa (AOR=1.47, 95% CI 1.26-1.72), and Western Africa (AOR=1.27, 95% CI 1.16-1.39). Younger age of child was a strong predictor in South America (AOR=1.59, 95% CI 1.49-1.70), in Central America (AOR=1.39, 95% CI 1.23-1.57), and a more moderate predictor in South-eastern Asia (AOR=1.17, 95% CI 1.01-1.36).

3.2.2 Sex of child

Diarrhea. Male children were more likely than female children to have been taken for care for diarrhea (AOR=1.07, 95% CI 1.04-1.09), but this effect was only significant in Northern Africa (AOR=1.26, 95% CI 1.12-1.41), Western Africa (AOR=1.13, 95% CI 1.07-1.19), and Southern Asia (AOR=1.14, 95% CI 1.01-1.27).

Fever. Across all subregions, male children were slightly more likely than female children to have been taken for care for fever (AOR=1.05, 95% CI 1.03-1.07). Male children were significantly more likely to have been taken for care for fever in Central Africa (AOR=1.07, 95% CI 1.03-1.11), Northern Africa (AOR=1.17, 95% CI 1.04-1.31), Western Africa (AOR=1.07, 95% CI 1.03-1.10), South-eastern Asia (AOR=1.08, 95% CI 1.03-1.14), and Southern Asia (AOR=1.19, 95% CI 1.11-1.28), but not in other regions.

Symptoms of ARI. Across all subregions, male children were slightly more likely than female children to be taken for care for symptoms of ARI (AOR=1.06, 95% CI 1.03-1.09), but there was substantial variation by region. Child's sex was not a significant predictor of treatment seeking for symptoms of ARI in most sub-regions, but males were more likely to have been taken for care in Northern Africa (AOR=1.42, 95% CI 1.22-1.66), South-eastern Asia (AOR=1.11, 95% CI 1.01-1.22), Southern Asia (AOR=1.19, 95% CI 1.08-1.31), and Western Asia (AOR=1.21, 95% CI 1.05-1.40), and slightly more likely to have been taken for care in Western Africa (AOR=1.07, 95% CI 1.00-1.15).

3.2.3 Mother's age

Diarrhea. Younger mothers (under age 30) were slightly more likely than older mothers (age 30 and older) to take their child for treatment of diarrhea (AOR=1.03, 95% CI 1.00-1.07) across most subregions. This effect was significant in the Caribbean (AOR=1.16, 95% CI 1.03-

1.30), Eastern Africa (AOR=1.09, 95% CI 1.02-1.16), Southern Asia (AOR=1.11, 95% CI 1.01-1.22), and marginally significant in South-eastern Asia (AOR=1.11, 95% CI 1.00-1.23).

Fever. Younger mothers (<30 years) were slightly more likely than older mothers (30+ years) to take their child for treatment for fever (AOR=1.07, 95% CI 1.04-1.10). The strongest effects were seen in Eastern Africa (OR=1.14, 95% CI 1.08-1.21), Southern Asia (AOR=1.19, 95% CI 1.11-1.28), and South-eastern Asia (AOR=1.07, 95% CI 1.01-1.14), but were not statistically significant in other regions.

Symptoms of ARI. Across all subregions, younger mothers (<30 years) were slightly more likely than older mothers (30+ years) to take their child for treatment for symptoms of ARI (AOR=1.04, 95% CI 1.01-1.08), but there were substantial differences by region. Younger women were more likely to take their child for treatment in the Caribbean (AOR=1.15, 95% CI 1.04-1.26) and Southern Asia (AOR=1.21, 95% CI 1.10-1.33), but slightly less likely to take their child for treatment in Central Africa (AOR=0.88, 95% CI 0.78-1.00). Mother's age had no effect in other regions.

3.2.3 Mother's education

Mother's level of education is positively associated with increased odds of treatment seeking for symptoms of childhood illness.

Diarrhea. Across all subregions, mothers with no education or only primary education were significantly less likely than mothers with secondary or higher education to seek treatment for diarrhea (AOR=0.77, 95% CI 0.73-0.81). This effect was significant across all subregions that had at least two surveys, with the exception of Northern Africa (AOR=1.03, 95% CI 0.90-1.18) and Western Asia (AOR=1.25, 95% CI 0.83-1.88).

Fever. Across all subregions, mothers with no education or only primary education were significantly less likely than mothers with secondary or higher education to seek treatment for fever (AOR=0.75, 95% CI 0.72-0.77). Mother's level of education was associated with increased odds of treatment seeking when their child had fever in all subregions except Northern Africa, Southern Africa, and Western Asia.

Symptoms of ARI. Across all subregions, mothers with no education or only primary education were significantly less likely than mothers with secondary or higher education to seek treatment for symptoms of ARI (AOR=0.72, 95% CI 0.68-0.75). Mother's education was a significant predictor in all regions that had at least two surveys, with the exception of Northern Africa (OR=0.80, 95% CI 0.60-1.06) and Southern Africa (AOR=0.87, 95% CI 0.66-1.14).

3.2.4 Household wealth quintile

Diarrhea. Across all subregions, higher household wealth quintile was a strong predictor of treatment seeking for diarrhea, with children in the poorest households (lowest quintile and second quintile) significantly less likely to have been taken for treatment (AOR=0.78, 95% CI 0.74-0.83). This association was significant in all subregions except the Caribbean (only 3 data points), Central America (only 2 data points), and Southern Africa.

Fever. Across all subregions, household wealth quintile was a strong predictor of treatment seeking for fever, with children in the poorest households (lowest quintile and second quintile) significantly less likely to have been taken for treatment than those in wealthier households (middle quintile, fourth quintile, and highest quintile) (AOR=0.73, 95% CI 0.70-0.76). This association was in a positive direction and significant in all subregions except the Caribbean (3 data points), Central America (2 data points), Central Asia (2 data points), Northern Africa (3 data points), South America, Southern Africa, and Western Asia.

Symptoms of ARI. Across all subregions, children in the poorest households (lowest quintile and second quintile) were less likely than children in wealthier households (middle quintile, fourth quintile, and highest quintile) to be taken for treatment for symptoms of ARI (AOR=0.73, 95% CI 0.69-0.77). Children in the poorest households were significantly less likely to be taken for treatment in all subregions that had at least four surveys, except South America (AOR=0.94, 95% CI 0.83-1.06), with the largest effect in South-eastern Asia (AOR=0.61, 95% CI 0.53-0.71).

3.2.5 Urban-rural residence

Diarrhea. Across all subregions, children living in urban areas were slightly more likely to be taken for treatment of diarrhea than children in rural areas (AOR=1.08, 95% CI 1.01-1.15). Children in urban areas were significantly more likely to be taken for treatment in Western Africa (AOR=1.25, 95% CI 1.06-1.46) and Southern Asia (AOR=1.30, 95% CI 1.05-1.60). However, children in urban areas in Western Asia were less likely to be taken for treatment of diarrhea (AOR=0.79, 95% CI 0.68-0.92).

Fever. Across all subregions, children in urban areas were more likely to be taken for treatment of fever than children in rural areas (AOR=1.28, 95% CI 1.21-1.35), with the largest effect in Southern Asia (AOR=1.47, 95% CI 1.23-1.74), Central America (AOR=1.50, 95% CI 1.09-2.06), and Eastern Africa (AOR=1.44, 95% CI 1.27-1.62).

Symptoms of ARI. Across all subregions, children in urban areas were significantly more likely to be taken for treatment of symptoms of ARI than children in rural areas (AOR=1.27, 95% CI 1.19-1.36), with the largest effect in Southern Asia (OR=1.44, 95% CI 1.21-1.73), Northern Africa (AOR=1.52, 95% CI 1.07-2.17), and Eastern Africa (AOR=1.40, 95% CI 1.20-1.62). There was no difference by urban-rural residence in Western Asia (AOR=1.03, 95% CI 0.68-1.54), Southern Africa (AOR=1.17, 95% CI 0.85-1.59), and South America (AOR=0.96, 95% CI 0.78-1.18).

3.3 Effect of Distance from the Nearest Health Facility on Treatment Seeking for Childhood Illnesses in Malawi and Zambia

Results from the random effects logistic regressions carried out on pooled Malawi and Zambia datasets (section 2.5 above) showed that distance from a health facility is a strong determinant of treatment seeking for diarrhea, fever, and symptoms of ARI (Table 1). For all three illnesses, the farther a household is from a health facility, the less likely the family is to seek treatment for childhood illnesses. Other factors associated with treatment seeking were similar to those observed in the meta-analyses already presented. Younger children, children of younger mothers, and children living in wealthier households were more likely to be taken for treatment when sick.

Table 1. Random effect logistic regression results for factors associated with treatment seeking for childhood illnesses in Malawi and Zambia

		Fever (n = 8,953 with fever)			Diarrhea (n = 10,868 with diarrhea)			Symptoms of ARI (n = 5,142 with cough in chest)		
Characteristic		**AOR**	**95% CI**	**P-value**	**AOR**	**95% CI**	**P-value**	**AOR**	**95% CI**	**P-value**
Sex	Male	1.017	(0.925-1.118)	0.7275	1.062	(0.947-1.191)	0.3026	1.077	(0.946-1.227)	0.2624
	Female	-			-			-		
Child's age (in years)	0 (infant)	1.242	(1.055-1.462)	0.0093	1.128	(0.881-1.444)	0.3406	1.010	(0.812-1.257)	0.9281
	1	1.326	(1.134-1.550)	0.0004	1.424	(1.121-1.810)	0.0039	1.232	(0.991-1.532)	0.060
	2	1.198	(1.022-1.403)	0.0259	1.143	(0.885-1.477)	0.3067	1.066	(0.849-1.340)	0.5802
	3	1.006	(0.854-1.186)	0.9399	1.153	(0.868-1.530)	0.3261	0.956	(0.753-1.213)	0.7109
	4	-			-			-		
Mother's age (in years)	20-29	0.843	(0.686-1.037)	0.1055	0.952	(0.773-1.173)	0.6448	0.929	(0.717-1.203)	0.5767
	30-39	0.778	(0.626-0.967)	0.0235	0.917	(0.730-1.152)	0.4568	0.996	(0.755-1.315)	0.9796
	40-49	0.713	(0.547-0.929)	0.0123	0.901	(0.662-1.227)	0.5088	0.899	(0.627-1.288)	0.5606
	Under 20	-			-			-		
Mother's education	None	0.751	(0.385-1.465)	0.401	1.152	(0.533-2.490)	0.7183	0.850	(0.202-3.569)	0.8239
	Primary	0.870	(0.452-1.678)	0.6786	1.436	(0.673-3.063)	0.3489	0.823	(0.198-3.424)	0.7892
	Secondary	1.121	(0.580-2.166)	0.7338	1.788	(0.836-3.822)	0.134	1.130	(0.271-4.714)	0.8665
	More than secondary	-			-			-		
Residence	Urban	0.983	(0.817-1.181)	0.8519	0.891	(0.694-1.144)	0.3669	0.818	(0.601-1.114)	0.202
	Rural	-			-			-		
Wealth quintile	Lowest	0.687	(0.561-0.842)	0.0003	1.235	(0.970-1.573)	0.0867	0.749	(0.565-0.994)	0.0456
	Second	0.758	(0.618-0.930)	0.0079	1.300	(1.022-1.654)	0.0324	0.809	(0.613-1.069)	0.1365
	Middle	0.813	(0.665-0.993)	0.0424	1.161	(0.918-1.468)	0.212	0.887	(0.677-1.162)	0.3833
	Fourth	0.778	(0.639-0.948)	0.0129	1.189	(0.946-1.496)	0.1382	0.959	(0.733-1.255)	0.7604
	Highest	-			-			-		
Distance from nearest facility	Within 1.9 km	1.612	(1.350-1.926)	<.0001	1.399	(1.126-1.737)	0.0024	1.684	(1.306-2.173)	<.0001
	1.9 - 3.5 km	1.487	(1.256-1.760)	<.0001	1.159	(0.959-1.401)	0.1276	1.262	(1.010-1.578)	0.0405
	3.6 - 5.7 km	1.302	(1.107-1.531)	0.0014	1.132	(0.939-1.364)	0.1926	1.248	(1.006-1.549)	0.0439
	Farther than 5.7 km	-			-			-		

Note: Random effects logistic model also controlled for type of facility visited and dataset. Fever analysis included data from Malawi 2010 DHS, Malawi 2012 DHS, Zambia 2007 DHS, and Zambia 2010 MIS (the 2004 Malawi DHS only asked about treatment for cough and not fever). Diarrhea and cough analysis included data from Malawi 2004 DHS, Malawi 2010 DHS, and Zambia 2007 DHS (MIS did not collect information on diarrhea and cough).

4. DISCUSSION

This study used 248 datasets from nationally-representative household surveys (2000-2013) to assess individual-level trends and sociodemographic determinants of treatment seeking for three childhood illnesses: diarrhea, fever, and symptoms of ARI. The number of datasets used for each illness varied because of availability of data—diarrhea (118), fever (200), and symptoms of ARI (223). Survey datasets were from the Demographic and Health Surveys (DHS), Malaria Indicator Surveys (MIS), and Multiple Indicator Cluster Surveys (MICS). Child-level information on treatment seeking was available for a total of 685,049 children under age 5 with diarrhea (151,607), fever (358,821), and symptoms of ARI (174,621).

Levels of treatment seeking for symptoms of childhood illnesses varied across countries and subregions, by illness symptoms, and among surveys carried out between 2000 and 2013. However, nearly all subregions saw an upward trend in treatment seeking for childhood illnesses; none saw a significant decrease. The majority of subregions showed a significant or marginally significant increase in treatment seeking for fever, including countries of Central America, South-eastern Asia, Central Asia, Western Asia (marginal), Eastern Africa (marginal), Northern Africa, Southern Africa (marginal), and Western Africa. For diarrhea, significant increases in care seeking were seen in Central America, Eastern Africa, South-eastern Asia, Western Asia, and Western Africa. Gains across the subregions were weakest in treatment seeking for symptoms of ARI, with none showing statistically significant increases. Central America, South-eastern Asia, and Western Asia showed marginally significant increases.

The lack of statistically significant increases in treatment seeking for symptoms of ARI and diarrhea, compared with fever, can be largely attributed to the lower prevalence, and therefore smaller sample sizes, of symptoms of ARI and diarrhea. Additionally, the overall levels of treatment seeking for symptoms of ARI were relatively high to begin with in many subregions, with all but Western Africa averaging well above 50% between 2000 and 2013. It is also important to note that while we attempted to measure treatment seeking for illness symptoms that presumably require medical attention, many illnesses reported by mothers and caregivers in the surveys were likely not severe and could have been adequately managed at home; this would include very low fever that lasts a day or two, and mild bouts of diarrhea or cough [15, 16]. While we attempted to mitigate this problem for symptoms of ARI by limiting the sample to children with cough accompanied by rapid breathing or shortness of breath (plus cough occurring in the chest in the MICS), fever was only a “yes” or “no” question in the surveys, with no additional qualification of severity. For diarrhea, we did not find the addition of blood in the stool to be reliably associated with treatment seeking.

The results of the analysis that explored the child, mother, and household-level factors associated with treatment seeking for childhood illness were overall in the expected directions and in line with previous research [9, 17, 19-23]. Mothers with higher levels of education, mothers living in urban areas, mothers in wealthier households, and mothers living closer to a health facility were more likely to take their child for treatment of illness. This pattern was seen for treatment seeking regarding diarrhea, fever, and symptoms of ARI.

The analysis of pooled data from Zambia and Malawi, which made use of geo-coordinates, demonstrated that access to health services, as measured by distance from the nearest health facility, is a strong and consistent barrier to treatment seeking. For all three illnesses, children in households less than 2 km from a health facility were 1.4 to 1.7 times more likely to be taken for treatment than their counterparts in households at least 6 km from a health facility, showing a pattern of decreasing odds of treatment seeking with increasing distance from a health facility. These findings are consistent with previous research in this area [19-23]. Distance from a facility likely acts as a barrier to treatment seeking in several ways: (1) increased cost of travel to and from the facility, (2) increased time required for seeking treatment, and (3) decreased motivation to take a sick child on a lengthy trip to receive treatment. Similarly, across all datasets, children in rural households, which are typically farther from health facilities than urban households, were consistently less likely to be taken for treatment for their illnesses compared with their urban counterparts [31].

As expected, younger children (under age 2) were more likely to be taken for treatment than older children (age 2-5 years), across almost all subregions. This may be due to younger children having more severe symptoms, although we were unable to test this with these data. This finding is consistent with previous research in several low-income settings [31-34].

Mother’s age was less consistently related to treatment seeking for childhood illness across subregions, although the association was similar for diarrhea, fever and symptoms of ARI. When the association between mother’s age and treatment seeking was significant, results showed that younger mothers were more likely than older mothers to take their child for treatment of symptoms of illness. Several factors may account for this pattern; for example, the child of younger mothers is more likely to be the woman's first child, and she would therefore be more likely to seek treatment; also older mothers may perceive themselves more adept at discerning whether an illness is severe enough to warrant seeking medical attention [35,36].

Previous research [17, 37, 38] has shown that women living in poorer households are less likely to seek treatment for their sick child than women living in more affluent households. Across the subregions, women in the two lowest (poorest) quintiles of the household wealth index were consistently less likely to seek treatment for their child with diarrhea, fever, and symptoms of ARI. This is likely due to a number of factors including (1) lack of money to pay user fees or medicine costs, (2) transportation costs to and from the health facility, and (3) time lost from work or farming to take the child for treatment [19-23, 39].

Mothers with no education or only primary education were consistently less likely to take their child for treatment when sick, compared with mothers with secondary education or higher, for all three illnesses. This pattern has been shown consistently in previous research in low-income settings [18, 35, 40, 41]. It is suggested that women with little or no education (1) are less likely to recognize severe symptoms in their sick child, (2) are more likely to seek treatment from a traditional healer, and (3) are less likely to have the financial and other resources to take the sick child for treatment at a health facility.

In the majority of subregions, sex of the child was not associated with whether or not the child was taken for treatment to a health facility, irrespective of the illness symptoms. However, boys were slightly more likely to be taken for treatment for their illness in several subregions, including Western Africa, Southern Asia, and South-eastern Asia (AORs ranged between 1.01 and 1.1). The disparity of boys being more likely to be taken for treatment was more pronounced in Northern Africa, with boys being 26% more likely to be taken for treatment of diarrhea, 17% more likely to be taken for treatment of fever, and 42% more likely to be taken for treatment of symptoms of ARI. While we found no published research studies specific to Northern Africa, differential access to treatment for male and female children is supported by previous research [34, 42].

There are some important limitations to consider when interpreting the results of this analysis. First, a number of unmeasured and unobserved factors were not included in the risk factor meta-analyses. Perhaps the most important of these were (1) perceived quality of health care available to mothers/caregivers and (2) actual quality of health care services available at the health facilities. Both have been shown to be strong predictors of whether treatment is sought and where it is sought, across many low-income settings [13, 14, 24, 35, 43, 44]. Other important factors that were not measured included perception of severity and duration of illnesses, perceived self-efficacy of mothers/caregivers, social capitol in the community, and local cultural beliefs about the causes of childhood illnesses and appropriate remedies. All of these factors have been shown to hinder treatment seeking for childhood illnesses across many low-income settings [11, 43, 45]. Second, there are always random and systematic errors with respect to recall of illness symptoms and treatment sought [46, 47]. Third, in some subregions the number of datasets available for analysis was small, yielding estimates with a broad range of uncertainty regarding trends in treatment seeking. This situation limited the statistical power available to identify statistically significant trends over time. Fourth, in the analysis of the effect of distance from the nearest health facility on treatment seeking in Malawi and Zambia, the geocoded lists of health facilities were from 2010. There is, therefore, the potential for misclassification in earlier survey years because the lists may not accurately reflect the health facilities present in the two countries before 2010.

5. CONCLUSIONS

Several important conclusions resulted from these analyses. First, between 2000 and 2013, there was substantial variation across countries and subregions regarding progress in treatment seeking and access to health care for childhood illnesses. Second, many barriers to treatment seeking hinder children from accessing health care services for treatment of the three most important (and potentially deadly) childhood illnesses: diarrhea, fever, and ARI. These barriers include mother's lack of education, low household income, and distance from the nearest health facility. Third, health systems need to improve access to high quality and appropriate health services for treatment of childhood illnesses. Lastly, the results of this study suggest that efforts to improve access to care, such as the ongoing scale-up of community case management, should focus on poor and less educated households in rural areas in order to have the largest programmatic impact.

REFERENCES

1. Black, R.E., et al., *Global, regional, and national causes of child mortality in 2008: a systematic analysis.* Lancet, 2010.

2. Liu, L., et al., *Global, regional, and national causes of child mortality: an updated systematic analysis for 2010 with time trends since 2000.* Lancet, 2012. 379(9832): p. 2151-2161.

3. You, D., et al., *Levels and trends in under-5 mortality, 1990-2008.* Lancet, 2010. 375(9709): p. 100-3.

4. Jones, G., et al., *How many child deaths can we prevent this year?* Lancet, 2003. 362(9377): p. 65-71.

5. Darmstadt, G.L., et al., *Evidence-based, cost-effective interventions: how many newborn babies can we save?* Lancet, 2005. 365(9463): p. 977-88.

6. Bhutta, Z.A., et al., *What works? Interventions for maternal and child undernutrition and survival.* Lancet, 2008. 371(9610): p. 417-40.

7. Gething, P.W., et al., *Estimating the number of paediatric fevers associated with malaria infection presenting to Africa's public health sector in 2007.* PLoS Med, 2010. 7(7): p. e1000301.

8. Das, J.K., et al., *Effect of community based interventions on childhood diarrhea and pneumonia: uptake of treatment modalities and impact on mortality.* BMC Public Health, 2013. 13(Suppl 3): p. S29.

9. Schellenberg, J.A., et al., *Inequities among the very poor: health care for children in rural southern Tanzania.* Lancet, 2003. 361(9357): p. 561-6.

10. Colvin, C.J., et al., *A systematic review of qualitative evidence on barriers and facilitators to the implementation of task-shifting in midwifery services.* Midwifery, 2013. 29(10): p. 1211-21.

11. Dillip, A., et al., *Socio-cultural factors explaining timely and appropriate use of health facilities for degedege in south-eastern Tanzania.* Malar J, 2009. 8: p. 144.

12. Bentley, M.E., *Household behaviors in the management of diarrhea and their relevance for persistant diarrhea.* Acta Paediatr, 1992. 81 Suppl 381: p. 49-54.

13. Maslove, D.M., et al., *Barriers to the effective treatment and prevention of malaria in Africa: A systematic review of qualitative studies.* BMC Int Health Hum Rights, 2009. 9: p. 26.

14. Pelto, P.J. and G.H. Pelto, *Studying knowledge, culture, and behavior in applied medical anthropology.* Med Anthropol Q, 1997. 11(2): p. 147-63.

15. Klein, E.Y., et al., *Relationship between treatment-seeking behaviour and artemisinin drug quality in Ghana.* Malar J, 2012. 11: p. 110.

16. Das, J.K., et al., *Effect of community based interventions on childhood diarrhea and pneumonia: uptake of treatment modalities and impact on mortality.* BMC Public Health, 2013. 13 Suppl 3: p. S29.

17. Simba, D.O., et al., *Understanding caretakers' dilemma in deciding whether or not to adhere with referral advice after pre-referral treatment with rectal artesunate.* Malar J, 2010. 9: p. 123.

18. Obrist, B., et al., *Access to health care in contexts of livelihood insecurity: a framework for analysis and action.* PLoS Med, 2007. 4(10): p. 1584-8.

19. Feikin, D.R., et al., *The impact of distance of residence from a peripheral health facility on pediatric health utilisation in rural western Kenya.* Trop Med Int Health, 2009. 14(1): p. 54-61.

20. Bruce, N., et al., *Determinants of care seeking for children with pneumonia and diarrhea in Guatemala: implications for intervention strategies.* Am J Public Health, 2014. 104(4): p. 647-57.

21. Kassile, T., et al., *Determinants of delay in care seeking among children under five with fever in Dodoma region, central Tanzania: a cross-sectional study.* Malar J, 2014. 13: p. 348.

22. Ferdous, F., et al., *Mothers' perception and healthcare seeking behavior of pneumonia children in rural Bangladesh.* ISRN Family Med, 2014. 2014: p. 690315.

23. Bigogo, G., et al., *Health-seeking patterns among participants of population-based morbidity surveillance in rural western Kenya: implications for calculating disease rates.* Int J Infect Dis, 2010. 14(11): p. e967-73.

24. Akin, J.S. and P. Hutchinson, *Health-care facility choice and the phenomenon of bypassing.* Health Policy Plan, 1999. 14(2): p. 135-51.

25. Akin, J.S., et al., *Price elasticities of demand for curative health care with control for sample selectivity on endogenous illness: an analysis for Sri Lanka.* Health Econ, 1998. 7(6): p. 509-31.

26. National Statistical Office (NSO) [Malawi], *Malawi Demographic and Health Survey 2004.*, 2005, NSO and ORC Macro: Calverton, Maryland, USA.

27. National Statistical Office (NSO) [Malawi] and ICF Macro, *Malawi Demographic and Health Survey 2010*, 2011, NSO and ICF Macro: Zomba, Malawi, and Calverton, Maryland, USA.

28. National Malaria Control Programme (NMCP) [Malawi] and ICF International, *Malawi Malaria Indicator Survey (MIS) 2012*, 2012, NMCP and ICF International: Lilongwe, Malawi and Calverton, Maryland, USA.

29. Central Statistical Office (CSO), et al., *Zambia Demographic and Health Survey 2007*, 2009, CSO and Macro International Inc.: Calverton, Maryland, USA.

30. Zambian Ministry of Health, *Zambia National Malaria Indicator Survey 2010.*, 2010: Lusaka, Zambia.

31. Ewing, V.L., et al., *Seasonal and geographic differences in treatment-seeking and household cost of febrile illness among children in Malawi.* Malar J, 2011. 10: p. 32.

32. Nasrin, D., et al., *Health care seeking for Childhood Diarrhea in Developing Countries: Evidence from Seven Sites in Africa and Asia.* Am J Trop Med Hyg, 2013. 89(1 Suppl): p. 3-12.

33. Gao, W., et al., *Care-seeking pattern for diarrhea among children under 36 months old in rural western China.* PLoS ONE, 2012. 7(8): p. e43103.

34. Pandey, A., et al., *Gender differences in healthcare-seeking during common illnesses in a rural community of West Bengal, India.* J Health Popul Nutr, 2002. 20(4): p. 306-11.

35. Goldman, N., A.R. Pebley, and M. Gragnolati, *Choices about treatment for ARI and diarrhea in rural Guatemala.* Soc Sci Med, 2002. 55(10): p. 1693-712.

36. Feyisetan, B.J., S. Asa, and J.A. Ebigbola, *Mothers' management of childhood diseases in Yorubaland: the influence of cultural beliefs.* Health Transit Rev, 1997. 7(2): p. 221-34.

37. Ustrup, M., et al., *Potential barriers to healthcare in Malawi for under-five children with cough and fever: a national household survey.* J Health Popul Nutr, 2014. 32(1): p. 68-78.

38. Kisia, J., et al., *Factors associated with utilization of community health workers in improving access to malaria treatment among children in Kenya.* Malar J, 2012. 11: p. 248.

39. Hanson, K., et al., *Preferences for hospital quality in Zambia: results from a discrete choice experiment.* Health Econ, 2005. 14(7): p. 687-701.

40. Malhotra, N. and R.P. Upadhyay, *Why are there delays in seeking treatment for childhood diarrhoea in India?* Acta Paediatr, 2013. 102(9): p. e413-8.

41. Bhan, G., et al., *The effect of maternal education on gender bias in care-seeking for common childhood illnesses.* Soc Sci Med, 2005. 60(4): p. 715-24.

42. Najnin, N., C.M. Bennett, and S.P. Luby, *Inequalities in care-seeking for febrile illness of under-five children in urban Dhaka, Bangladesh.* J Health Popul Nutr, 2011. 29(5): p. 523-31.

43. Alvesson, H.M., et al., *Shaping healthcare-seeking processes during fatal illness in resource-poor settings. A study in Lao PDR.* BMC Health Serv Res, 2012. 12: p. 477.

44. Hadad, S., E. Franca, and E. Uchoa, *Preventable infant mortality and quality of health care: maternal perception of the child's illness and treatment.* Cad Saude Publica, 2002. 18(6): p. 1519-27.

45. Kauchali, S., et al., *Local beliefs about childhood diarrhoea: importance for healthcare and research.* J Trop Pediatr, 2004. 50(2): p. 82-9.

46. Eisele, T.P., et al., *Measuring Coverage of MNCH: Total survey error and the interpretation of intervention coverage estimates from household surveys.* PLoS Med, 2013. 10(5): p. e1001386.

47. Eisele, T.P., et al., *Measuring coverage of MNCH: Accuracy of measuring diagnosis and treatment of childhood malaria from household surveys in Zambia.* PLoS Med, 2013. 10(5): p. e1001417.

APPENDICES

Appendix A: Prevalence of treatment seeking for diarrhea, fever, and symptoms of acute respiratory infection (ARI)

Appendix B: Loess regression and linear regression results for trends in treatment seeking for diarrhea, by subregions

Appendix C: Loess regression and linear regression results for trends in treatment seeking for fever, by subregions

Appendix D: Loess regression and linear regression results for trends in treatment seeking for symptoms of acute respiratory infections (ARI), by subregions

Appendix E: Results of subregional and global meta-analyses of predictors of treatment seeking for diarrhea, by subregions

Appendix F: Results of subregional and global meta-analyses of predictors of treatment seeking for fever, by subregions

Appendix G: Results of subregional and global meta-analyses of predictors of treatment seeking for symptoms of acute respiratory infections (ARI), by subregions

Appendix A: Point estimates of treatment seeking for diarrhea, fever and symptoms of acute respiratory infection (ARI), 2000-2013

				Treatment seeking for diarrhea				Treatment seeking for fever				Treatment seeking for symptoms of ARI			
UN Region	Country	Year	Survey	n	Proportion	95% CI		n	Proportion	95% CI		n	Proportion	95% CI	
Eastern Africa	Burundi	2000	MICS					548	0.49	0.45	0.52	417	0.48	0.43	0.53
Eastern Africa	Burundi	2005	MICS					1,922	0.49	0.46	0.52	1,080	0.44	0.40	0.47
Eastern Africa	Burundi	2010	DHS	1,787	0.57	0.55	0.60	2,077	0.63	0.60	0.65	2,087	0.52	0.49	0.55
Eastern Africa	Burundi	2012	MIS					1,689	0.54	0.51	0.57				
Eastern Africa	Comoros	2004	DHS	1,108	0.21	0.18	0.25	1,780	0.41	0.38	0.45	762	0.41	0.35	0.46
Eastern Africa	Comoros	2011	DHS	2,060	0.23	0.20	0.26	2,621	0.28	0.25	0.31	1,657	0.24	0.21	0.27
Eastern Africa	Djibouti	2006	MICS					112	0.66	0.56	0.76	91	0.76	0.65	0.87
Eastern Africa	Ethiopia	2000	DHS	1,612	0.32	0.28	0.36	2,049	0.25	0.22	0.28	1,237	0.25	0.21	0.29
Eastern Africa	Ethiopia	2005	DHS	2,154	0.13	0.11	0.15	2,872	0.18	0.15	0.21	2,199	0.16	0.13	0.19
Eastern Africa	Ethiopia	2011	DHS	1,612	0.32	0.28	0.36	2,049	0.25	0.22	0.28	1,237	0.25	0.21	0.29
Eastern Africa	Kenya	2000	MICS					1,135	0.56	0.52	0.61	545	0.67	0.61	0.73
Eastern Africa	Kenya	2003	DHS	865	0.30	0.26	0.34	2,213	0.46	0.43	0.50	1,008	0.49	0.45	0.53
Eastern Africa	Kenya	2008	DHS	946	0.49	0.43	0.54	1,354	0.50	0.46	0.54	710	0.52	0.46	0.58
Eastern Africa	Comoros	2000	MICS					1,407	0.54	0.51	0.56	448	0.65	0.61	0.69
Eastern Africa	Madagascar	2000	MICS					1,021	0.42	0.37	0.46	374	0.64	0.58	0.71
Eastern Africa	Madagascar	2003	DHS	467	0.31	0.23	0.38	1,030	0.39	0.33	0.45	443	0.48	0.40	0.55
Eastern Africa	Madagascar	2008	DHS	1,003	0.35	0.31	0.38	1,074	0.43	0.39	0.47	604	0.43	0.37	0.48
Eastern Africa	Madagascar	2011	MIS					959	0.31	0.27	0.36				
Eastern Africa	Madagascar	2013	MIS					693	0.35	0.28	0.42				
Eastern Africa	Malawi	2000	DHS	1,755	0.28	0.26	0.31	4,245	0.26	0.24	0.28	2,672	0.27	0.24	0.29
Eastern Africa	Malawi	2004	DHS	2,187	0.32	0.29	0.35	3,702	0.41	0.39	0.44	1,865	0.37	0.34	0.40
Eastern Africa	Malawi	2006	MICS					8,053	0.43	0.41	0.45	1,716	0.64	0.60	0.67
Eastern Africa	Malawi	2010	DHS	3,098	0.62	0.60	0.65	6,178	0.66	0.64	0.67	2,764	0.66	0.64	0.69
Eastern Africa	Malawi	2010	MIS					895	0.65	0.60	0.69				
Eastern Africa	Malawi	2012	MIS					676	0.49	0.44	0.54				
Eastern Africa	Mozambique	2003	DHS	1,199	0.49	0.44	0.54	2,272	0.53	0.49	0.56	925	0.55	0.51	0.60

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Appendix A – ***Continued***

				Treatment seeking for diarrhea				Treatment seeking for fever				Treatment seeking for symptoms of ARI			
UN Region	Country	Year	Survey	n	Proportion	95% CI		n	Proportion	95% CI		n	Proportion	95% CI	
Eastern Africa	Mozambique	2008	MICS									534	0.76	0.71	0.81
Eastern Africa	Mozambique	2011	DHS	1,071	0.56	0.51	0.61	1,313	0.56	0.51	0.60	495	0.54	0.47	0.60
Eastern Africa	Rwanda	2000	MICS					1,012	0.22	0.19	0.25	352	0.48	0.43	0.54
Eastern Africa	Rwanda	2005	DHS	2,229	0.14	0.12	0.16	3,181	0.22	0.21	0.24	2,757	0.21	0.20	0.23
Eastern Africa	Rwanda	2007	DHS	687	0.33	0.28	0.37	1,037	0.36	0.32	0.40	873	0.29	0.25	0.33
Eastern Africa	Rwanda	2010	DHS	1,107	0.37	0.34	0.41	1,311	0.43	0.40	0.47	835	0.39	0.35	0.43
Eastern Africa	Rwanda	2013	MIS					876	0.55	0.51	0.59				
Eastern Africa	Somalia	2011	MICS					1,288	0.18	0.15	0.21	834	0.32	0.27	0.38
Eastern Africa	Tanzania	2004	DHS	1,011	0.53	0.48	0.57	1,585	0.65	0.61	0.69	528	0.63	0.57	0.69
Eastern Africa	Tanzania	2010	DHS					1,672	0.57	0.53	0.61				
Eastern Africa	Uganda	2000	DHS	1,176	0.45	0.41	0.49	2,617	0.67	0.64	0.70	1,343	0.67	0.63	0.71
Eastern Africa	Uganda	2006	DHS	1,956	0.70	0.67	0.73	3,091	0.75	0.72	0.77	1,728	0.74	0.70	0.77
Eastern Africa	Uganda	2009	MIS	1,684	0.72	0.69	0.75	2,855	0.80	0.78	0.82	1,641	0.75	0.72	0.78
Eastern Africa	Uganda	2011	DHS	1,684	0.72	0.69	0.75	2,855	0.80	0.78	0.82	1,641	0.75	0.72	0.78
Eastern Africa	Zambia	2000	MICS					868	0.58	0.48	0.67				
Eastern Africa	Zambia	2001	DHS	1,225	0.43	0.39	0.46	2,603	0.65	0.62	0.68	861	0.69	0.66	0.73
Eastern Africa	Zambia	2006	MIS					464	1.00	1.00	1.00				
Eastern Africa	Zambia	2007	DHS	902	0.59	0.55	0.64	1,025	0.64	0.60	0.68	523	0.65	0.59	0.70
Eastern Africa	Zambia	2008	MIS					871	1.00	1.00	1.00				
Eastern Africa	Zambia	2010	MIS					1,108	0.66	0.61	0.70				
Eastern Africa	Zambia	2012	MIS					733	0.62	0.56	0.67				
Eastern Africa	Zimbabwe	2005	DHS	613	0.32	0.27	0.37	375	0.28	0.22	0.33	530	0.28	0.23	0.34
Eastern Africa	Zimbabwe	2006	DHS	674	0.36	0.31	0.40	515	0.37	0.32	0.41	531	0.44	0.39	0.49
Eastern Africa	Zimbabwe	2009	MICS					530	0.43	0.37	0.48	491	0.52	0.47	0.57
Central Africa	Angola	2000	MICS					1,422	0.62	0.59	0.66	408	0.64	0.58	0.70
Central Africa	Angola	2006	MIS					265	0.52	0.44	0.59				

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Appendix A – ***Continued***

				Treatment seeking for diarrhea				Treatment seeking for fever				Treatment seeking for symptoms of ARI			
UN Region	**Country**	**Year**	**Survey**	**n**	**Proportion**	**95% CI**		**n**	**Proportion**	**95% CI**		**n**	**Proportion**	**95% CI**	
Central Africa	Angola	2011	MIS					2,645	0.56	0.52	0.59				
Central Africa	DRC	2000	MICS					4,143	0.35	0.32	0.38	979	0.58	0.52	0.63
Central Africa	DRC	2007	DHS	1,287	0.33	0.27	0.38	2,556	0.45	0.41	0.49	1,224	0.42	0.38	0.46
Central Africa	DRC	2010	MICS					2,992	0.58	0.54	0.62	678	0.65	0.60	0.71
Central Africa	CAR	2000	MICS					4,702	0.30	0.28	0.33	1,547	0.44	0.40	0.47
Central Africa	CAR	2006	MICS					2,019	0.33	0.30	0.37	671	0.41	0.36	0.47
Central Africa	CAR	2010	MICS					3,337	0.38	0.35	0.41	771	0.37	0.32	0.42
Central Africa	Congo	2005	DHS	627	0.25	0.21	0.29	1,002	0.46	0.40	0.51	322	0.47	0.40	0.55
Central Africa	Congo	2011	DHS	1,529	0.37	0.32	0.41	2,278	0.47	0.42	0.51	807	0.50	0.44	0.56
Central Africa	Cameroon	2000	MICS					830	0.34	0.30	0.38	204	0.56	0.49	0.63
Central Africa	Cameroon	2006	MICS					1,154	0.37	0.33	0.41	441	0.55	0.48	0.61
Central Africa	Eq Guinea	2000	MICS					741	0.48	0.43	0.53	247	0.70	0.62	0.77
Central Africa	Gabon	2000	DHS	592	0.33	0.28	0.38					509	0.61	0.55	0.66
Central Africa	Gabon	2012	DHS	978	0.36	0.31	0.41	1,300	0.47	0.41	0.54	830	0.47	0.41	0.54
Central Africa	Sao Tom/Pri	2000	MICS					633	0.73	0.68	0.77	71	0.79	0.69	0.89
Central Africa	Sao Tom/Pri	2008	DHS	227	0.52	0.43	0.62	246	0.72	0.63	0.81	203	0.69	0.61	0.77
Central Africa	Chad	2000	MICS					1,560	0.24	0.21	0.26	656	0.36	0.32	0.40
Central Africa	Chad	2004	DHS	1,186	0.17	0.13	0.20	1,535	0.22	0.18	0.26				
Central Africa	Chad	2010	MICS					4,219	0.38	0.35	0.41	1,442	0.44	0.39	0.48
Northern Africa	Egypt	2000	DHS									1,059	0.66	0.62	0.70
Northern Africa	Egypt	2003	DHS	1,334	0.46	0.42	0.49					689	0.70	0.66	0.75
Northern Africa	Egypt	2005	DHS	2,471	0.48	0.45	0.51	2,749	0.61	0.59	0.64	1,407	0.67	0.63	0.70
Northern Africa	Egypt	2008	DHS	979	0.56	0.52	0.60	1,466	0.65	0.62	0.68	1,067	0.70	0.67	0.74
Northern Africa	Morocco	2003	DHS	723	0.22	0.19	0.26	1,549	0.34	0.31	0.38	693	0.38	0.33	0.42
Northern Africa	Sudan	2000	MICS					5,290	0.42	0.38	0.45	1,112	0.64	0.60	0.68
Northern Africa	Tunisia	2011	MICS									492	0.78	0.73	0.83

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Appendix A – ***Continued***

				Treatment seeking for diarrhea				Treatment seeking for fever				Treatment seeking for symptoms of ARI			
UN Region	Country	Year	Survey	n	Proportion	95% CI		n	Proportion	95% CI		n	Proportion	95% CI	
Southern Africa	Lesotho	2000	MICS									252	0.59	0.53	0.65
Southern Africa	Lesotho	2004	DHS	470	0.29	0.24	0.34	885	0.57	0.53	0.61	663	0.60	0.55	0.64
Southern Africa	Lesotho	2009	DHS	417	0.53	0.48	0.59	642	0.60	0.55	0.65	458	0.60	0.55	0.66
Southern Africa	Namibia	2000	DHS	477	0.51	0.44	0.57	755	0.58	0.53	0.63	606	0.55	0.49	0.61
Southern Africa	Namibia	2006	DHS	576	0.60	0.55	0.66	773	0.56	0.51	0.61	385	0.67	0.61	0.73
Southern Africa	Namibia	2009	MIS					1,130	0.73	0.68	0.77				
Southern Africa	Swaziland	2000	MICS					135	0.52	0.43	0.61	335	0.70	0.65	0.75
Southern Africa	Swaziland	2006	DHS	347	0.57	0.50	0.64	712	0.49	0.44	0.54	369	0.57	0.51	0.64
Southern Africa	Swaziland	2010	MICS					273	0.64	0.58	0.71	342	0.65	0.59	0.70
Southern Africa	Swaziland	2010	MIS					39	0.69	0.55	0.84				
Western Africa	Burkina Faso	2003	DHS	1,864	0.17	0.15	0.20	3,425	0.33	0.30	0.36	819	0.36	0.31	0.41
Western Africa	Burkina Faso	2006	MICS					1,051	0.31	0.26	0.36	218	0.45	0.37	0.54
Western Africa	Burkina Faso	2010	DHS	2,027	0.47	0.44	0.50	2,935	0.54	0.51	0.57	591	0.51	0.45	0.56
Western Africa	Benin	2001	DHS	643	0.24	0.20	0.27	1,965	0.32	0.29	0.35	568	0.35	0.30	0.40
Western Africa	Benin	2006	DHS	1,395	0.21	0.18	0.23	4,204	0.37	0.35	0.39	1,409	0.36	0.33	0.39
Western Africa	Benin	2011	DHS	816	0.37	0.33	0.41	1,141	0.39	0.35	0.42	421	0.35	0.30	0.41
Western Africa	Cote d'Ivoire	2000	MICS					2,441	0.36	0.34	0.38	265	0.67	0.61	0.73
Western Africa	Cote d'Ivoire	2006	MICS					2,209	0.29	0.26	0.33	422	0.61	0.55	0.67
Western Africa	Cote d'Ivoire	2011	DHS	1,273	0.27	0.24	0.31	1,624	0.35	0.31	0.38	597	0.33	0.27	0.38
Western Africa	Guinea Biss	2000	MICS					2,515	0.61	0.59	0.63	566	0.71	0.67	0.75
Western Africa	Guinea Biss	2006	MICS					782	0.42	0.38	0.47	249	0.62	0.54	0.69
Western Africa	Ghana	2006	MICS					796	0.45	0.39	0.50	187	0.63	0.54	0.71
Western Africa	Ghana	2003	DHS	580	0.26	0.21	0.31	747	0.47	0.43	0.51	347	0.44	0.38	0.51
Western Africa	Ghana	2008	DHS	548	0.41	0.36	0.46	546	0.51	0.46	0.56	301	0.49	0.42	0.56
Western Africa	Ghana	2011	MICS					1,802	0.63	0.59	0.67	271	0.61	0.52	0.71
Western Africa	Gambia	2000	MICS					486	0.68	0.63	0.74	248	0.78	0.71	0.85

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Appendix A – *Continued*

UN Region	Country	Year	Survey	Treatment seeking for diarrhea				Treatment seeking for fever				Treatment seeking for symptoms of ARI			
				n	Proportion	95% CI		n	Proportion	95% CI		n	Proportion	95% CI	
Western Africa	Gambia	2005	MICS					536	0.74	0.69	0.78	362	0.79	0.75	0.84
Western Africa	Guinea	2005	DHS	822	0.27	0.22	0.32	1,768	0.35	0.31	0.39	414	0.43	0.37	0.50
Western Africa	Guinea	2012	DHS	1,071	0.38	0.33	0.42	1,850	0.34	0.30	0.38	792	0.33	0.27	0.39
Western Africa	Liberia	2007	DHS	1,055	0.50	0.44	0.56	1,589	0.60	0.55	0.64	695	0.60	0.54	0.66
Western Africa	Liberia	2009	MIS					1,596	0.56	0.51	0.60				
Western Africa	Liberia	2011	DHS					1,617	0.56	0.51	0.60				
Western Africa	Mali	2001	DHS	2,183	0.12	0.10	0.14	3,254	0.41	0.38	0.43	1,187	0.45	0.40	0.50
Western Africa	Mali	2006	DHS	1,450	0.18	0.15	0.21	2,094	0.33	0.30	0.36	699	0.38	0.33	0.43
Western Africa	Mali	2012	DHS	844	0.28	0.25	0.32	809	0.28	0.24	0.33	324	0.28	0.22	0.34
Western Africa	Mauritania	2007	MICS					1,439	0.33	0.29	0.36	49	0.44	0.29	0.60
Western Africa	Nigeria	2003	DHS	911	0.22	0.16	0.28	1,559	0.33	0.29	0.37	503	0.34	0.27	0.41
Western Africa	Nigeria	2007	MICS					2,218	0.41	0.38	0.44	339	0.65	0.59	0.72
Western Africa	Nigeria	2008	DHS	2,620	0.43	0.40	0.45	3,849	0.56	0.53	0.58	1,166	0.50	0.46	0.54
Western Africa	Nigeria	2010	MIS					1,805	0.35	0.30	0.39				
Western Africa	Nigeria	2011	MICS					5,172	0.58	0.55	0.60	987	0.62	0.58	0.67
Western Africa	Nigeria	2013	DHS	2,950	0.29	0.26	0.32	3,516	0.33	0.31	0.36	1,122	0.33	0.28	0.37
Western Africa	Niger	2000	MICS					1,899	0.19	0.16	0.23	563	0.46	0.40	0.52
Western Africa	Niger	2006	DHS	1,669	0.17	0.14	0.20	2,170	0.45	0.41	0.49	1,166	0.47	0.41	0.53
Western Africa	Niger	2012	DHS	1,588	0.51	0.48	0.54	1,545	0.52	0.48	0.56	823	0.49	0.44	0.55
Western Africa	Sierra Leone	2000	MICS					1,224	0.52	0.49	0.55	211	0.54	0.46	0.61
Western Africa	Sierra Leone	2005	MICS					1,828	0.49	0.46	0.52	566	0.54	0.50	0.59
Western Africa	Sierra Leone	2008	DHS	581	0.48	0.41	0.54	1,210	0.46	0.41	0.50	482	0.51	0.45	0.57
Western Africa	Sierra Leone	2010	MICS					3,155	0.72	0.70	0.75	699	0.79	0.76	0.83
Western Africa	Senegal	2000	MICS					2,024	0.34	0.32	0.37	610	0.38	0.33	0.42
Western Africa	Senegal	2005	DHS	2,092	0.20	0.18	0.23	2,883	0.41	0.38	0.45	1,206	0.47	0.43	0.52
Western Africa	Senegal	2006	MIS	2,196	0.35	0.32	0.37	2,314	0.43	0.40	0.46	1,262	0.42	0.38	0.46

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Appendix A – ***Continued***

				Treatment seeking for diarrhea				Treatment seeking for fever				Treatment seeking for symptoms of ARI			
UN Region	**Country**	**Year**	**Survey**	**n**	**Proportion**	**95% CI**		**n**	**Proportion**	**95% CI**		**n**	**Proportion**	**95% CI**	
Western Africa	Senegal	2008	MIS	972	0.39	0.34	0.44	1,146	0.43	0.39	0.48	402	0.50	0.43	0.57
Western Africa	Senegal	2010	DHS					1,734	0.42	0.38	0.45				
Western Africa	Senegal	2012	DHS					4,270	0.42	0.39	0.44				
Western Africa	Togo	2000	MICS					1,121	0.27	0.24	0.31	268	0.46	0.38	0.53
Western Africa	Togo	2006	MICS					766	0.23	0.19	0.26	230	0.34	0.27	0.41
Western Africa	Togo	2010	MICS					1,666	0.58	0.54	0.62	234	0.58	0.50	0.65
Caribbean	Cuba	2010	MICS									315	0.96	0.93	1.00
Caribbean	Dom Rep	2000	MICS									206	0.69	0.61	0.76
Caribbean	Dom Rep	2002	DHS	1,682	0.36	0.33	0.40	3,123	0.65	0.62	0.67	2,249	0.65	0.62	0.67
Caribbean	Dom Rep	2007	DHS	1,773	0.53	0.49	0.57	2,369	0.66	0.62	0.69	1,493	0.62	0.58	0.66
Caribbean	Haiti	2000	DHS	1,518	0.24	0.21	0.28	2,534	0.41	0.38	0.43	2,398	0.38	0.34	0.42
Caribbean	Haiti	2005	DHS	1,217	0.23	0.19	0.28	1,430	0.28	0.25	0.31	1,507	0.25	0.22	0.28
Caribbean	Haiti	2012	DHS	1,413	0.35	0.32	0.39	1,852	0.42	0.39	0.45	2,435	0.35	0.32	0.38
Caribbean	Jamaica	2005	MICS									92	0.83	0.74	0.91
Caribbean	Jamaica	2011	MICS									91	0.84	0.76	0.93
Caribbean	Trinid & Tob	2000	MICS									26	0.77	0.63	0.90
Caribbean	Trinid & Tob	2006	MICS									27	0.89	0.77	1.01
Central America	Belize	2006	MICS									44	0.76	0.62	0.91
Central America	Belize	2011	MICS									66	0.88	0.79	0.96
Central America	Costa Rica	2011	MICS									166	0.92	0.85	0.98
Central America	Honduras	2005	DHS	1,797	0.47	0.44	0.49	1,973	0.52	0.49	0.55	1,891	0.53	0.50	0.56
Central America	Honduras	2011	DHS	1,918	0.52	0.49	0.55	2,515	0.62	0.59	0.64	2,097	0.64	0.61	0.67
Central America	Nicaragua	2001	DHS	843	0.44	0.40	0.48	1,617	0.62	0.58	0.65	1,992	0.58	0.55	0.61
South America	Bolivia	2000	MICS									384	0.59	0.52	0.66
South America	Bolivia	2003	DHS	2,267	0.34	0.32	0.37	2,920	0.47	0.44	0.50	2,228	0.48	0.45	0.51
South America	Bolivia	2008	DHS	2,055	0.48	0.44	0.51					1,654	0.51	0.47	0.55

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Appendix A – ***Continued***

UN Region	Country	Year	Survey	Treatment seeking for diarrhea n	Proportion	95% CI		Treatment seeking for fever n	Proportion	95% CI		Treatment seeking for symptoms of ARI n	Proportion	95% CI	
South America	Columbia	2000	DHS	649	0.29	0.25	0.33	1,135	0.46	0.43	0.50				
South America	Columbia	2005	DHS	2,169	0.30	0.27	0.33	3,672	0.43	0.40	0.45				
South America	Columbia	2010	DHS	2,495	0.43	0.40	0.46	4,717	0.53	0.51	0.55	1,143	0.65	0.61	0.68
South America	Guyana	2000	MICS					330	0.65	0.56	0.74	185	0.81	0.73	0.89
South America	Guyana	2006	MICS					191	0.62	0.54	0.70	173	0.79	0.70	0.88
South America	Guyana	2009	DHS	213	0.59	0.49	0.68	395	0.60	0.54	0.67	210	0.64	0.54	0.73
South America	Peru	2000	DHS	2,205	0.38	0.36	0.41	3,496	0.54	0.51	0.56	2,534	0.58	0.55	0.61
South America	Peru	2004	DHS	2,680	0.42	0.39	0.45	4,363	0.65	0.63	0.67	3,244	0.67	0.64	0.69
South America	Peru	2007	DHS	2,680	0.42	0.39	0.45	4,363	0.65	0.63	0.67	3,244	0.67	0.64	0.69
South America	Peru	2009	DHS	1,475	0.42	0.38	0.46	2,349	0.64	0.61	0.66	1,631	0.66	0.62	0.69
South America	Peru	2010	DHS	1,399	0.37	0.34	0.41	2,242	0.57	0.54	0.60	1,530	0.57	0.54	0.61
South America	Peru	2011	DHS	1,312	0.34	0.30	0.37	1,903	0.63	0.60	0.66	1,457	0.62	0.58	0.65
South America	Peru	2012	DHS	1,254	0.33	0.30	0.37	2,031	0.55	0.52	0.58	1,343	0.59	0.56	0.63
South America	Suriname	2000	MICS									76	0.62	0.51	0.73
South America	Suriname	2006	MICS					155	0.79	0.70	0.87	47	0.76	0.62	0.89
South America	Suriname	2010	MICS					233	0.63	0.56	0.70	78	0.83	0.72	0.93
South America	Venezuela	2000	MICS									173	0.79	0.71	0.87
Central Asia	Kazakhstan	2010	MICS									144	0.83	0.77	0.90
Central Asia	Kazakhstan	2005	MICS									172	0.67	0.53	0.82
Central Asia	Kyrgyzstan	2012	DHS	221	0.55	0.46	0.64	203	0.44	0.35	0.53	94	0.35	0.22	0.47
Central Asia	Tajikistan	2005	MICS					296	0.46	0.40	0.53	64	0.66	0.52	0.79
Central Asia	Tajikistan	2012	DHS	716	0.54	0.49	0.59	440	0.58	0.52	0.64	104	0.66	0.55	0.77
Central Asia	Uzbekistan	2000	MICS									6	0.50	-0.07	1.07
Central Asia	Uzbekistan	2005	MICS									107	0.69	0.59	0.80
Eastern Asia	Mongolia	2000	MICS									137	0.83	0.77	0.90
Eastern Asia	Mongolia	2006	MICS									314	0.69	0.62	0.75

(Continued…)

Appendix A – *Continued*

UN Region	Country	Year	Survey	Treatment seeking for diarrhea n	Proportion	95% CI		Treatment seeking for fever n	Proportion	95% CI		Treatment seeking for symptoms of ARI n	Proportion	95% CI	
Eastern Asia	Mongolia	2010	MICS									65	0.87	0.78	0.96
Southern Asia	Afghanistan	2010	MICS									2,938	0.71	0.67	0.74
Southern Asia	Bangladesh	2004	DHS	485	0.16	0.12	0.19	2,553	0.18	0.16	0.20	1,255	0.20	0.17	0.23
Southern Asia	Bangladesh	2006	MICS									1,595	0.85	0.83	0.87
Southern Asia	Bangladesh	2007	DHS	560	0.44	0.39	0.49	2,163	0.45	0.42	0.49	768	0.52	0.47	0.57
Southern Asia	Bangladesh	2011	DHS	394	0.25	0.20	0.30	3,080	0.27	0.25	0.30	1,375	0.33	0.30	0.37
Southern Asia	Bhutan	2010	MICS									440	0.76	0.70	0.82
Southern Asia	India	2005	DHS	4,435	0.63	0.60	0.65	7,165	0.73	0.71	0.74	4,158	0.69	0.67	0.71
Southern Asia	Maldives	2009	DHS	186	0.84	0.78	0.91	1,078	0.85	0.82	0.88	508	0.81	0.77	0.85
Southern Asia	Nepal	2001	DHS	1,285	0.21	0.18	0.24	1,999	0.25	0.22	0.28	1,475	0.26	0.23	0.29
Southern Asia	Nepal	2006	DHS	659	0.27	0.22	0.32	983	0.34	0.29	0.38	474	0.34	0.28	0.40
Southern Asia	Nepal	2011	DHS	679	0.38	0.32	0.44	906	0.42	0.37	0.47	487	0.43	0.36	0.50
Southern Asia	Pakistan	2006	DHS	1,877	0.56	0.53	0.59	2,495	0.67	0.64	0.70	1,590	0.67	0.64	0.71
Southern Asia	Pakistan	2012	DHS	2,293	0.75	0.72	0.78	3,907	0.79	0.77	0.82	2,129	0.80	0.77	0.82
Southern Asia	Tajikistan	2000	MICS					61	0.74	0.54	0.94	50	0.60	0.43	0.77
South-Eastern Asia	Indonesia	2000	MICS					122	0.79	0.71	0.87				
South-Eastern Asia	Indonesia	2002	DHS	1,498	0.52	0.47	0.56	4,018	0.57	0.55	0.60	1,340	0.61	0.57	0.66
South-Eastern Asia	Indonesia	2007	DHS	2,536	0.58	0.55	0.61	5,802	0.67	0.65	0.69	2,175	0.66	0.63	0.70
South-Eastern Asia	Indonesia	2012	DHS	2,500	0.65	0.62	0.68	5,366	0.74	0.72	0.76	1,919	0.75	0.72	0.78
South-Eastern Asia	Cambodia	2000	DHS	1,579	0.22	0.19	0.25	2,839	0.34	0.32	0.37	1,522	0.37	0.33	0.40
South-Eastern Asia	Cambodia	2005	DHS	1,450	0.41	0.37	0.45	2,692	0.48	0.45	0.51	1,265	0.50	0.46	0.55
South-Eastern Asia	Cambodia	2010	DHS	1,134	0.59	0.55	0.63	2,080	0.76	0.73	0.79	830	0.76	0.72	0.81
South-Eastern Asia	Lao PDR	2000	MICS					148	0.45	0.36	0.53	49	0.48	0.30	0.66
South-Eastern Asia	Lao PDR	2006	MICS					618	0.31	0.26	0.36	189	0.50	0.41	0.60

(Continued…)

Appendix A – ***Continued***

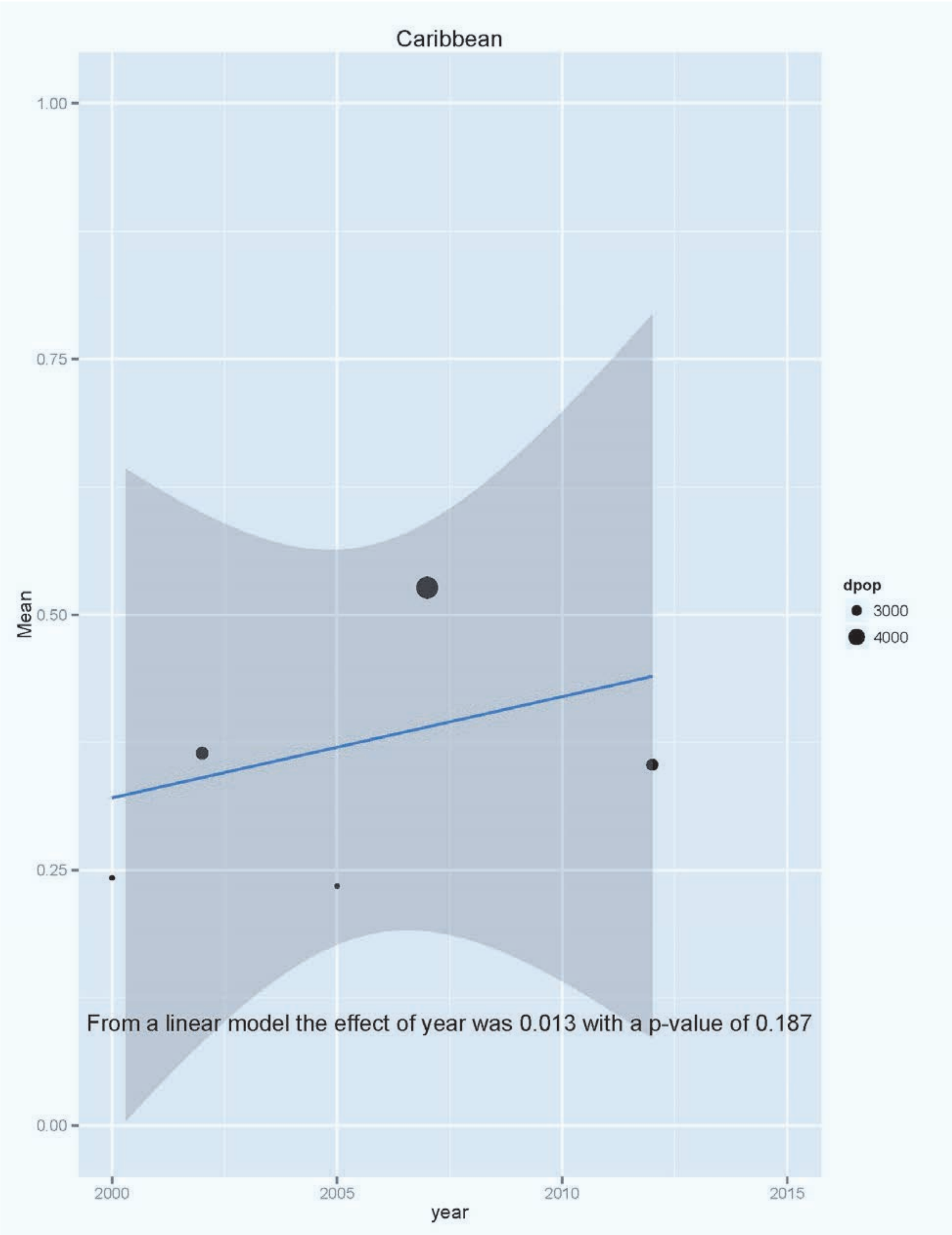
				Treatment seeking for diarrhea				Treatment seeking for fever				Treatment seeking for symptoms of ARI			
UN Region	**Country**	**Year**	**Survey**	**n**	**Proportion**	**95% CI**		**n**	**Proportion**	**95% CI**		**n**	**Proportion**	**95% CI**	
South-Eastern Asia	Lao PDR	2012	MICS					1,550	0.57	0.53	0.61	366	0.57	0.49	0.66
South-Eastern Asia	Myanmar	2000	MICS									251	0.60	0.52	0.69
South-Eastern Asia	Philippines	2000	MICS									358	0.66	0.61	0.71
South-Eastern Asia	Philippines	2003	DHS	746	0.33	0.29	0.36	1,675	0.47	0.44	0.50	728	0.55	0.51	0.60
South-Eastern Asia	Philippines	2008	DHS	571	0.34	0.29	0.39	1,481	0.39	0.36	0.43	654	0.46	0.42	0.51
South-Eastern Asia	Thailand	2005	MICS									378	0.86	0.80	0.91
South-Eastern Asia	Timor-Leste	2009	DHS	1,388	0.72	0.69	0.76	1,760	0.73	0.70	0.76	389	0.71	0.66	0.77
South-Eastern Asia	Vietnam	2000	MICS					416	0.40	0.36	0.44	268	0.72	0.65	0.80
South-Eastern Asia	Vietnam	2002	DHS	137	0.60	0.49	0.71					255	0.71	0.64	0.79
South-Eastern Asia	Vietnam	2006	MICS					448	0.60	0.54	0.67	171	0.90	0.85	0.96
South-Eastern Asia	Vietnam	2010	MICS					581	0.80	0.76	0.84	122	0.84	0.76	0.92
Western Asia	Armenia	2000	DHS	129	0.26	0.19	0.34	261	0.26	0.20	0.32	186	0.26	0.18	0.34
Western Asia	Armenia	2005	DHS	224	0.32	0.23	0.41	189	0.23	0.14	0.32	104	0.38	0.25	0.51
Western Asia	Armenia	2010	DHS	127	0.43	0.31	0.55	159	0.55	0.45	0.65	106	0.60	0.46	0.75
Western Asia	Azerbaijan	2000	MICS					258	0.32	0.26	0.38	55	0.42	0.29	0.55
Western Asia	Azerbaijan	2006	DHS	231	0.34	0.25	0.42	230	0.41	0.32	0.49	98	0.38	0.23	0.52
Western Asia	Georgia	2005	MICS									59	0.74	0.59	0.88
Western Asia	Iraq	2000	MICS					2,349	0.63	0.60	0.66	954	0.79	0.75	0.82
Western Asia	Iraq	2006	MICS									2,367	0.88	0.86	0.89
Western Asia	Iraq	2011	MICS									3,800	0.85	0.83	0.87
Western Asia	Jordan	2002	DHS	900	0.46	0.41	0.50	544	0.61	0.56	0.66	355	0.65	0.59	0.72
Western Asia	Jordan	2007	DHS	1,659	0.55	0.51	0.60	1,250	0.70	0.66	0.74	653	0.71	0.64	0.78
Western Asia	Jordan	2012	DHS	1,540	0.56	0.51	0.61	1,709	0.69	0.65	0.73	1,164	0.74	0.70	0.78
Western Asia	Syria	2006	MICS									588	0.88	0.85	0.91

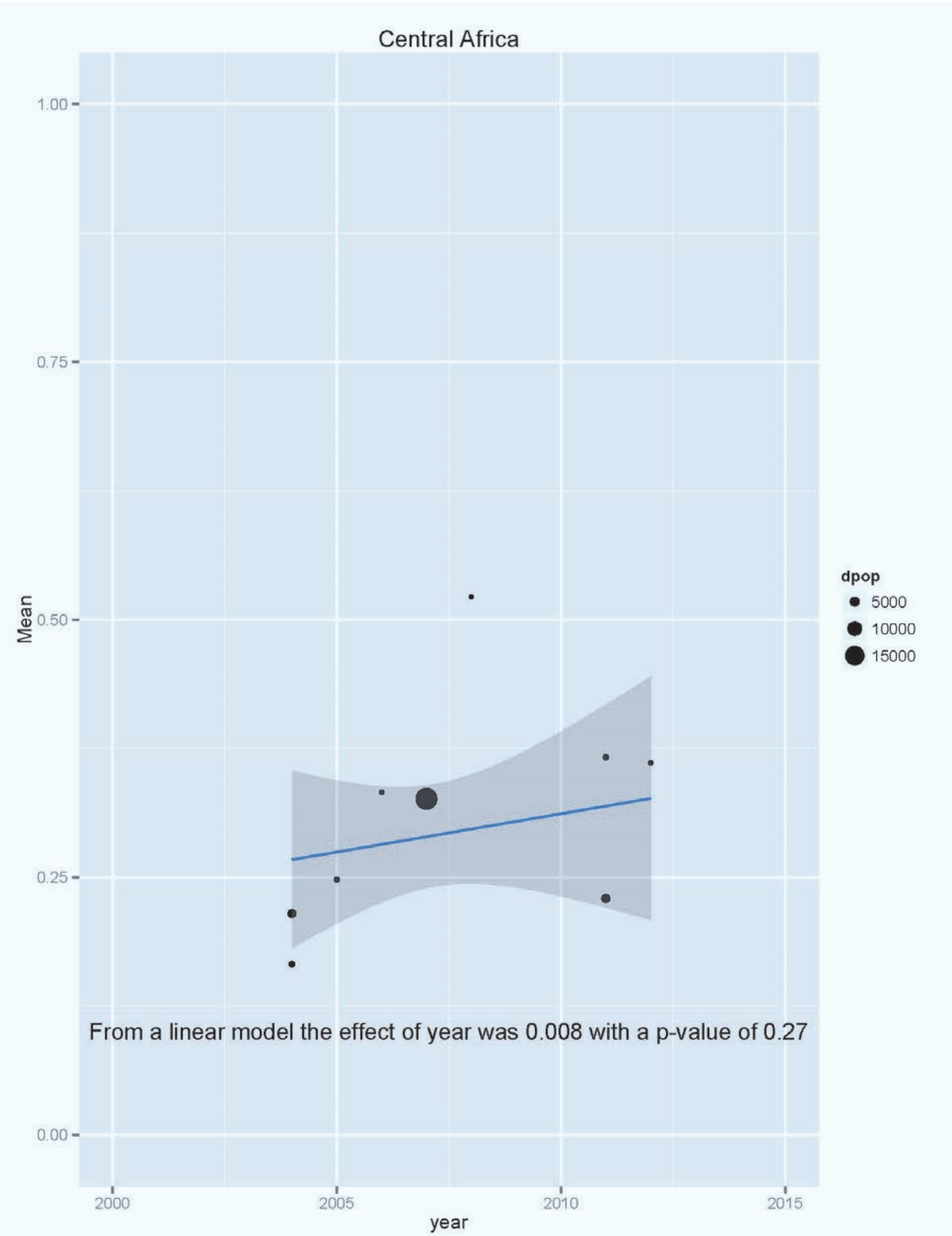
(Continued…)

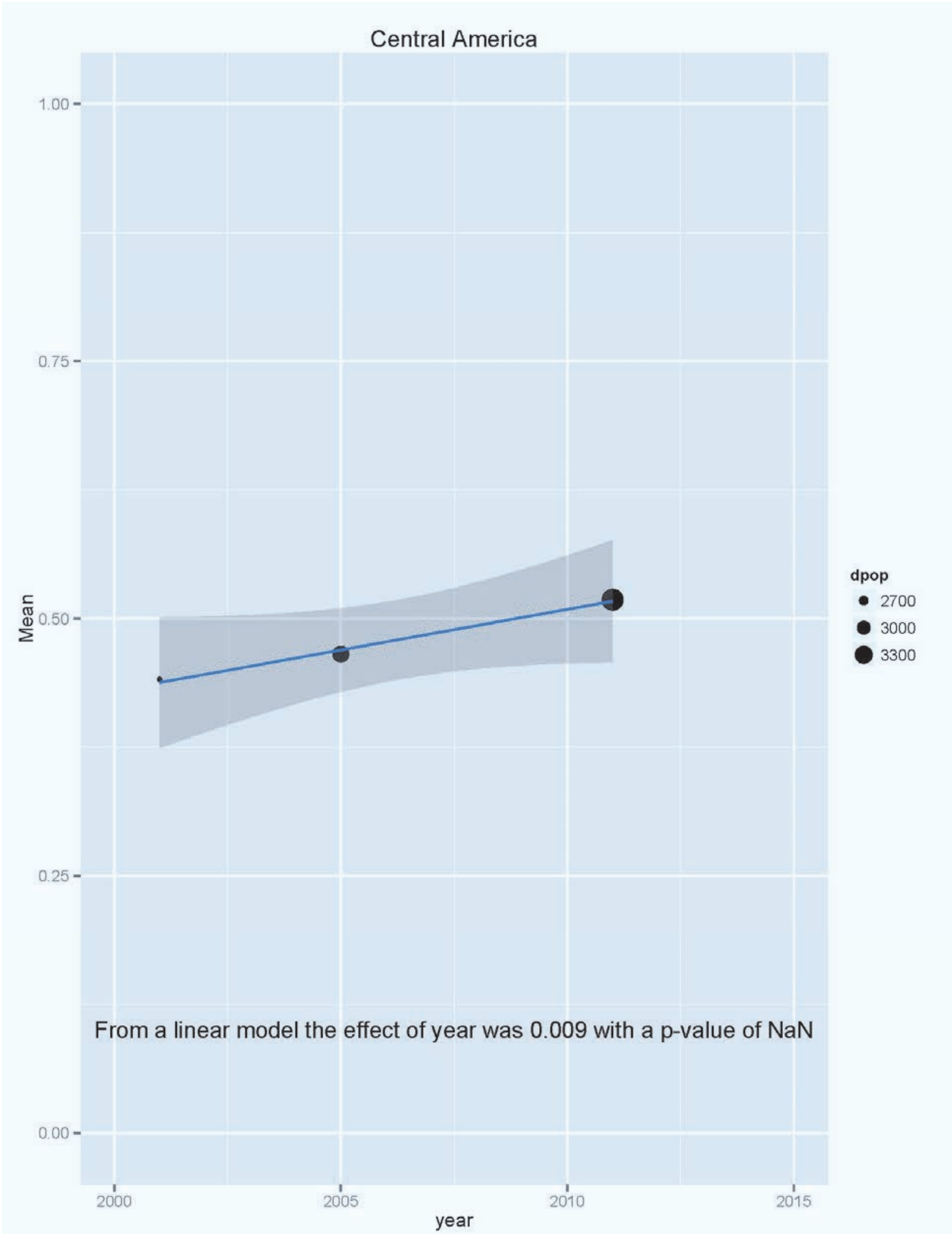
Appendix A – ***Continued***

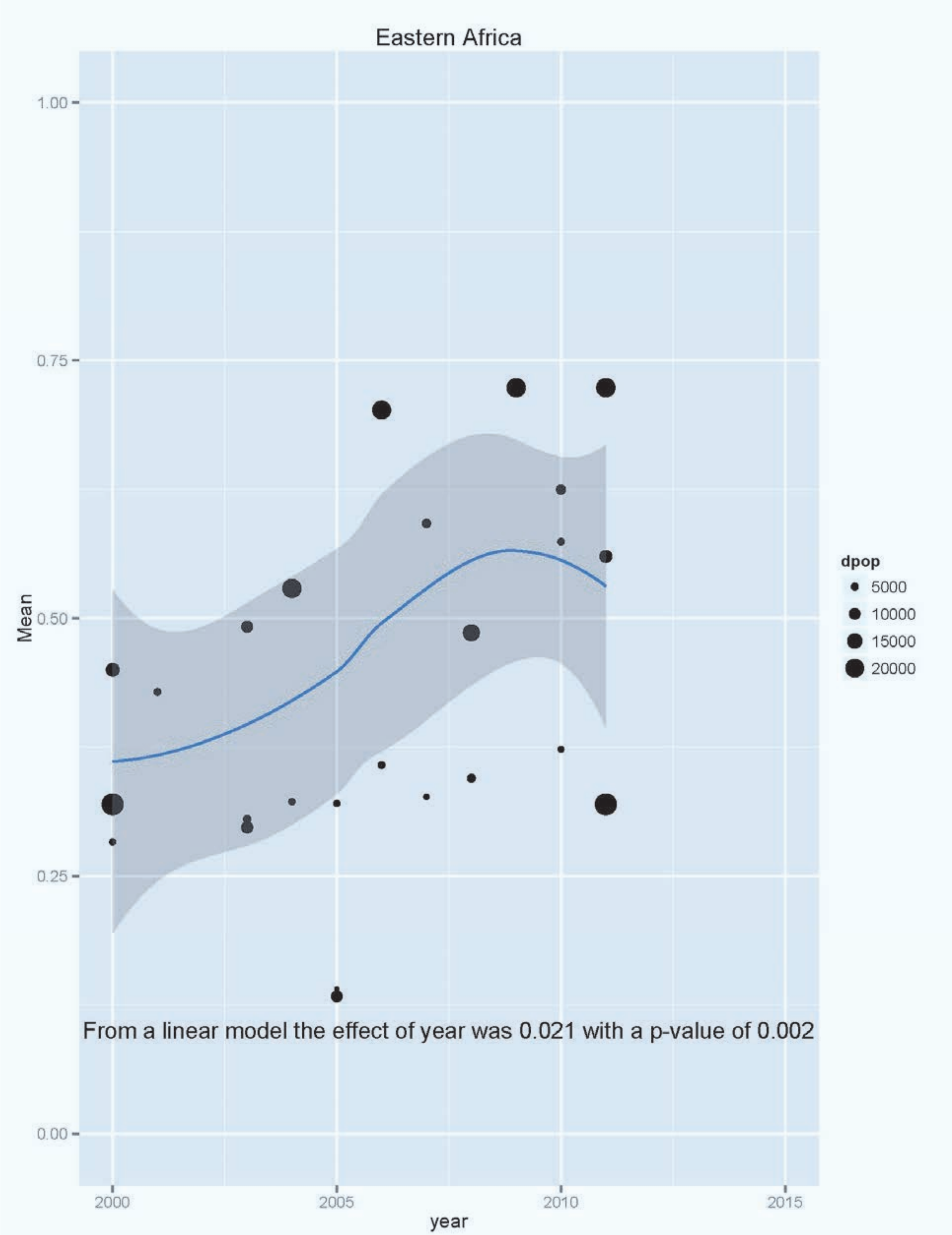
				Treatment seeking for diarrhea				Treatment seeking for fever				Treatment seeking for symptoms of ARI			
UN Region	**Country**	**Year**	**Survey**	**n**	**Proportion**	**95% CI**		**n**	**Proportion**	**95% CI**		**n**	**Proportion**	**95% CI**	
Western Asia	Turkey	2003	DHS					1,858	0.42	0.39	0.45	1,298	0.45	0.42	0.49
Western Asia	Yemen	2006	MICS									495	0.63	0.57	0.69
Eastern Europe	Belarus	2005	MICS									339	0.90	0.86	0.94
Eastern Europe	Belarus	2012	MICS									230	0.93	0.90	0.97
Eastern Europe	Moldova	2000	MICS									24	0.82	0.66	0.97
Eastern Europe	Moldova	2006	DHS	131	0.40	0.31	0.49	246	0.55	0.48	0.61	116	0.60	0.50	0.70
Eastern Europe	Ukraine	2012	MICS									142	0.94	0.90	0.98
Southern Europe	Albania	2000	MICS									21	0.87	0.69	1.06
Southern Europe	Albania	2008	DHS	81	0.61	0.48	0.74	119	0.71	0.63	0.80	141	0.70	0.59	0.81
Southern Europe	Bos & Herz	2000	MICS									40	0.80	0.67	0.93
Southern Europe	Bos & Herz	2006	MICS									137	0.91	0.87	0.95
Southern Europe	Bos & Herz	2011	MICS									91	0.87	0.80	0.94
Southern Europe	Montenegro	2006	MICS									320	0.93	0.90	0.97
Southern Europe	Macedonia	2011	MICS									37	0.83	0.67	1.00
Southern Europe	Malta	2005	MICS									32	0.98	0.92	1.03
Southern Europe	Serbia	2005	MICS									202	0.93	0.89	0.98
Southern Europe	Serbia	2010	MICS									201	0.93	0.86	1.00
Melanesia	Vanuatu	2007	MICS					133	0.74	0.64	0.84	42	0.72	0.54	0.90

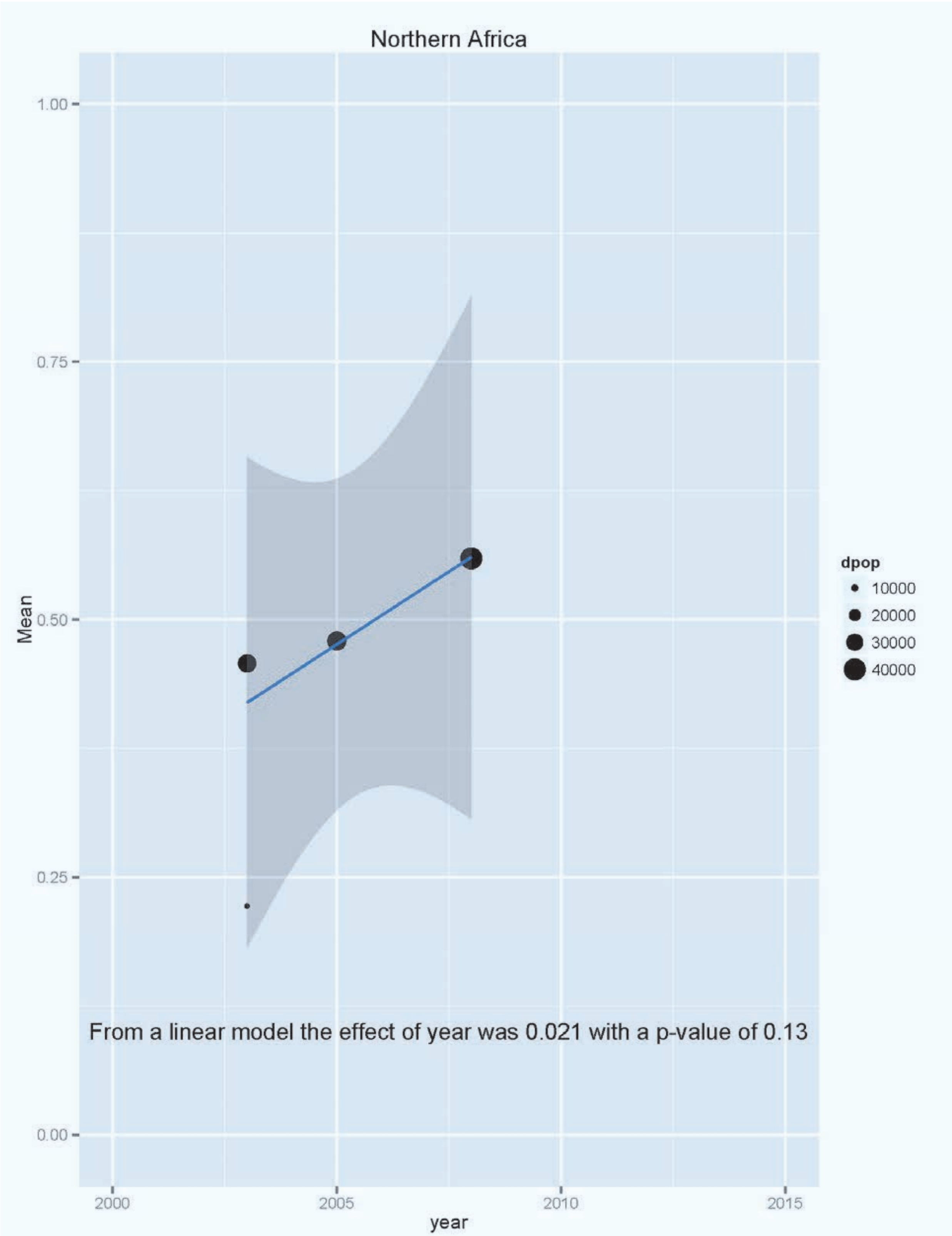
Appendix B: Loess regression and linear regression results for trends in treatment seeking for diarrhea by subregions

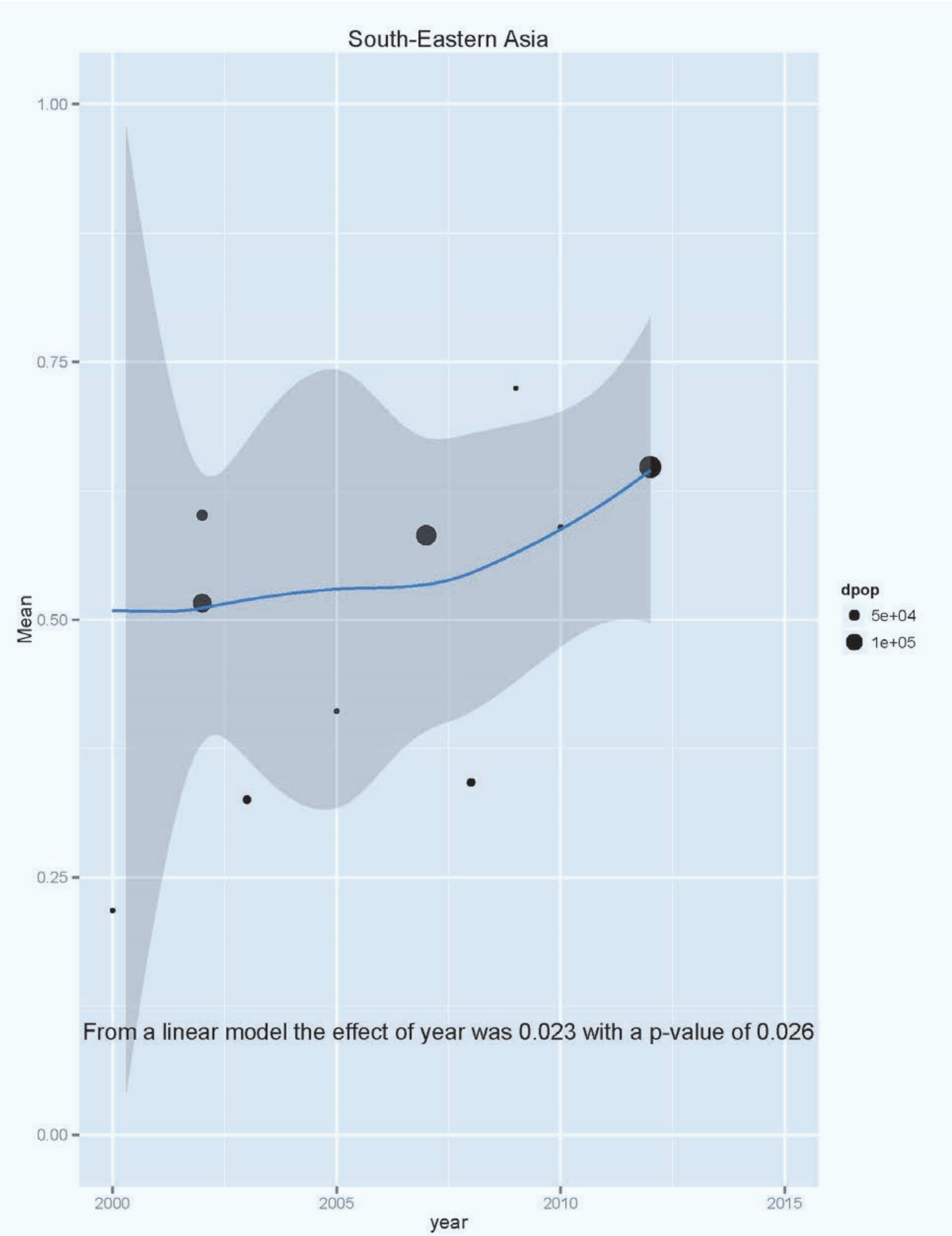


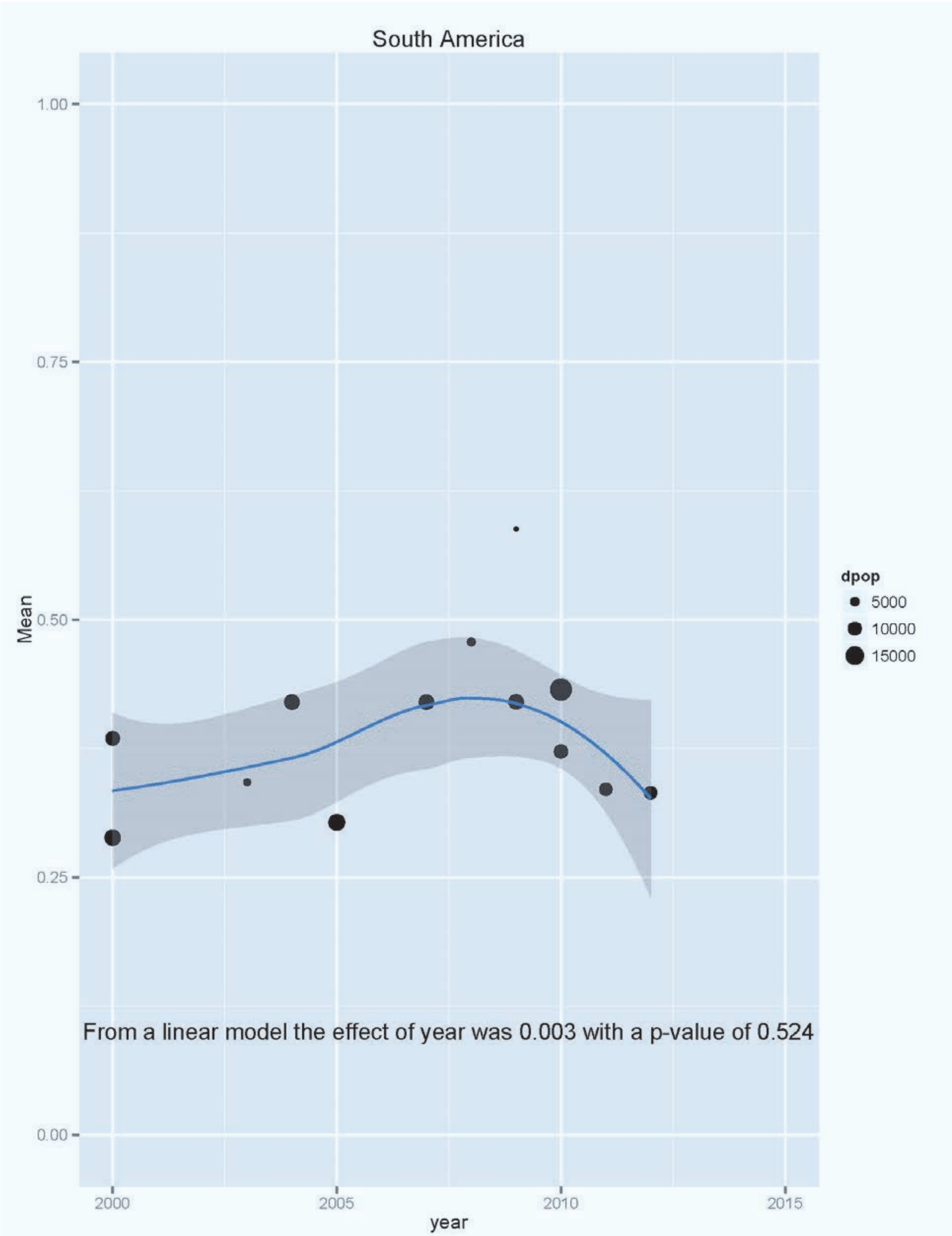

Central Africa
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
dpop
5000
10000
15000
From a linear model the effect of year was 0.008 with a p-value of 0.27

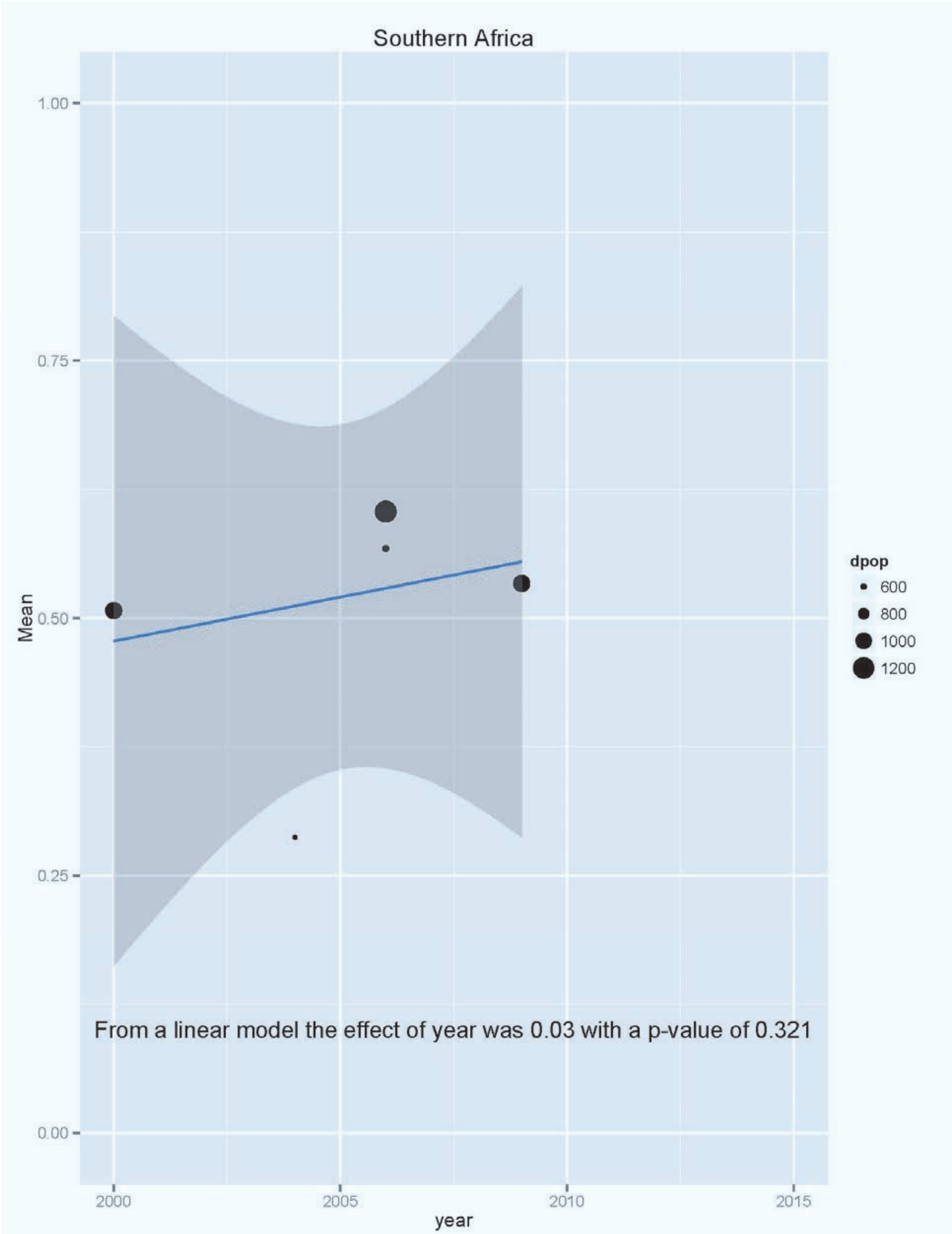

Central America
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
dpop
2700
3000
3300
From a linear model the effect of year was 0.009 with a p-value of NaN

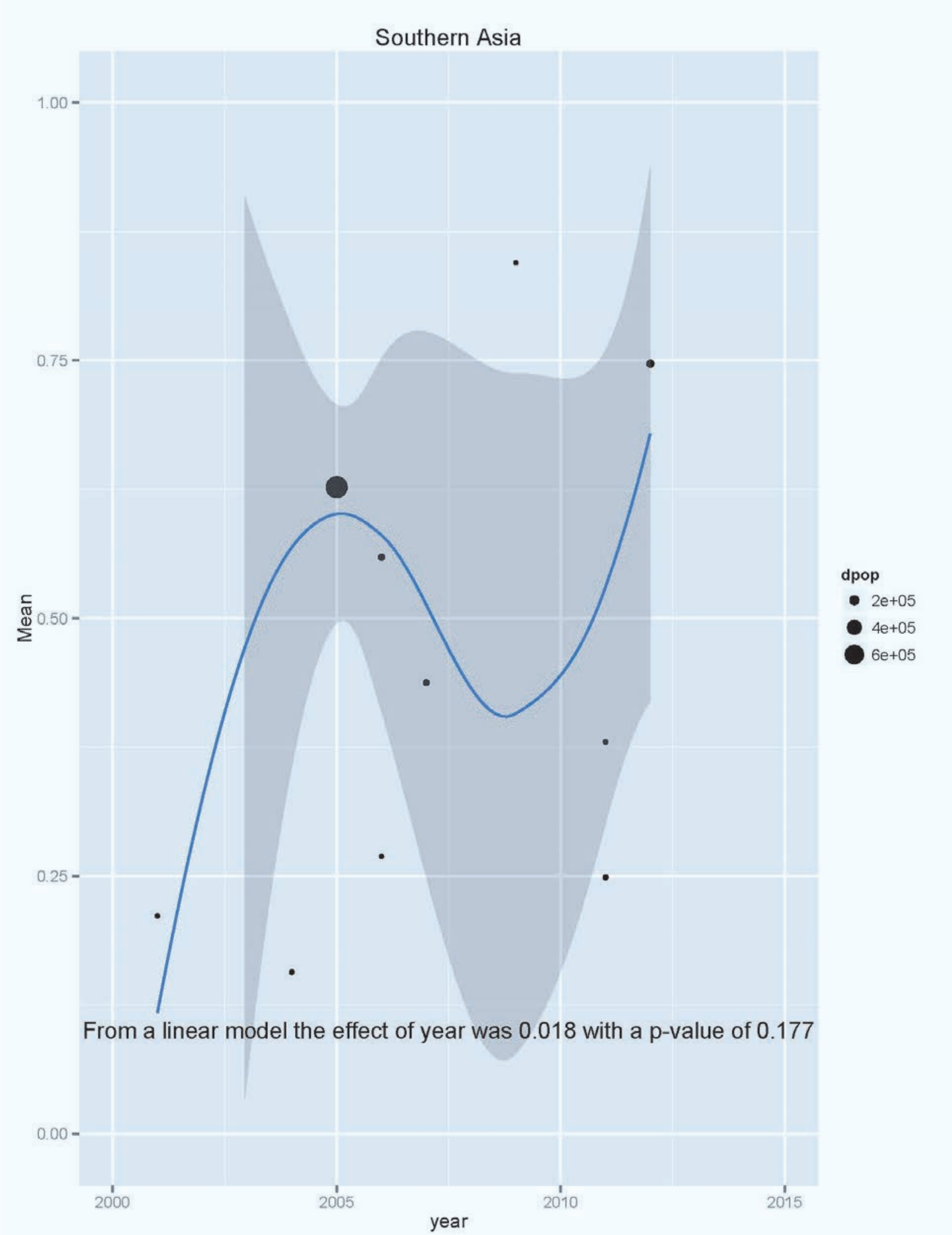

Eastern Africa
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
dpop
5000
10000
15000
20000
From a linear model the effect of year was 0.021 with a p-value of 0.002

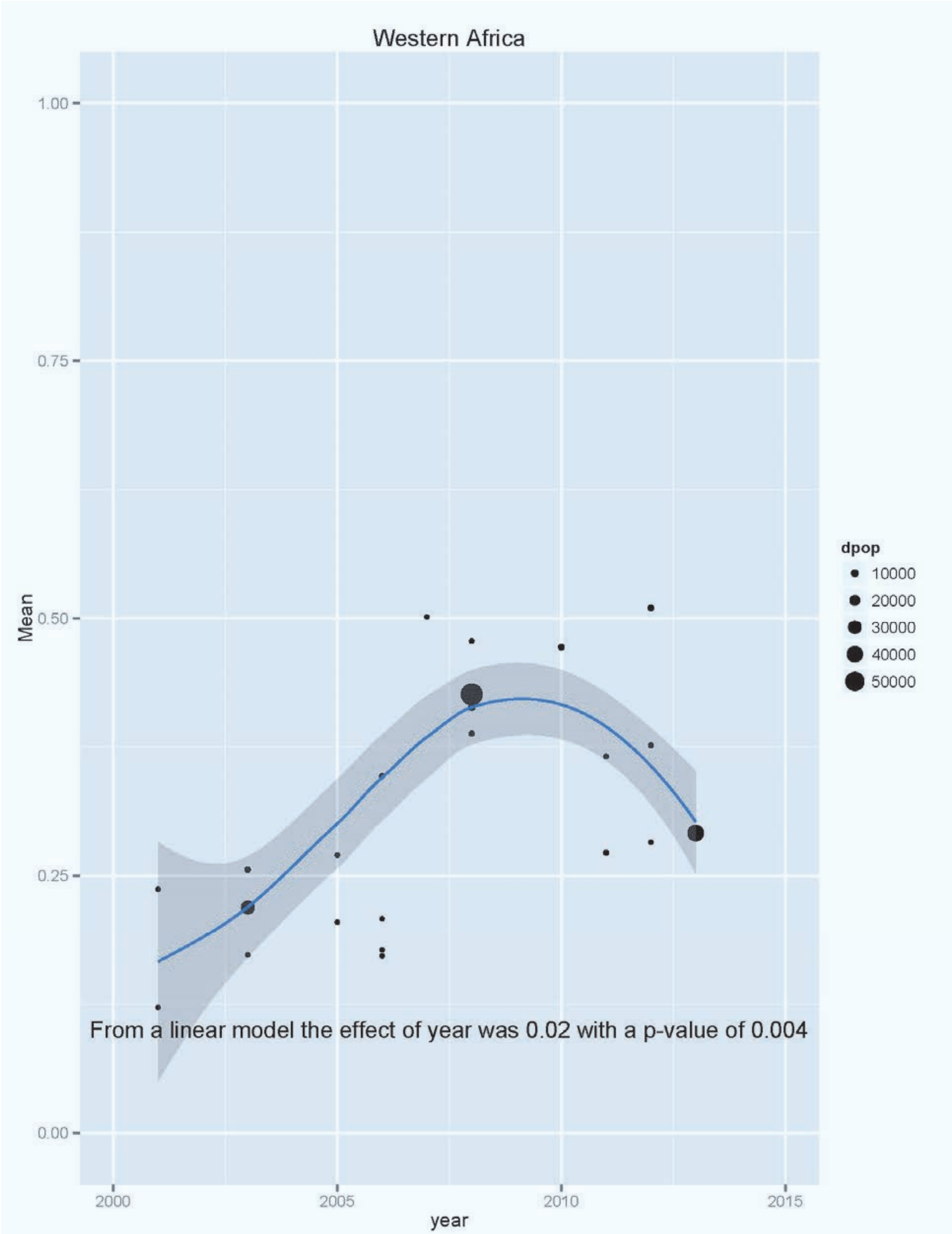

Northern Africa
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
dpop
10000
20000
30000
40000
From a linear model the effect of year was 0.021 with a p-value of 0.13

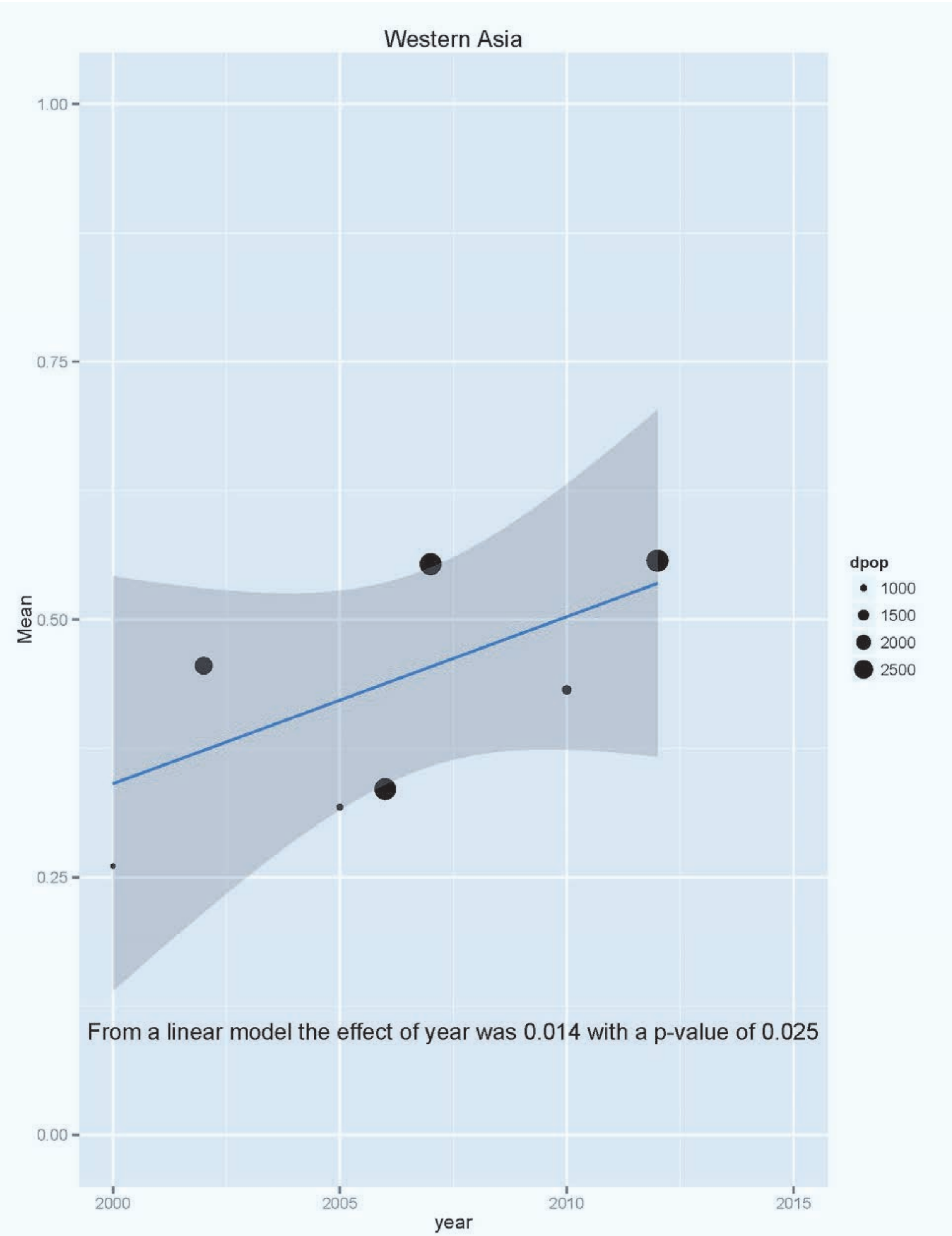

South-Eastern Asia
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
dpop
5e+04
1e+05
From a linear model the effect of year was 0.023 with a p-value of 0.026


South America
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
dpop
5000
10000
15000
From a linear model the effect of year was 0.003 with a p-value of 0.524

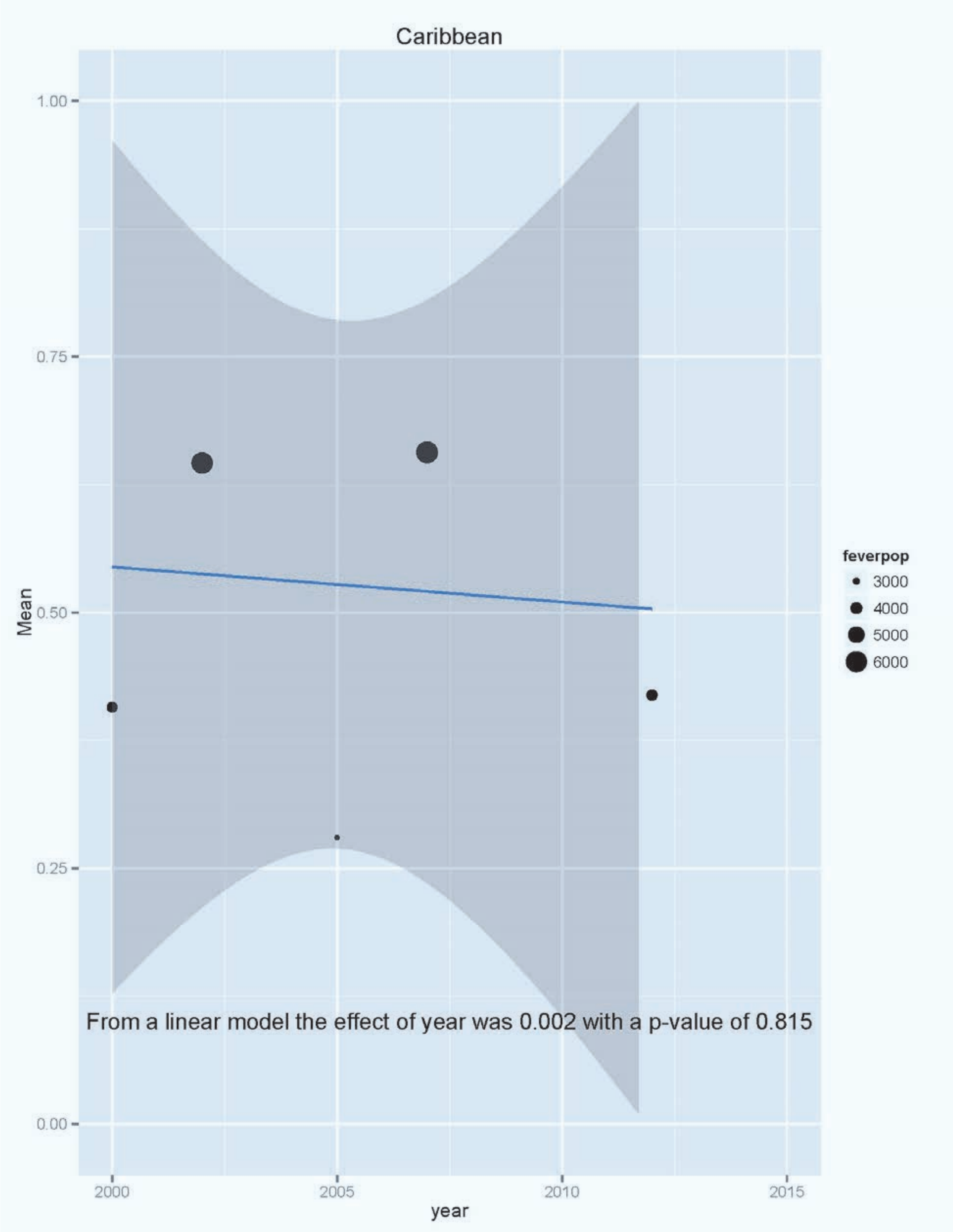

Southern Africa
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
dpop
600
800
1000
1200
From a linear model the effect of year was 0.03 with a p-value of 0.321

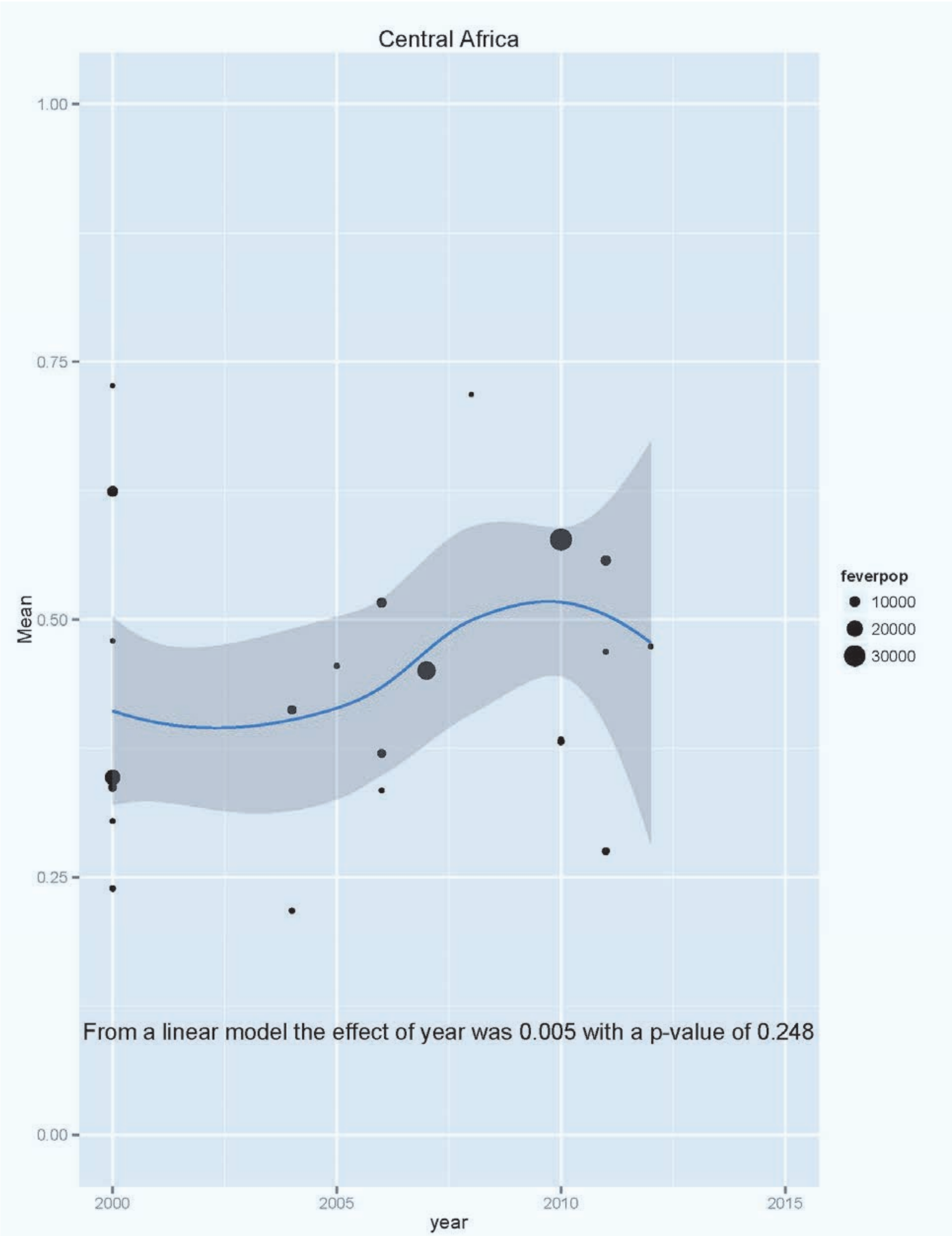

Southern Asia
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
dpop
2e+05
4e+05
6e+05
From a linear model the effect of year was 0.018 with a p-value of 0.177

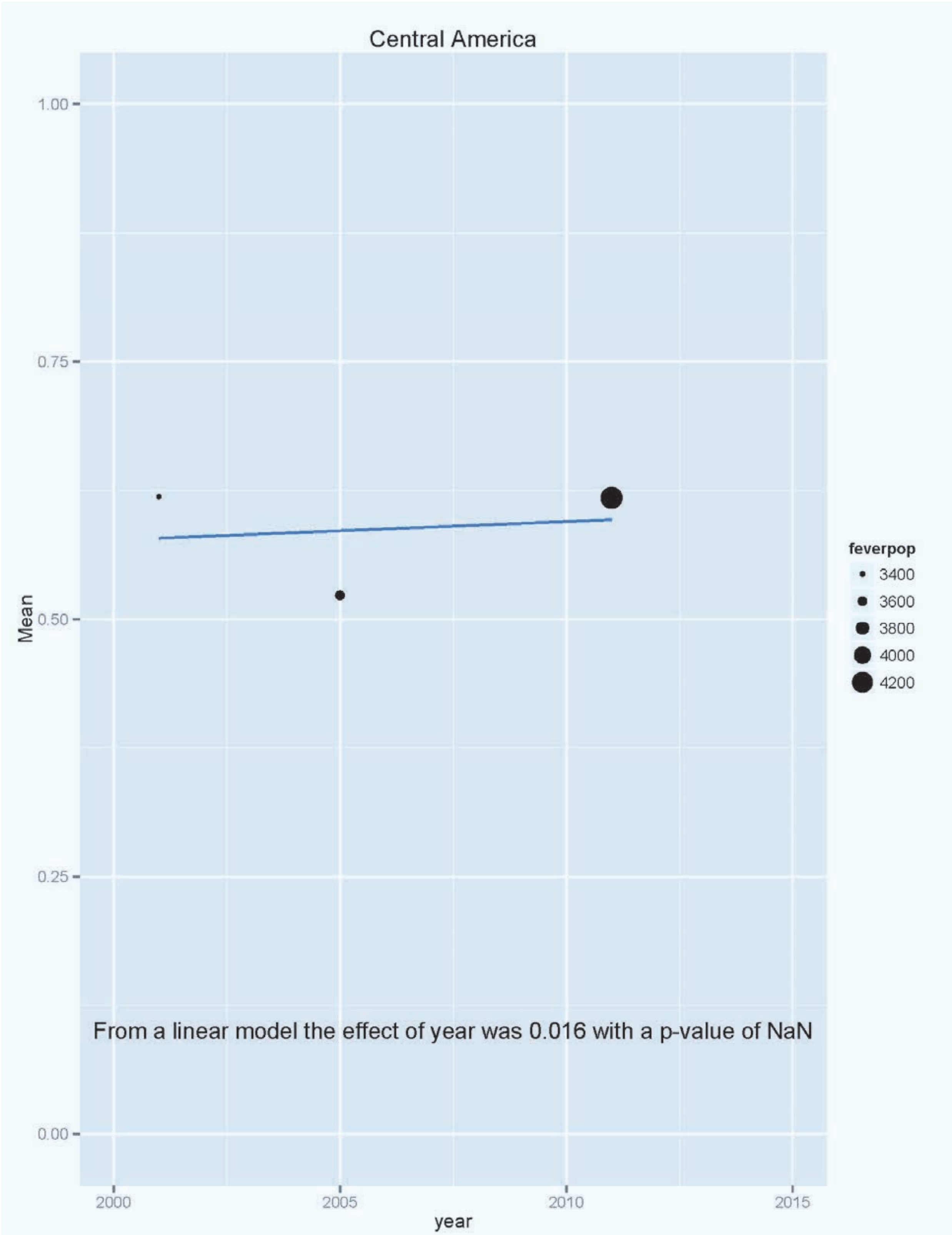

Western Africa
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
dpop
10000
20000
30000
40000
50000
From a linear model the effect of year was 0.02 with a p-value of 0.004


Western Asia
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
dpop
1000
1500
2000
2500
From a linear model the effect of year was 0.014 with a p-value of 0.025

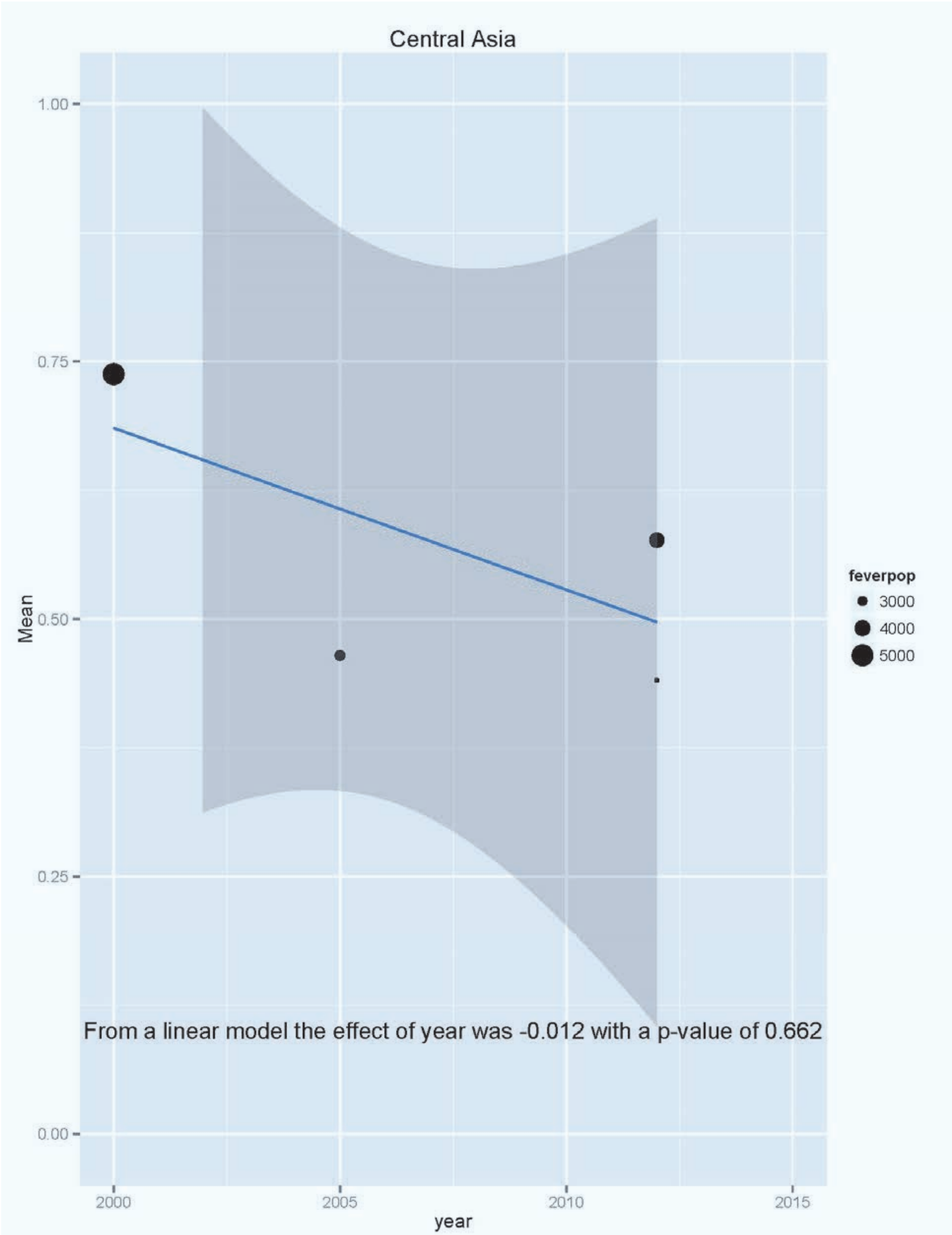
Appendix C: Loess regression and linear regression results for trends in treatment seeking for fever by subregions

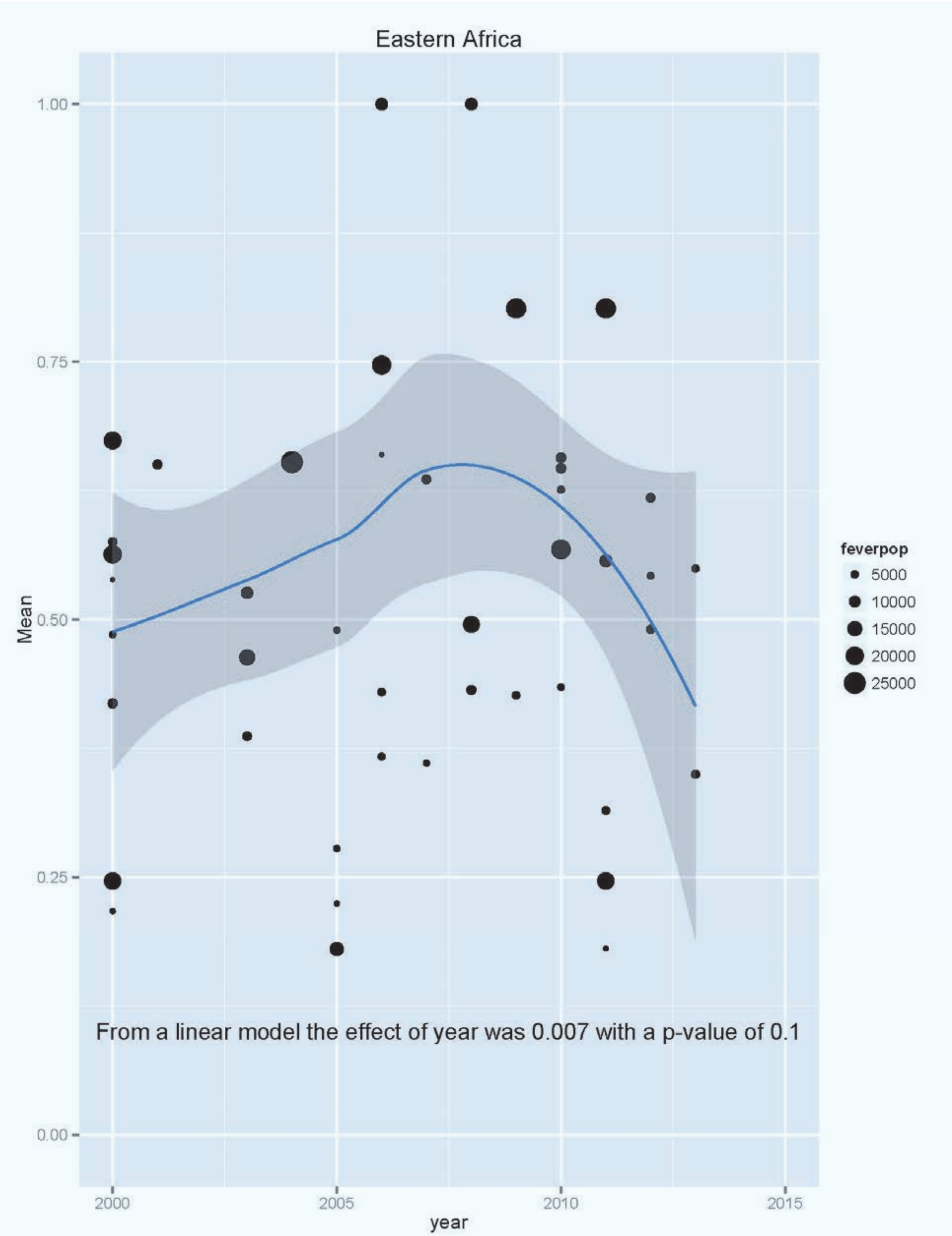


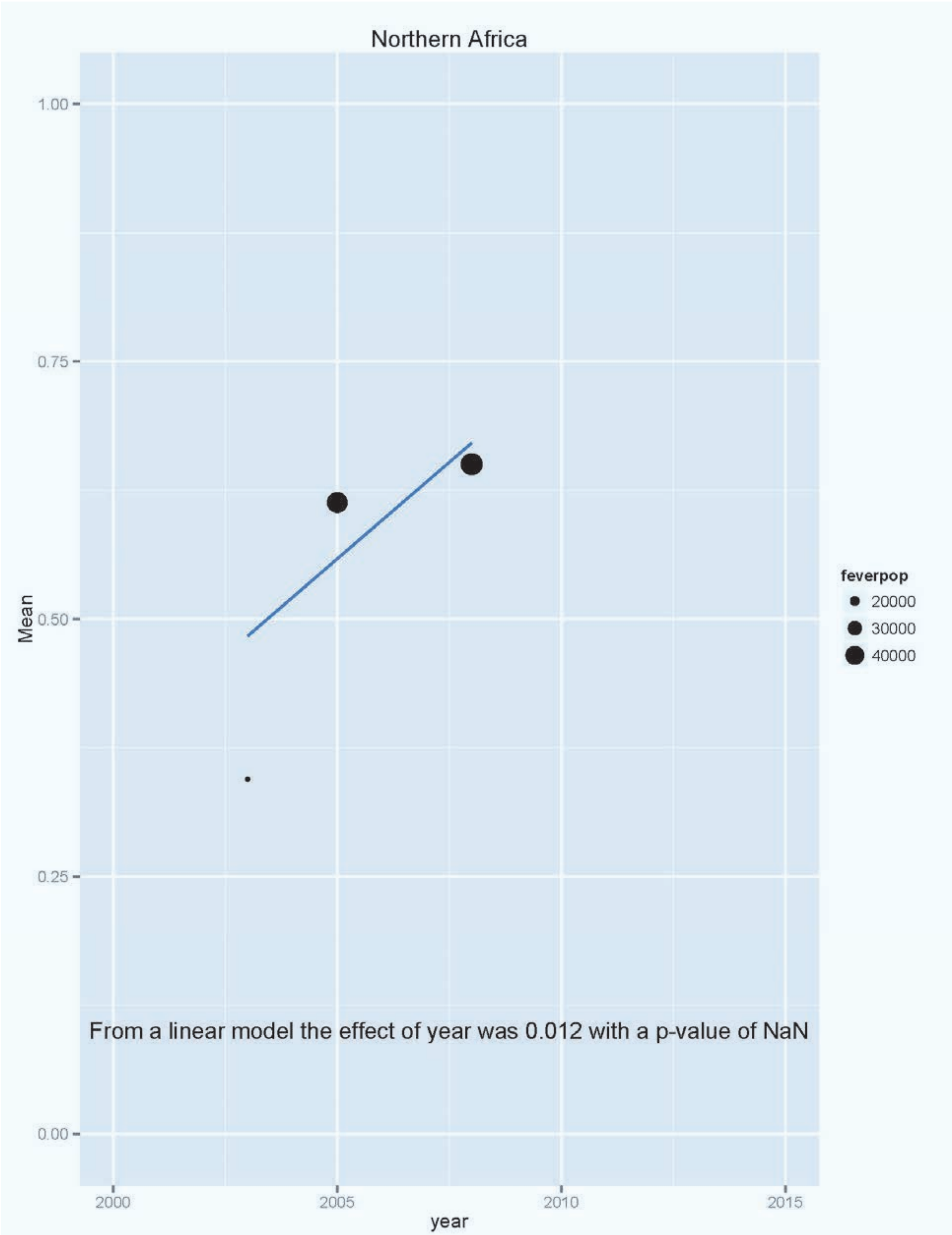

Central Africa
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
feverpop
10000
20000
30000
From a linear model the effect of year was 0.005 with a p-value of 0.248

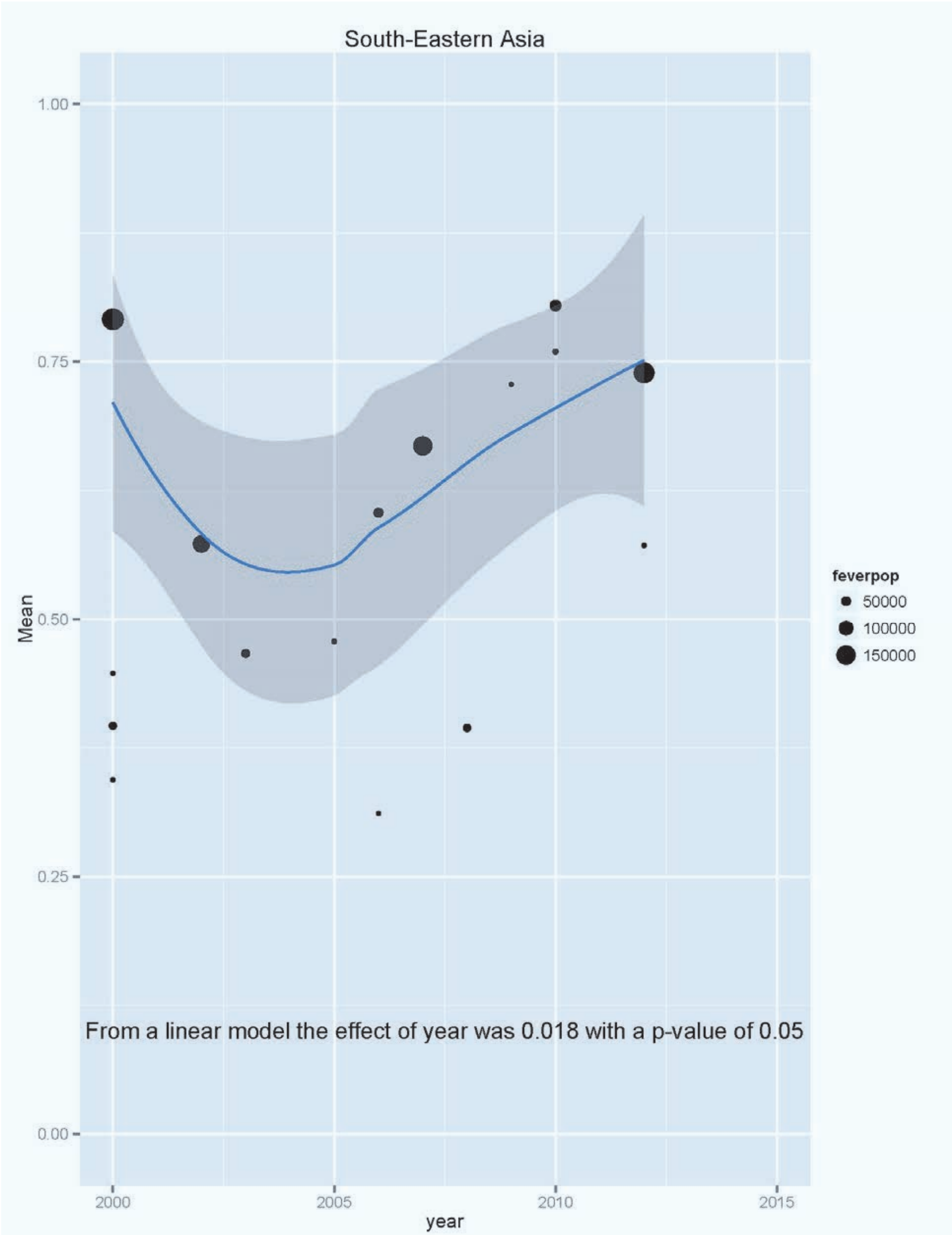


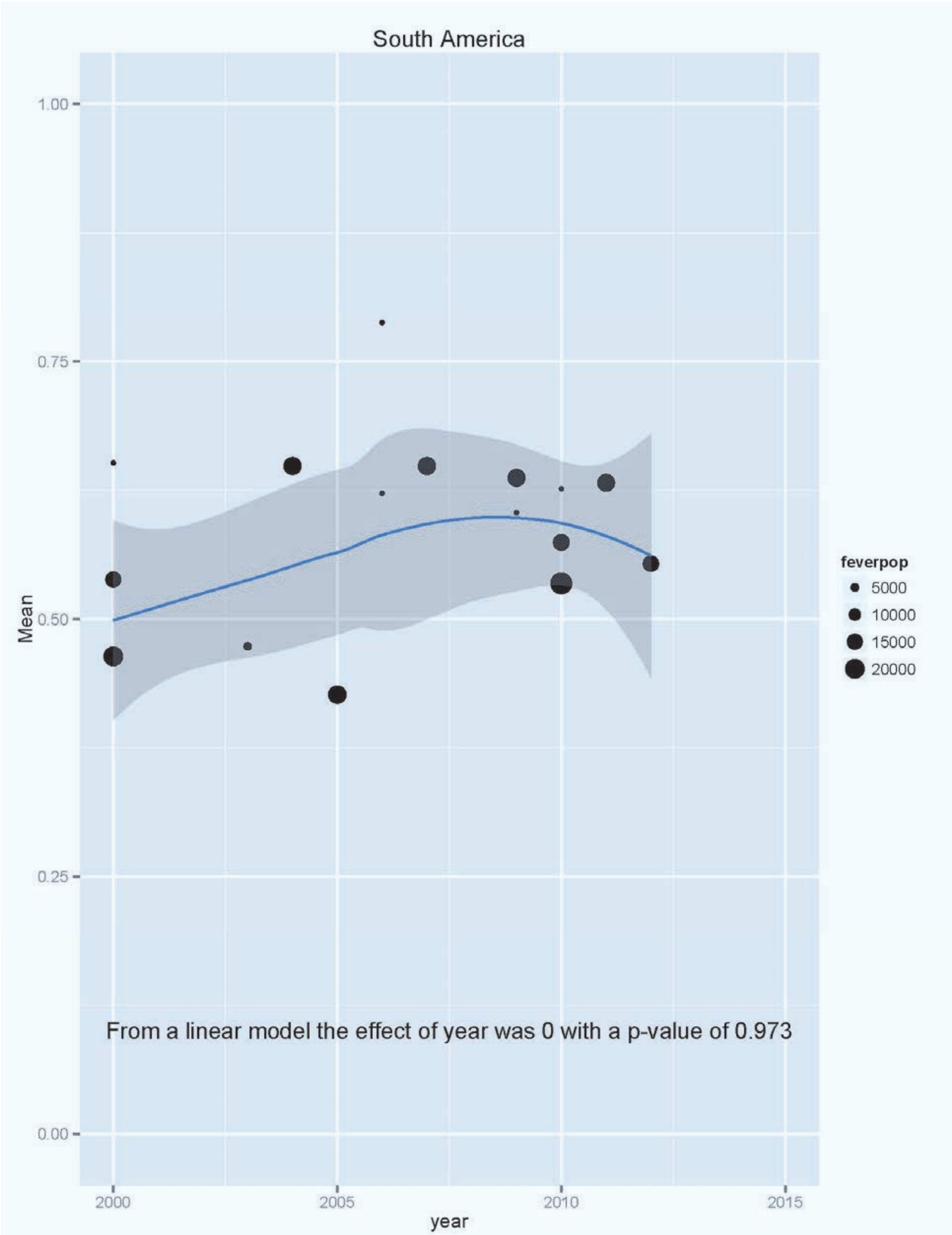
Central America
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
feverpop
3400
3600
3800
4000
4200
From a linear model the effect of year was 0.016 with a p-value of NaN

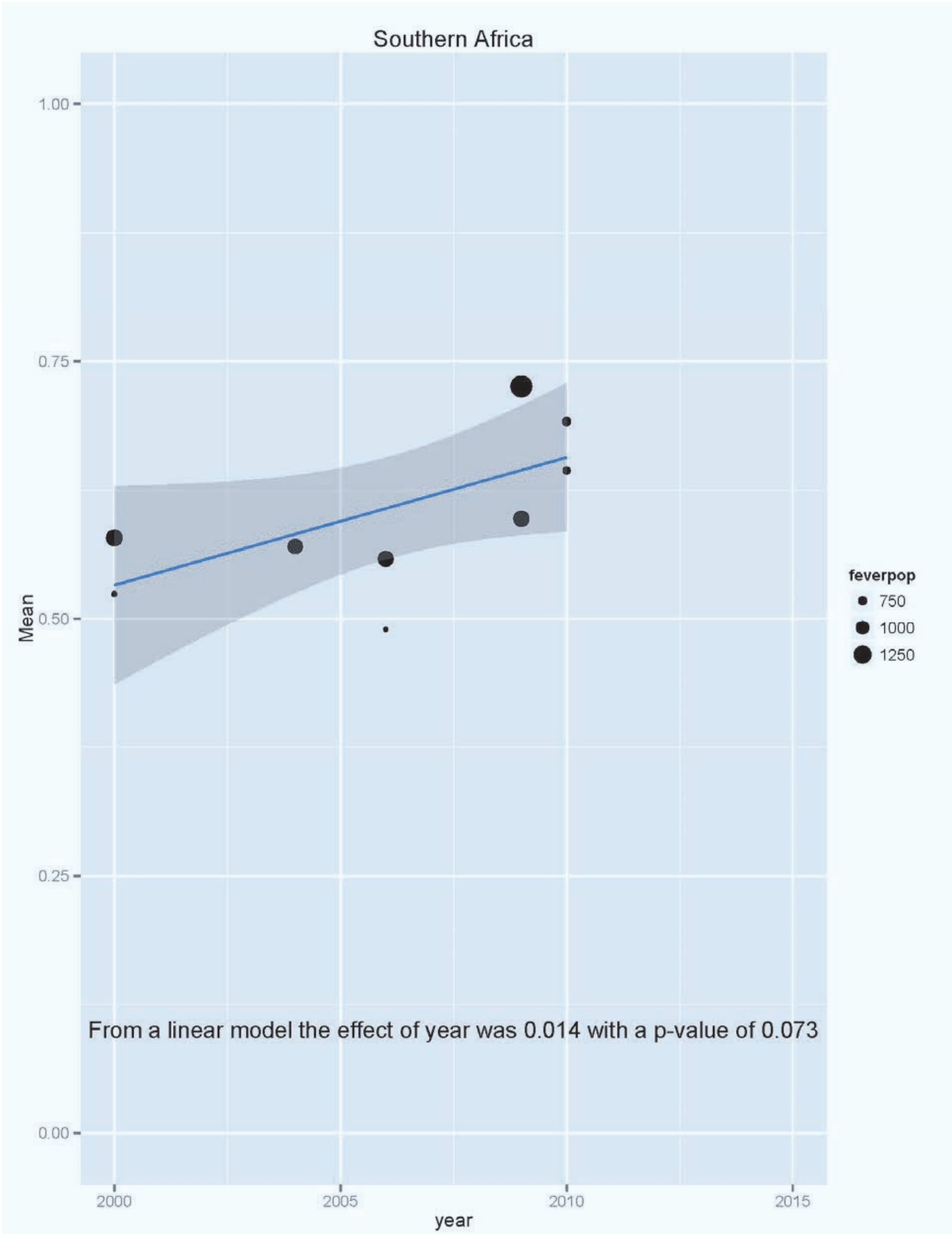

Central Asia
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
feverpop
3000
4000
5000
From a linear model the effect of year was -0.012 with a p-value of 0.662

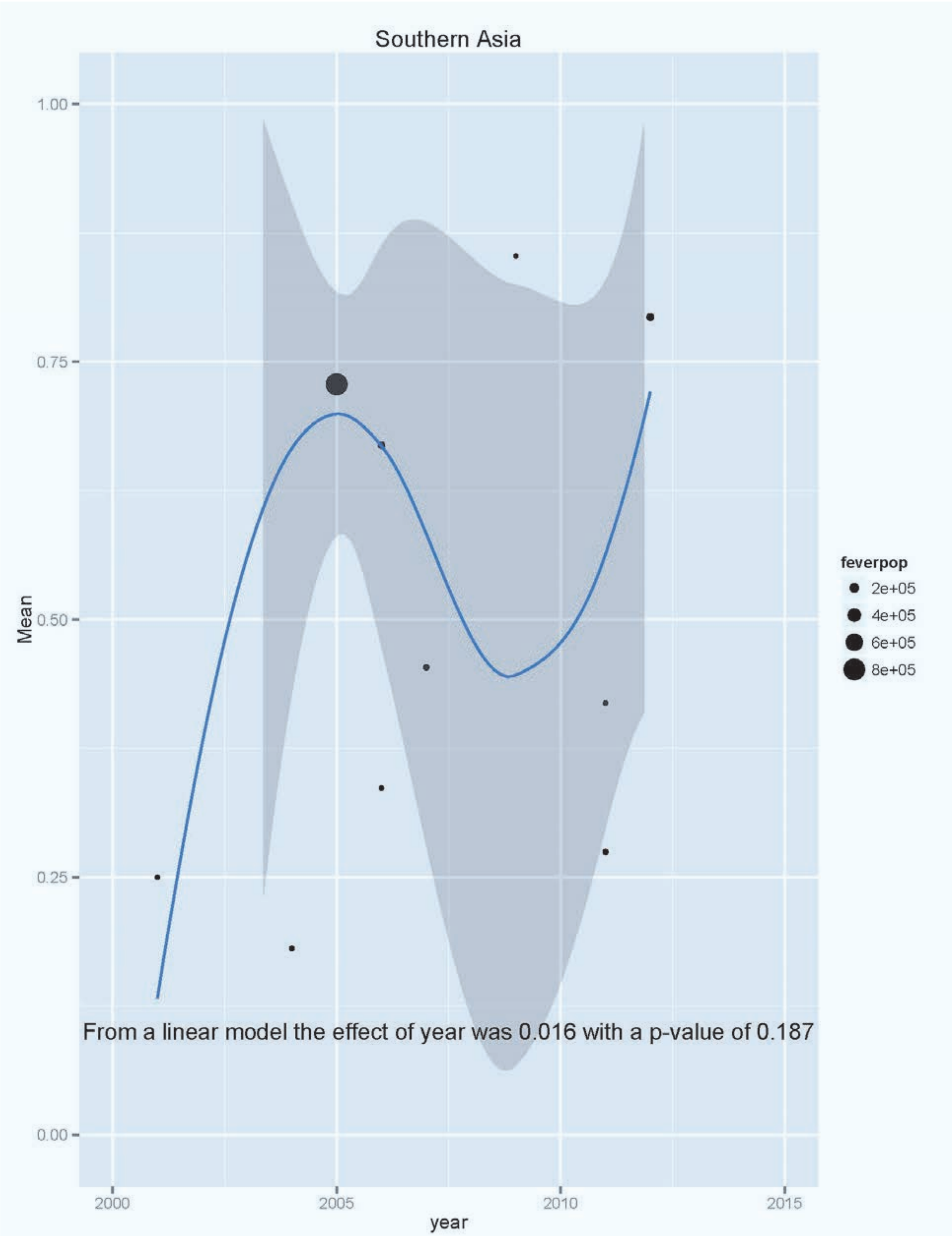

Eastern Africa
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
feverpop
5000
10000
15000
20000
25000
From a linear model the effect of year was 0.007 with a p-value of 0.1


Northern Africa
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
feverpop
20000
30000
40000
From a linear model the effect of year was 0.012 with a p-value of NaN

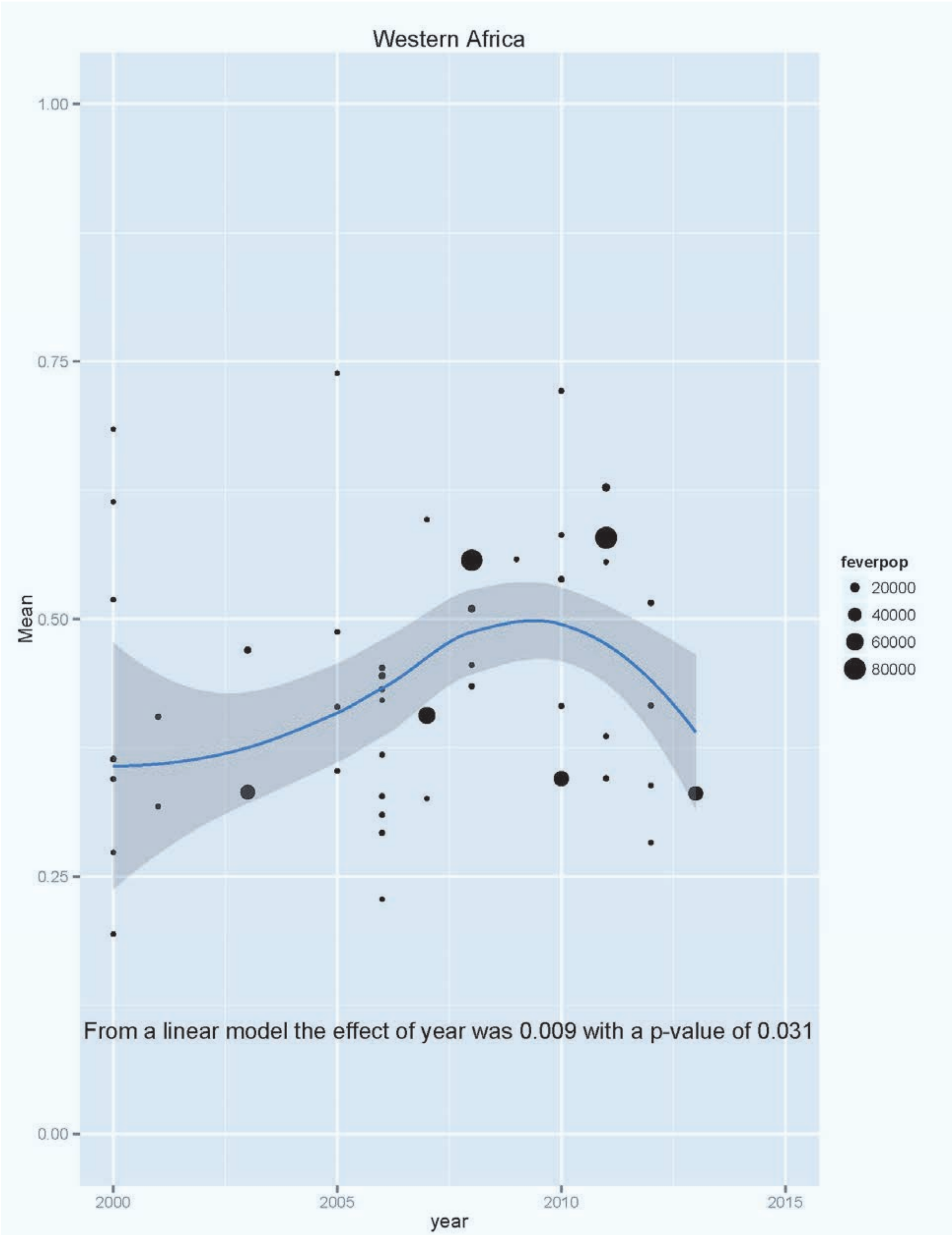

South-Eastern Asia
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
feverpop
50000
100000
150000
From a linear model the effect of year was 0.018 with a p-value of 0.05

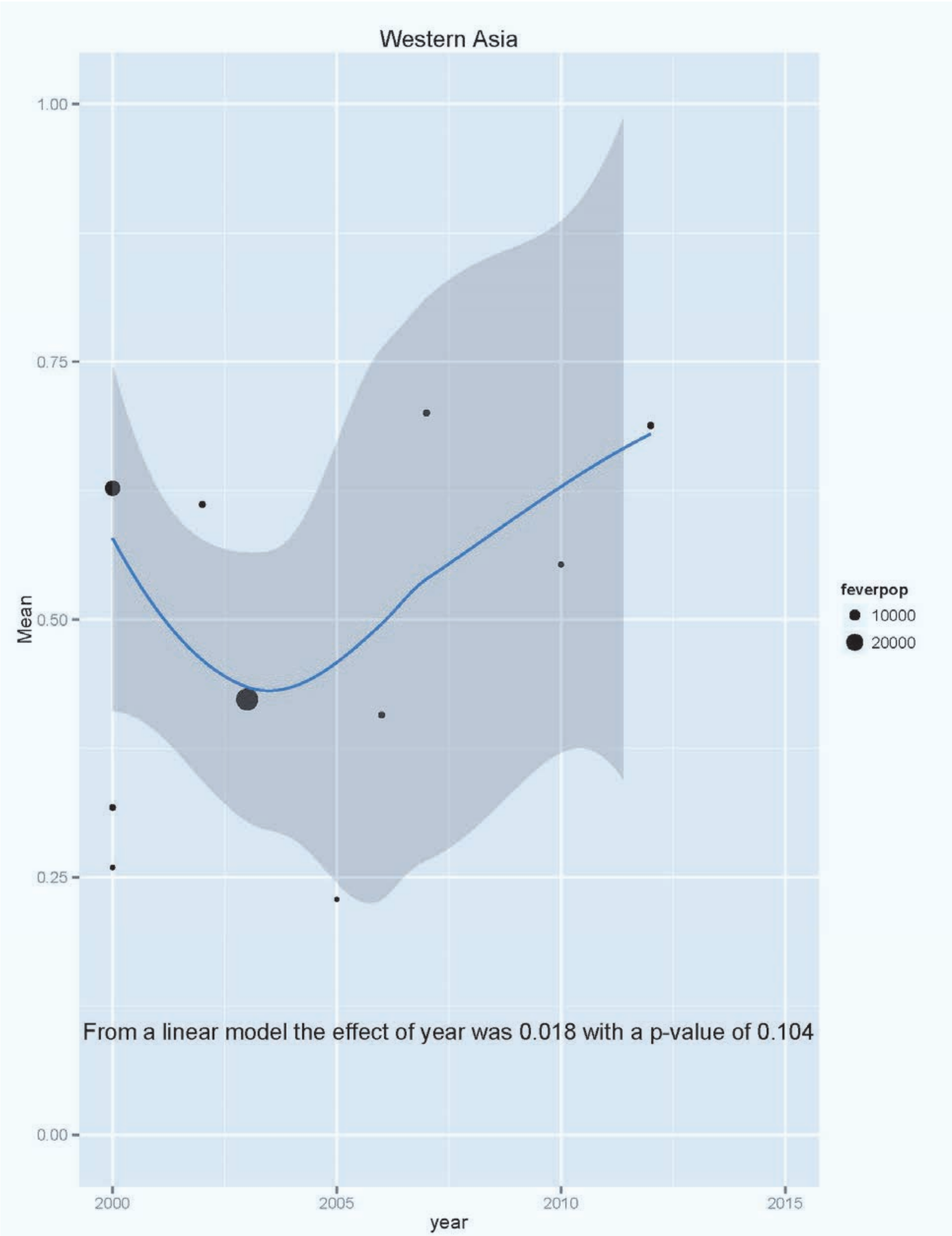

South America
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
feverpop
5000
10000
15000
20000
From a linear model the effect of year was 0 with a p-value of 0.973


Southern Africa
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
feverpop
750
1000
1250
From a linear model the effect of year was 0.014 with a p-value of 0.073

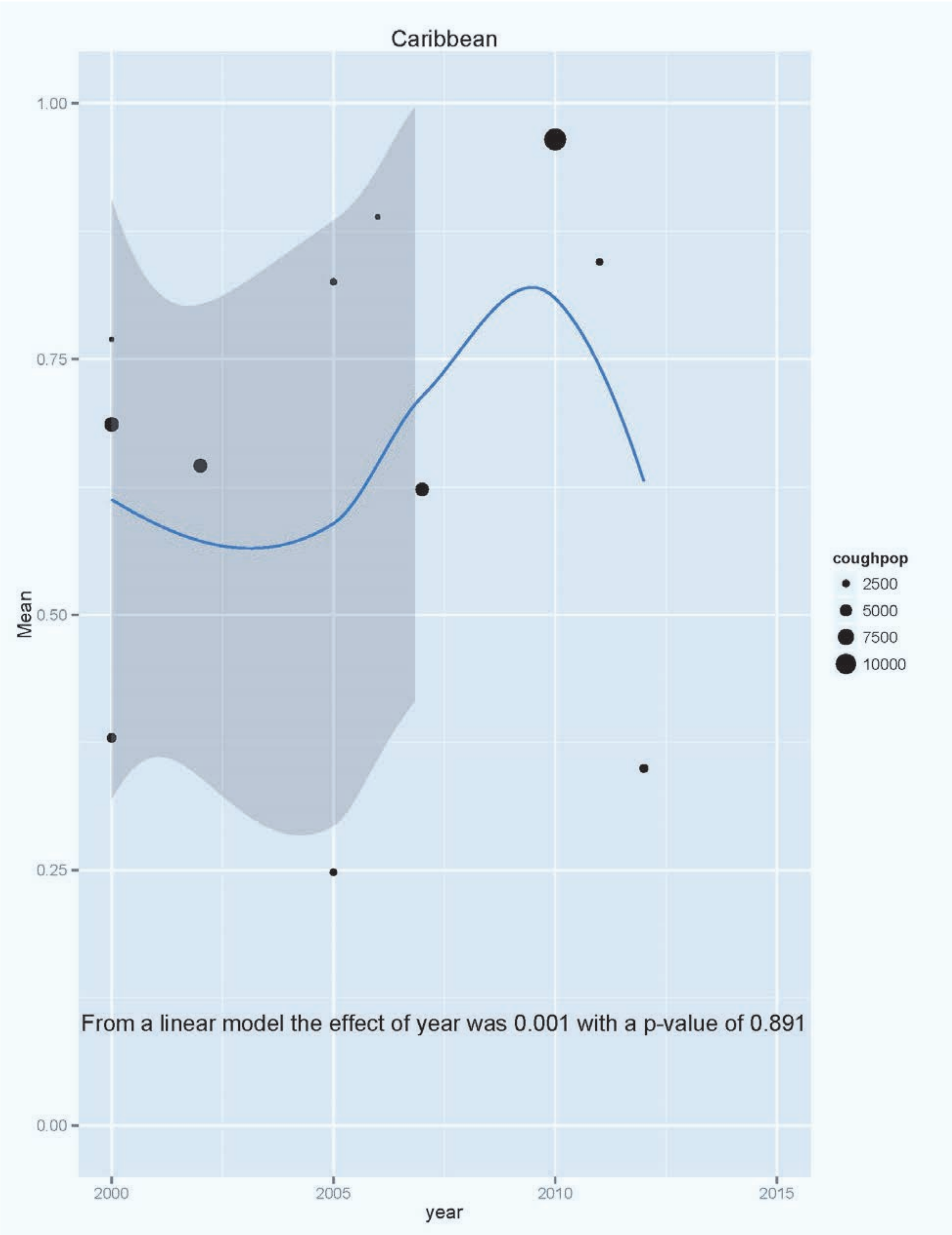


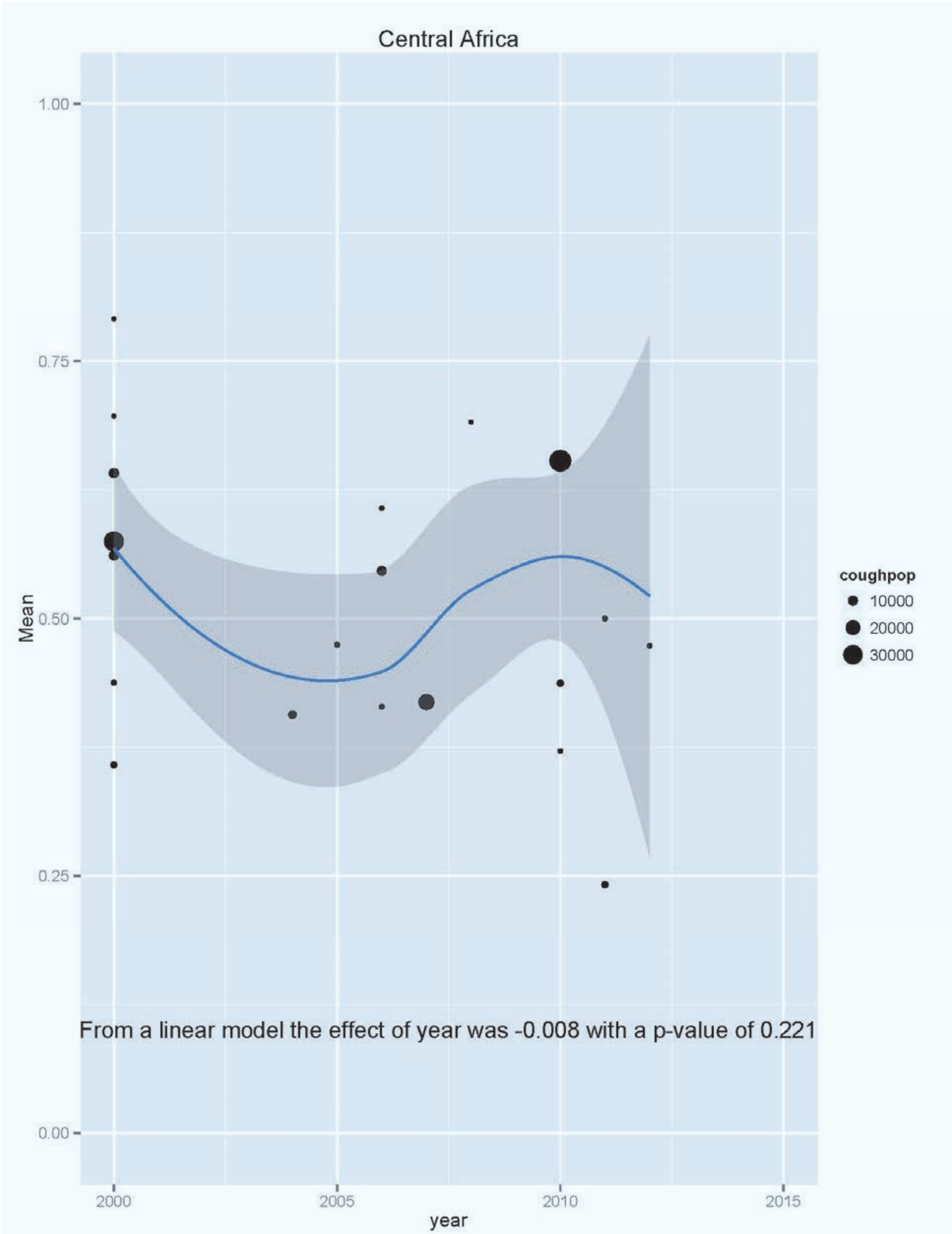
Southern Asia
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
feverpop
2e+05
4e+05
6e+05
8e+05
From a linear model the effect of year was 0.016 with a p-value of 0.187


Western Africa
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
feverpop
20000
40000
60000
80000
From a linear model the effect of year was 0.009 with a p-value of 0.031

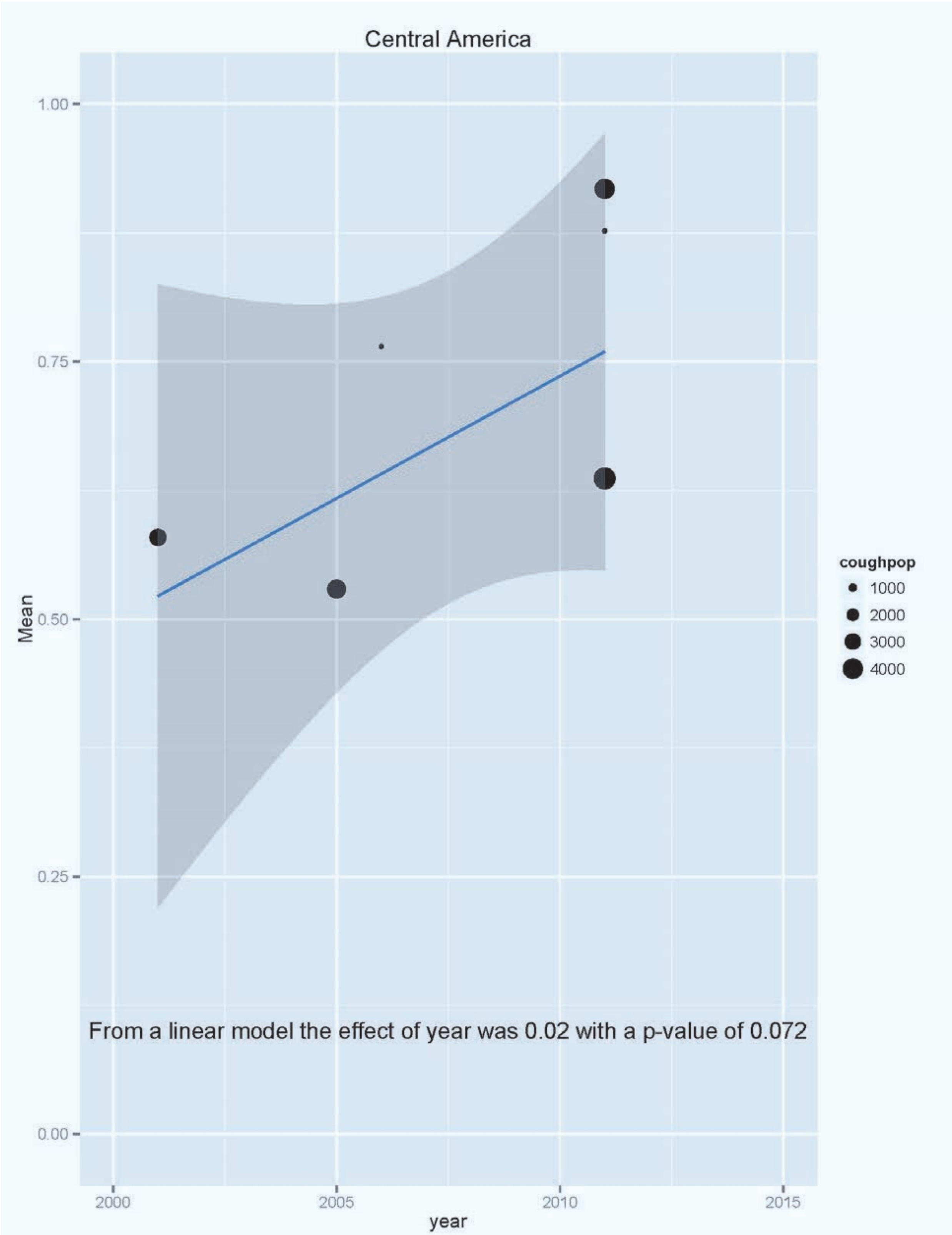

Western Asia
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
feverpop
10000
20000
From a linear model the effect of year was 0.018 with a p-value of 0.104

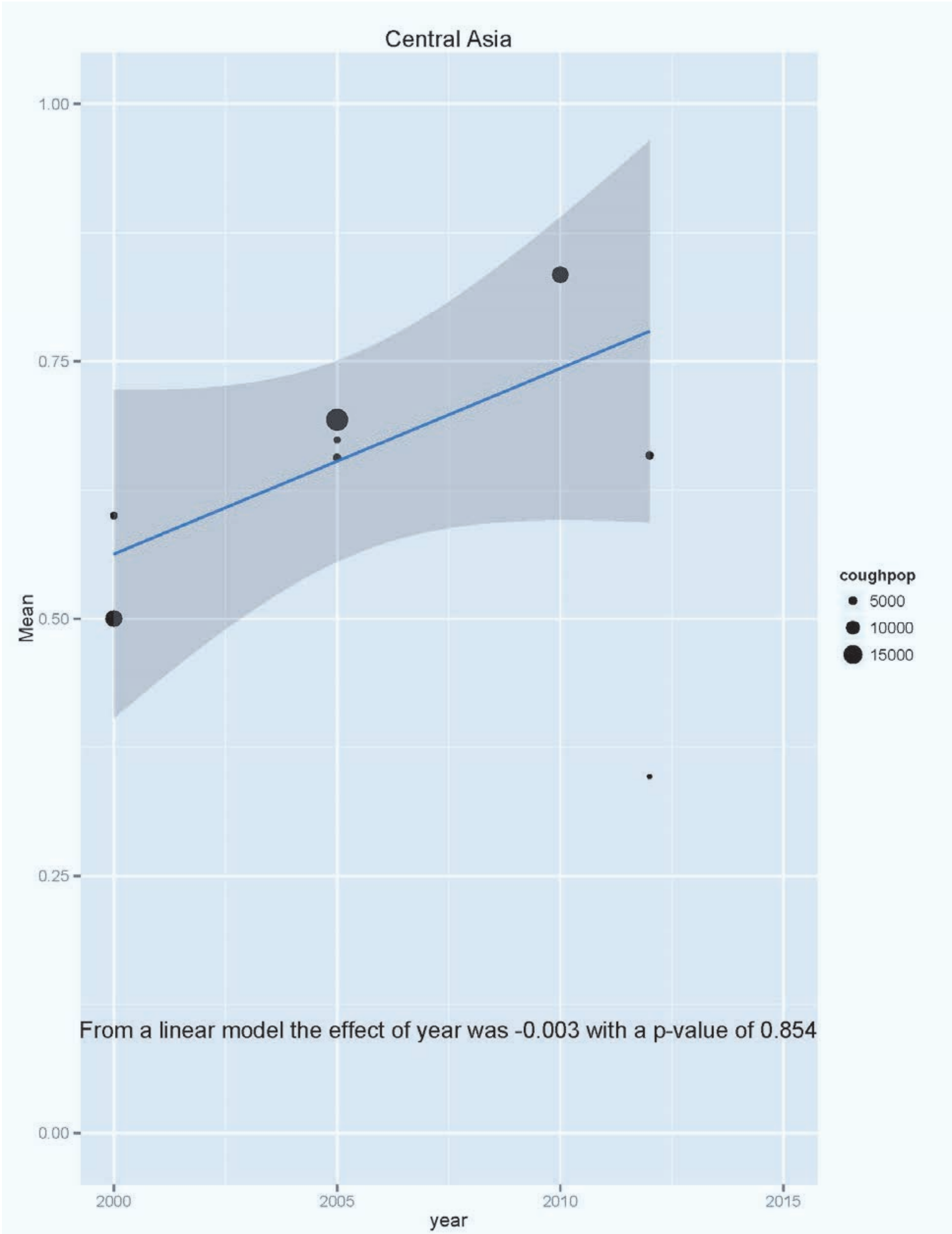
Appendix D: Loess regression and linear regression results for trends in treatment seeking for symptoms of ARI by subregions

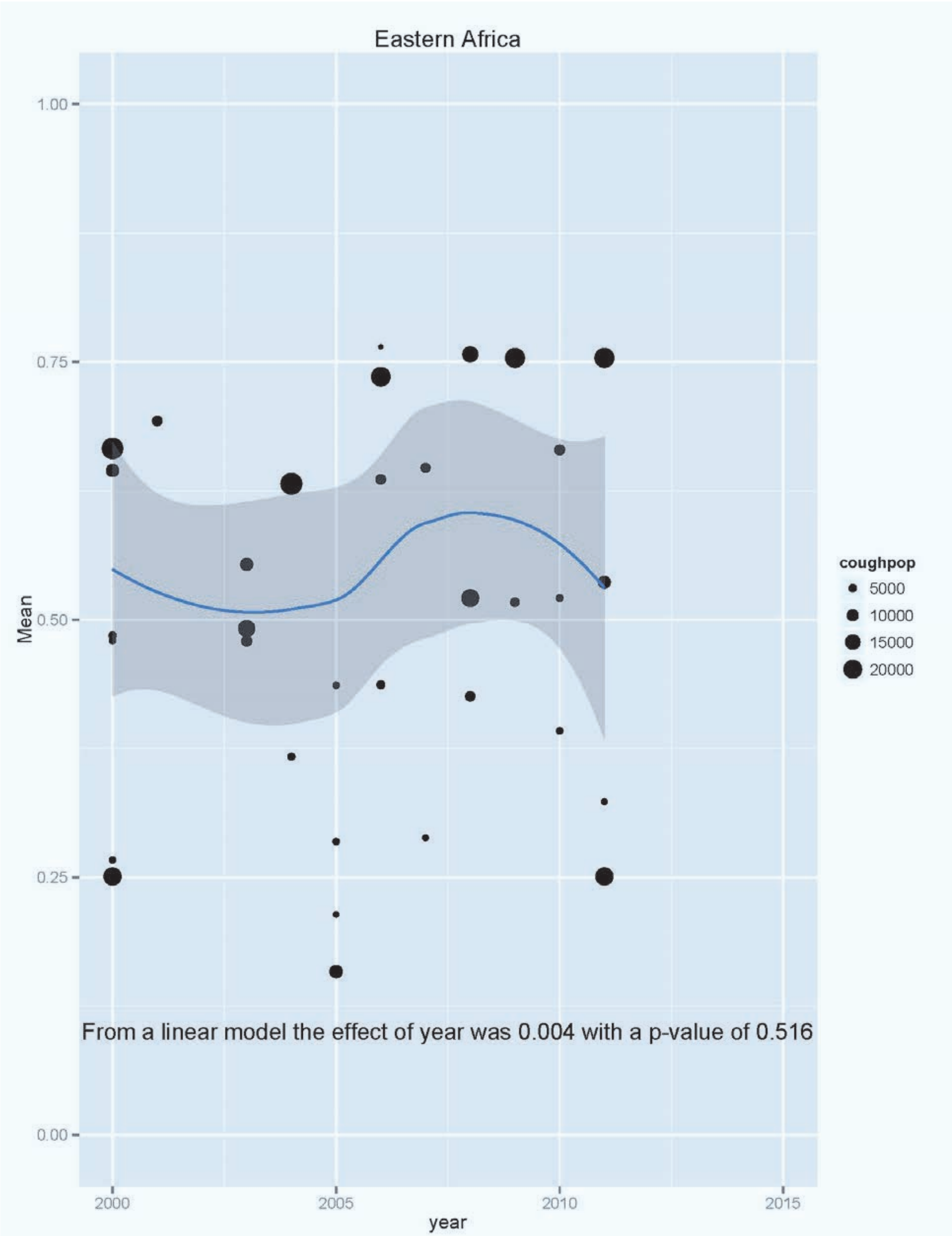


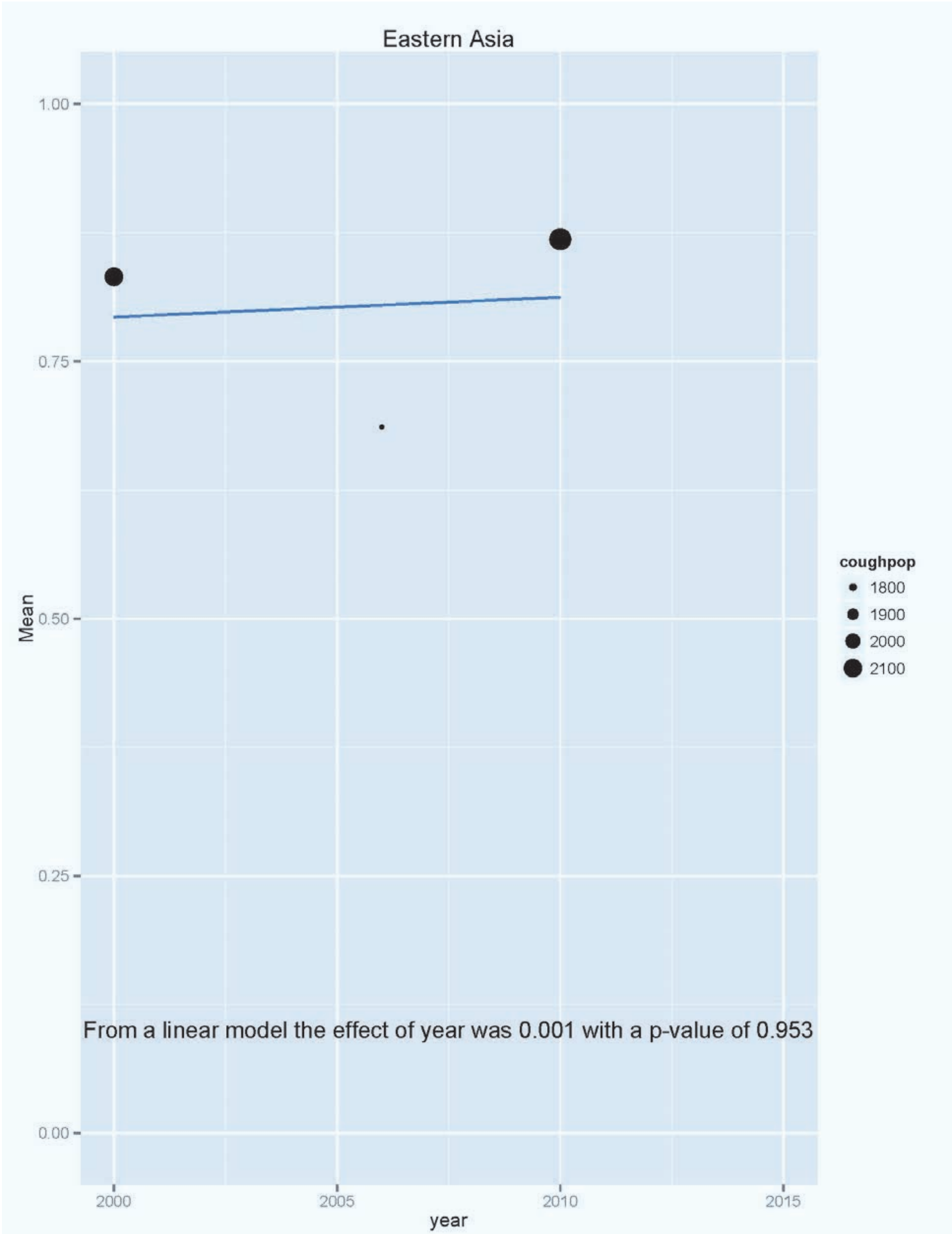


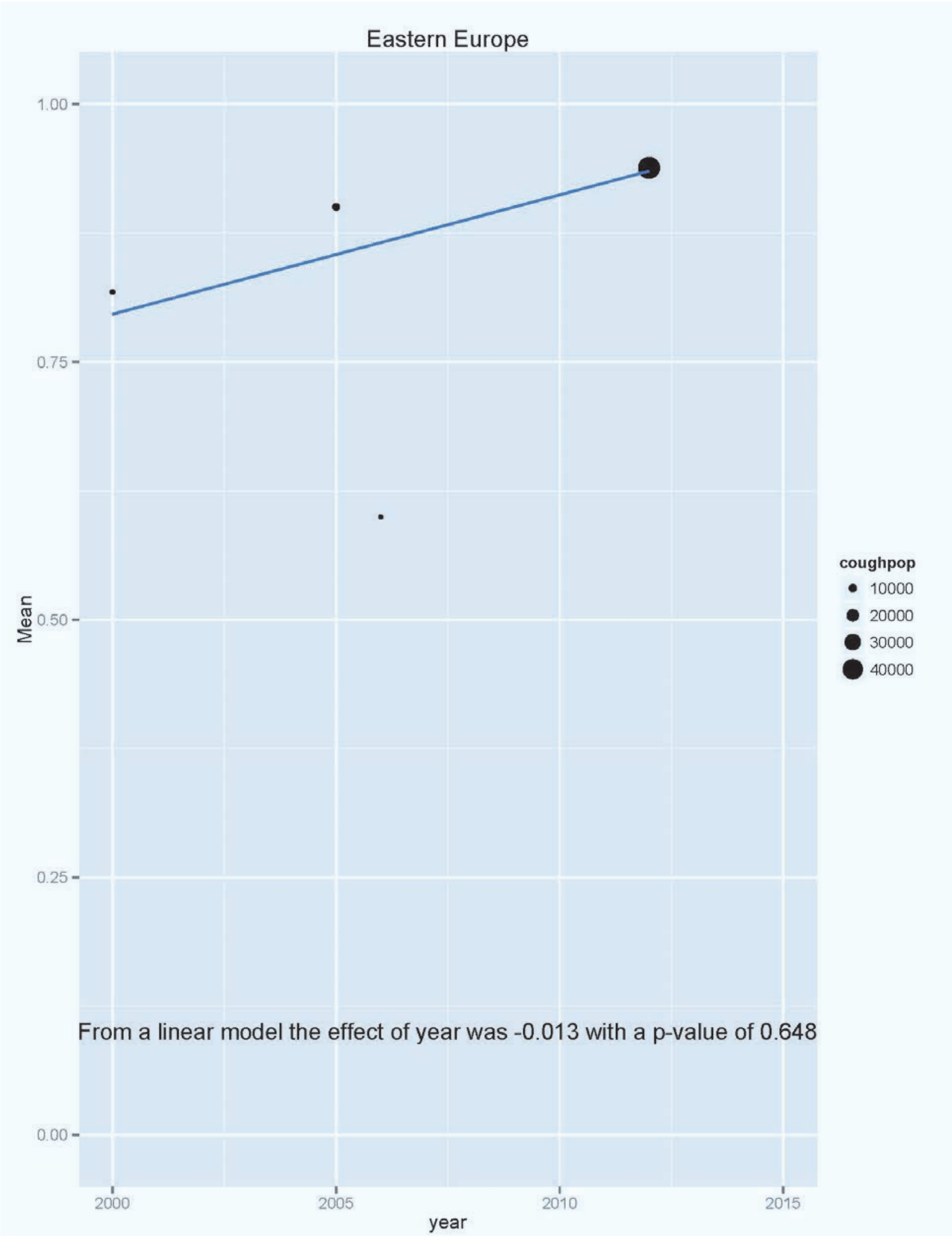
Central Africa
1.00
0.75
0.50
0.25
0.00
Mean
coughpop
10000
20000
30000
From a linear model the effect of year was -0.008 with a p-value of 0.221
2000
2005
2010
2015
year

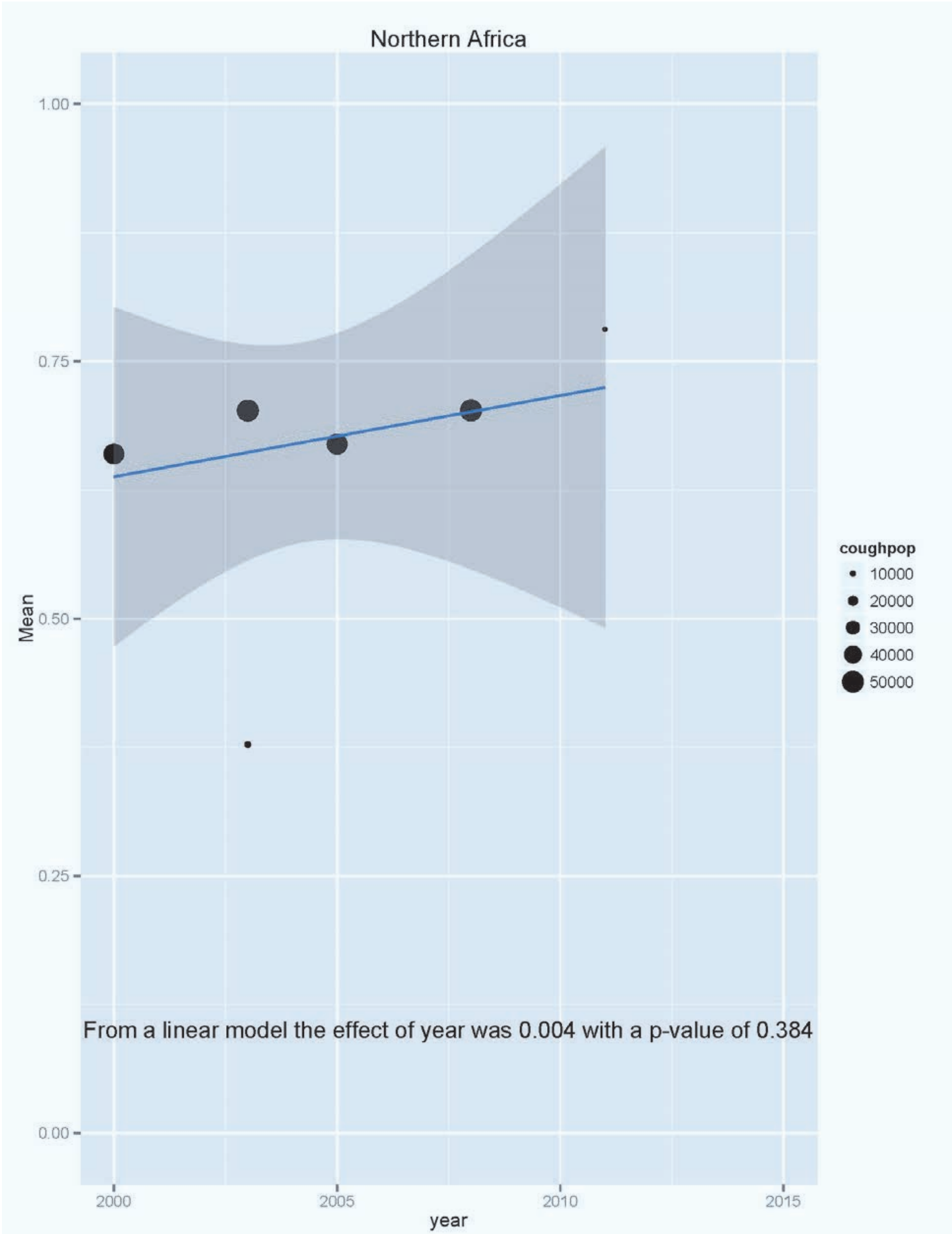

Central America
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
coughpop
1000
2000
3000
4000
From a linear model the effect of year was 0.02 with a p-value of 0.072


Central Asia
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
coughpop
5000
10000
15000
From a linear model the effect of year was -0.003 with a p-value of 0.854

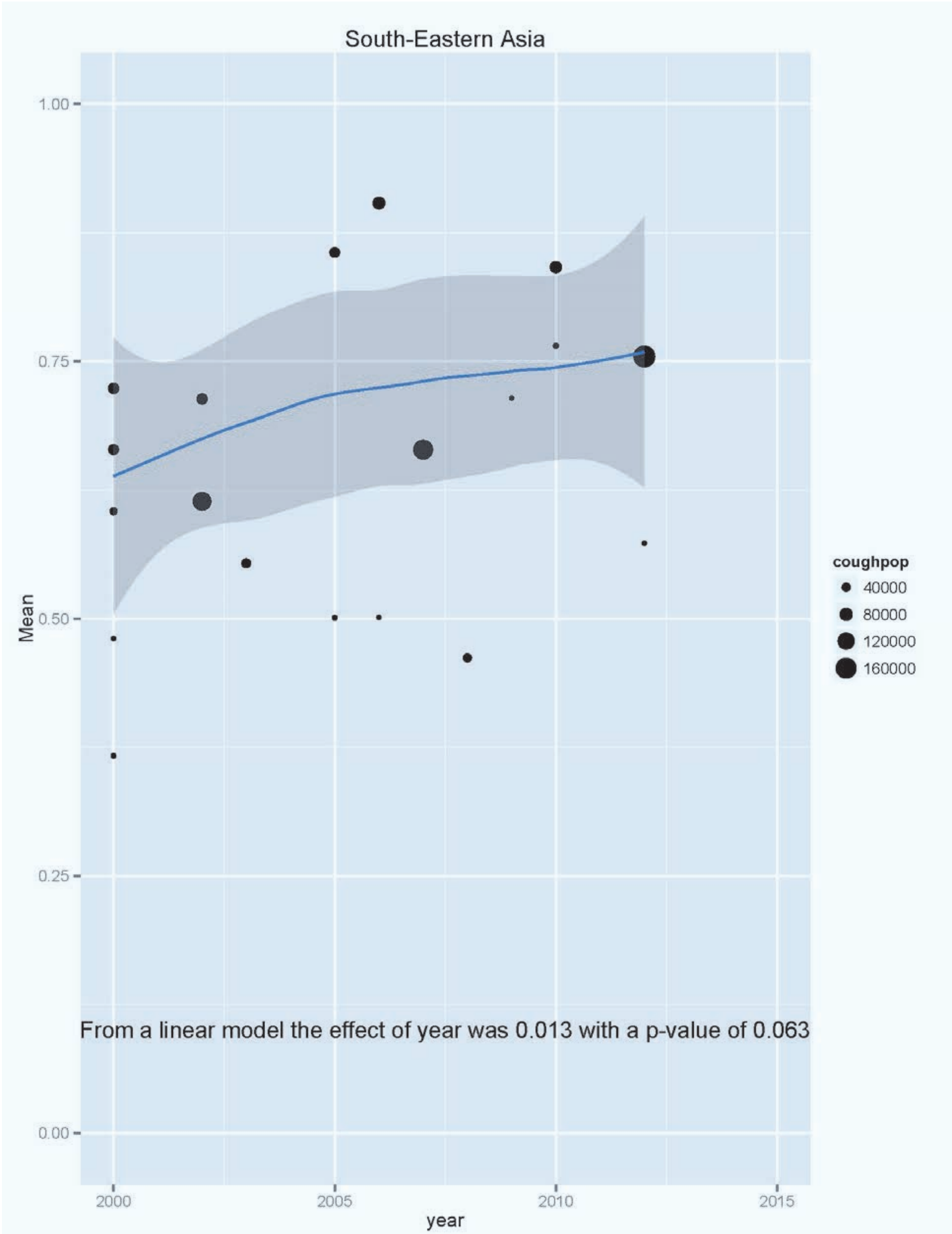

Eastern Africa
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
coughpop
5000
10000
15000
20000
From a linear model the effect of year was 0.004 with a p-value of 0.516

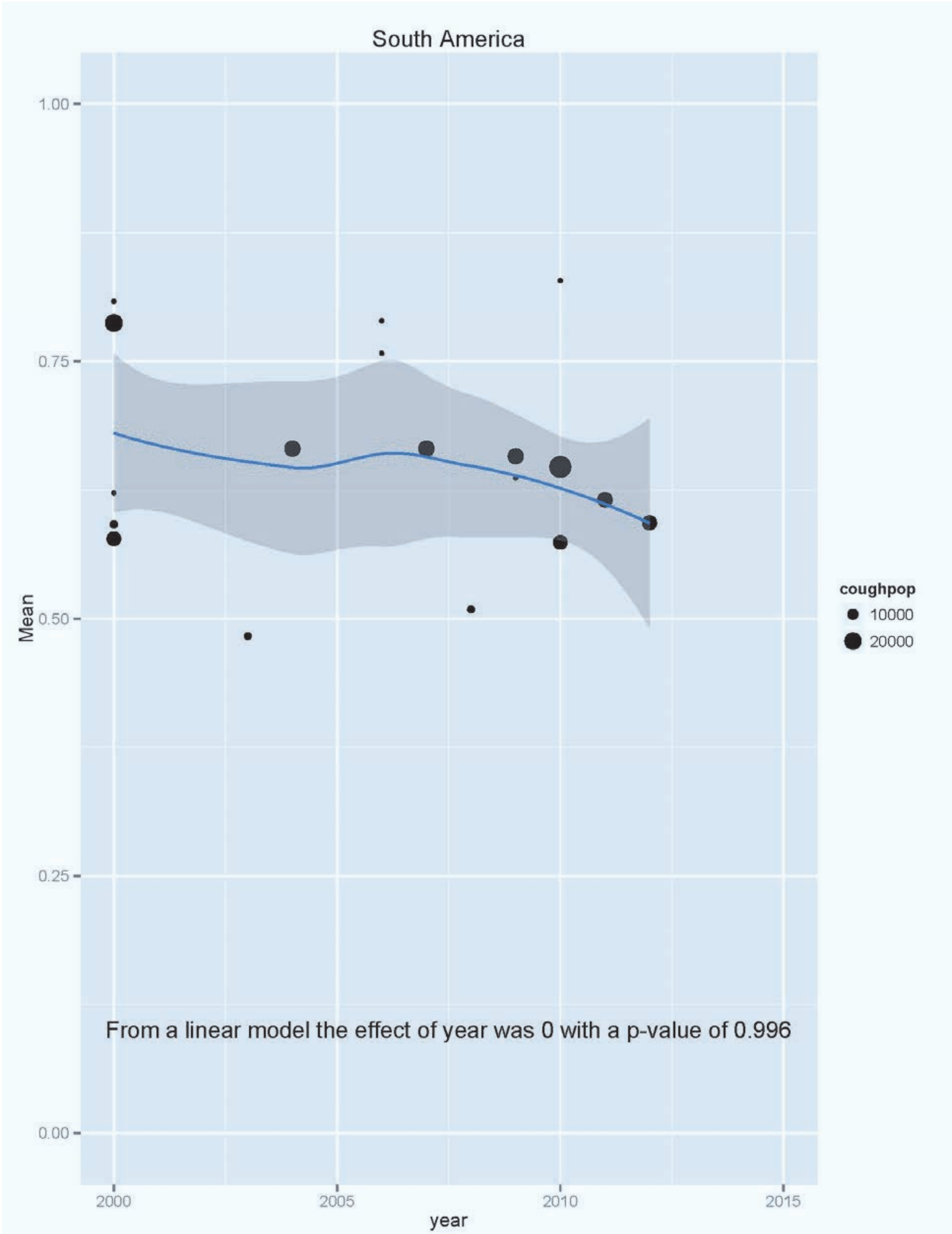

Eastern Asia
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
coughpop
1800
1900
2000
2100
From a linear model the effect of year was 0.001 with a p-value of 0.953


Eastern Europe
1.00
0.75
0.50
0.25
0.00
Mean
coughpop
10000
20000
30000
40000
From a linear model the effect of year was -0.013 with a p-value of 0.648
2000
2005
2010
2015
year

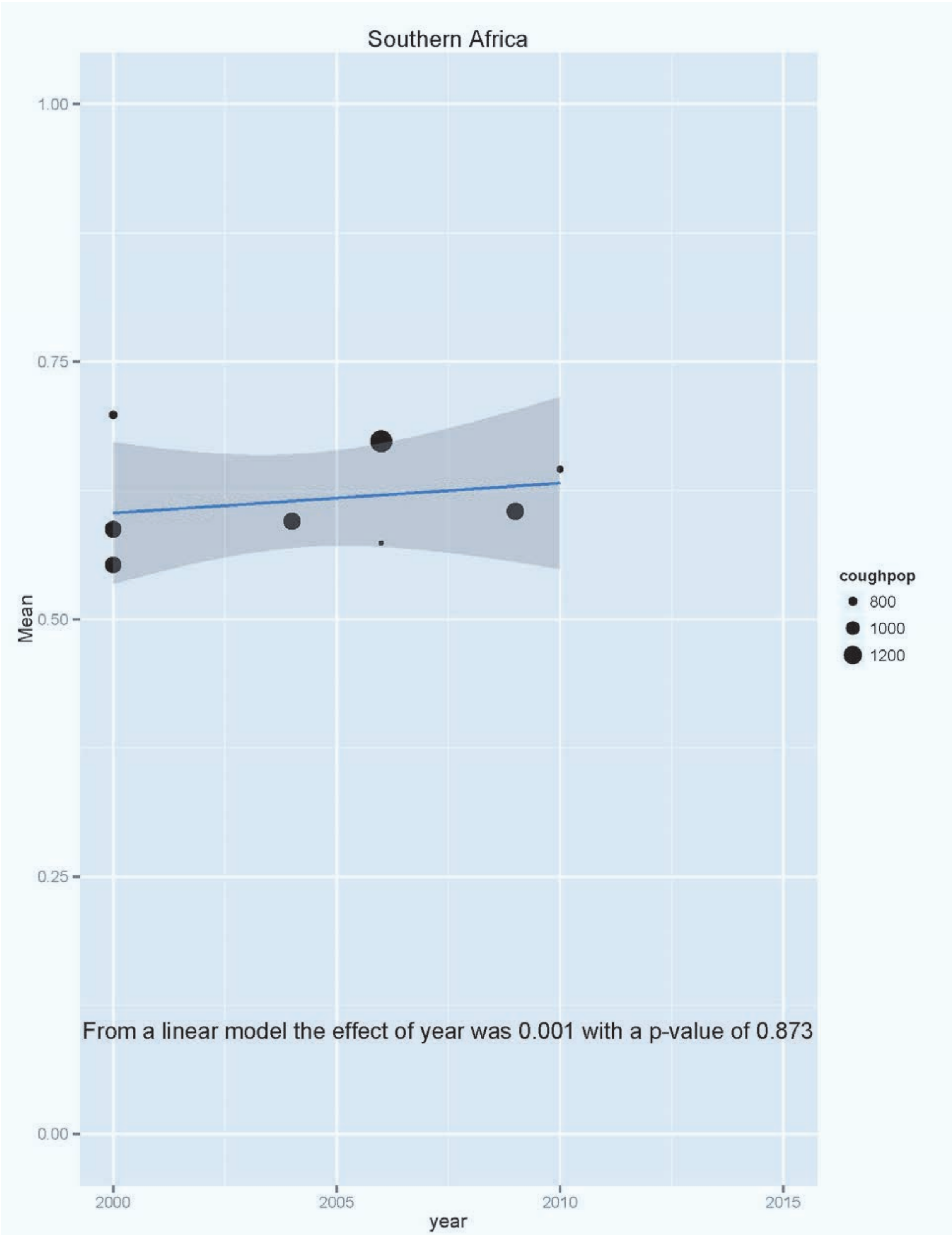


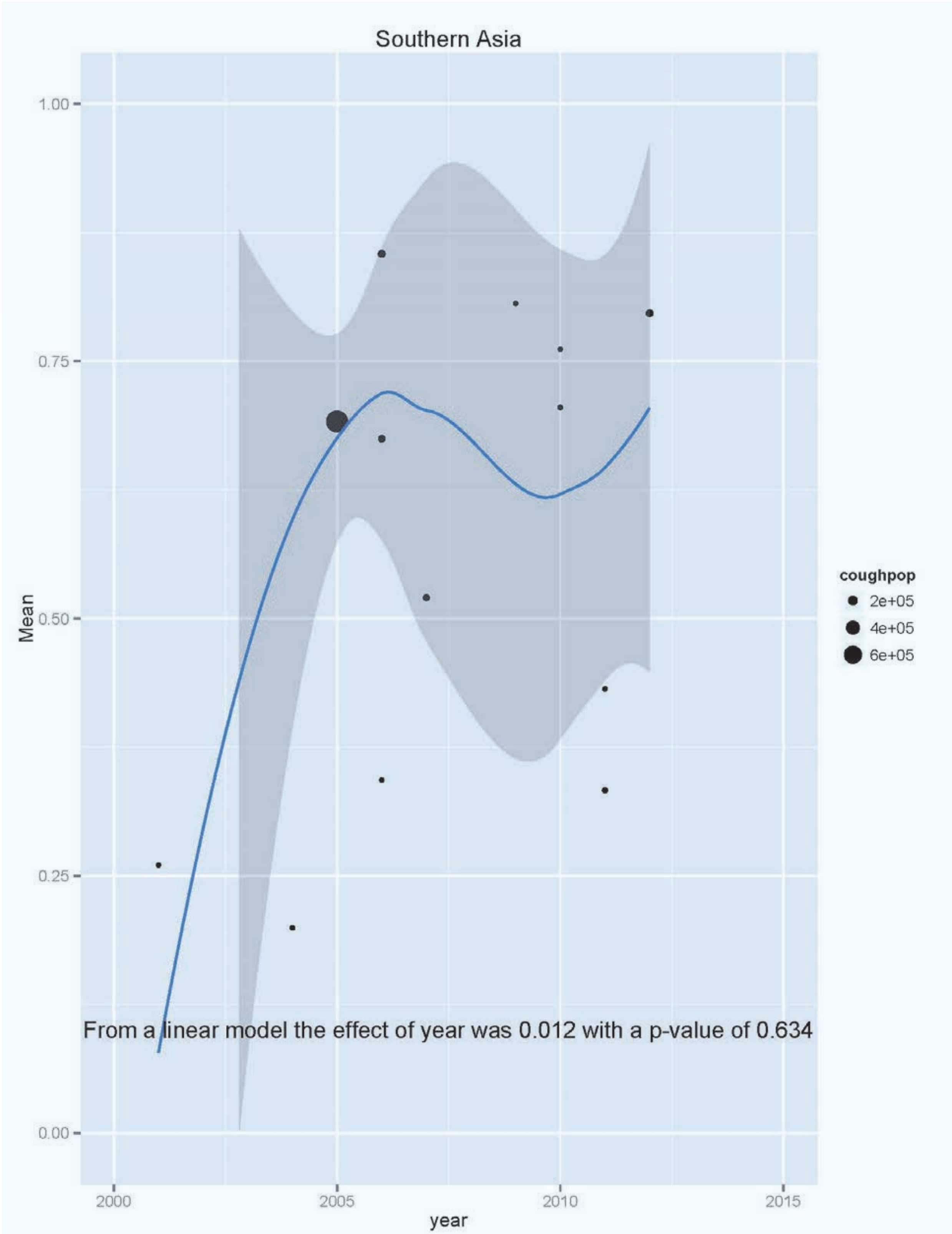
Northern Africa
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
coughpop
10000
20000
30000
40000
50000
From a linear model the effect of year was 0.004 with a p-value of 0.384

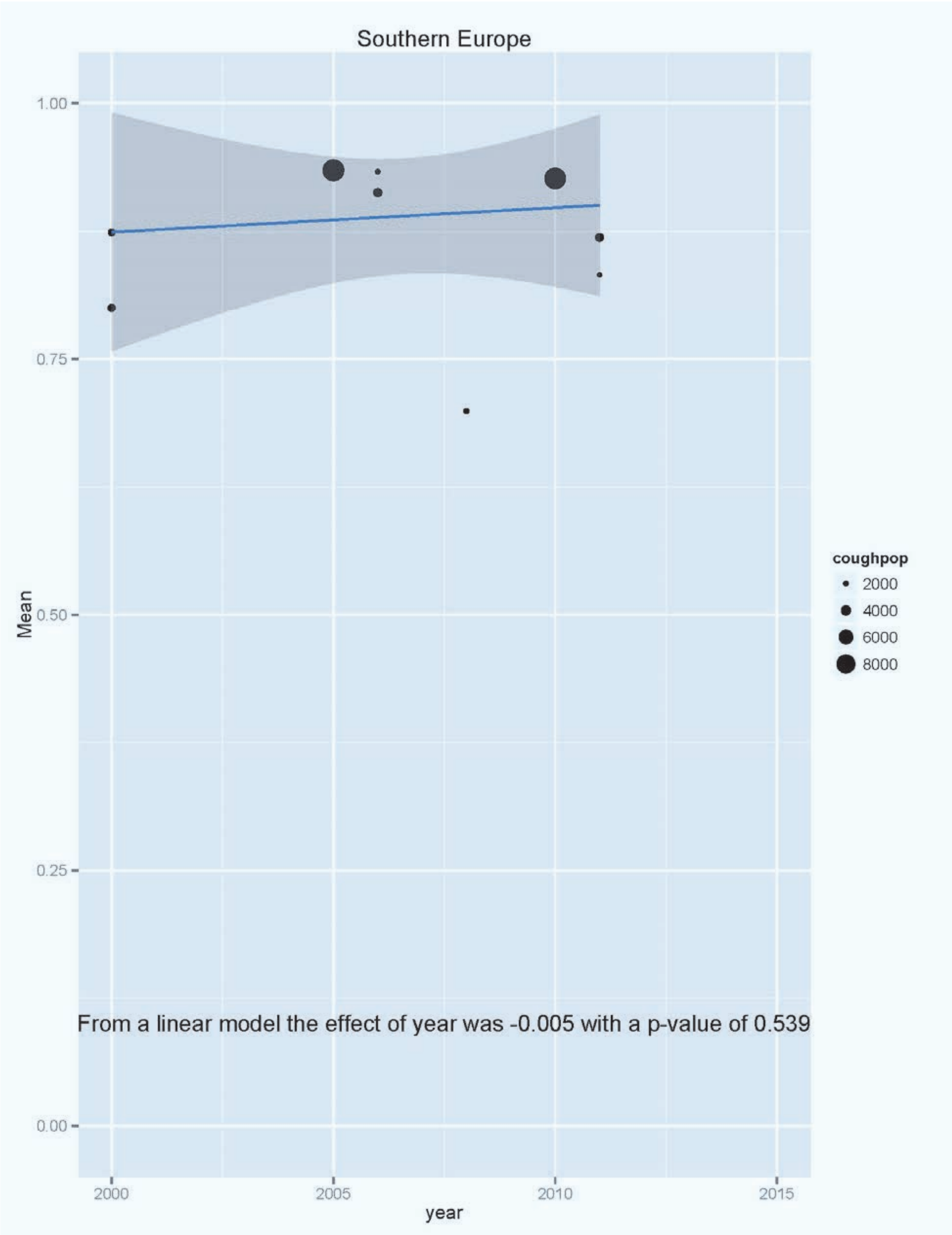

South-Eastern Asia
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
coughpop
40000
80000
120000
160000
From a linear model the effect of year was 0.013 with a p-value of 0.063

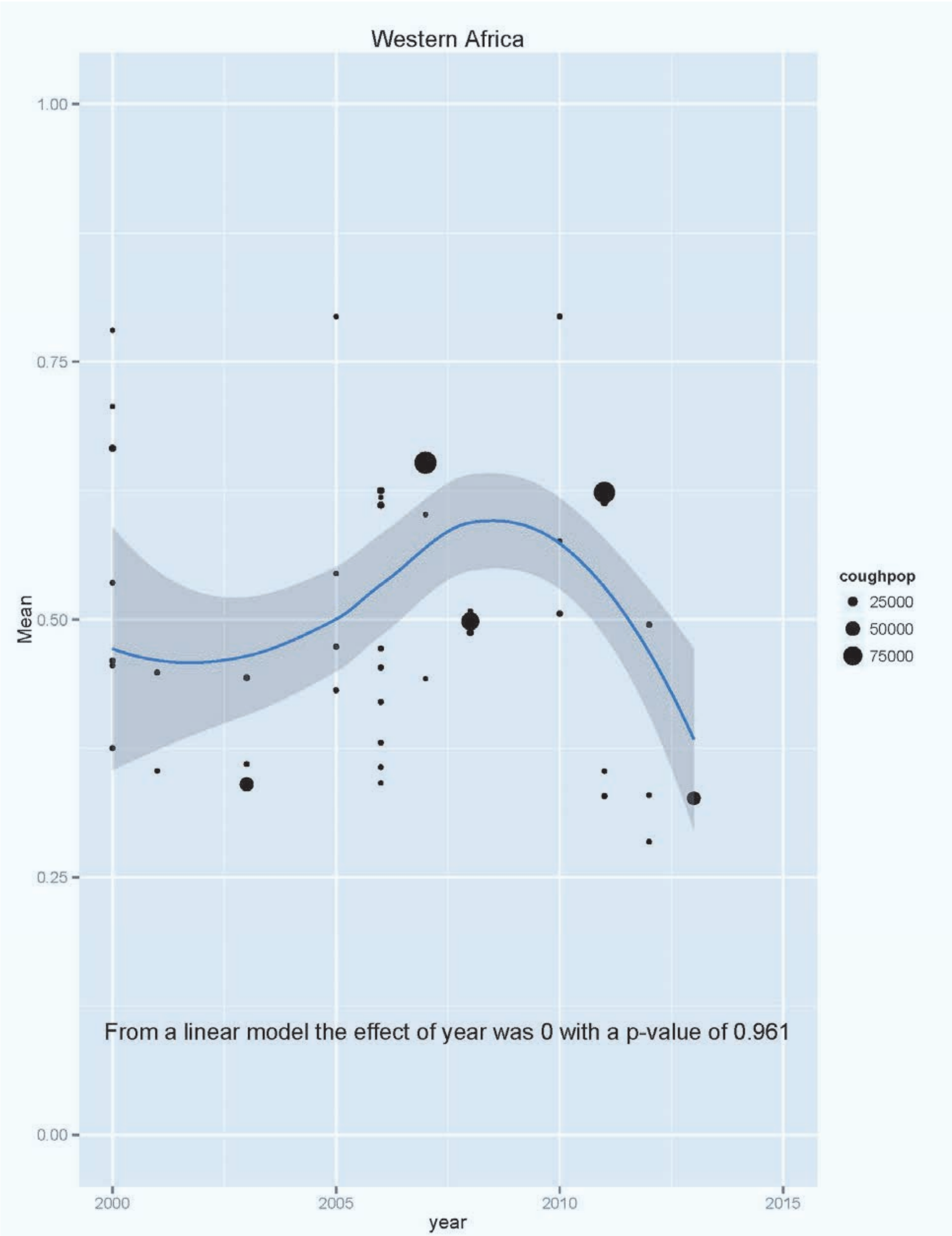


South America
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
coughpop
10000
20000
From a linear model the effect of year was 0 with a p-value of 0.996

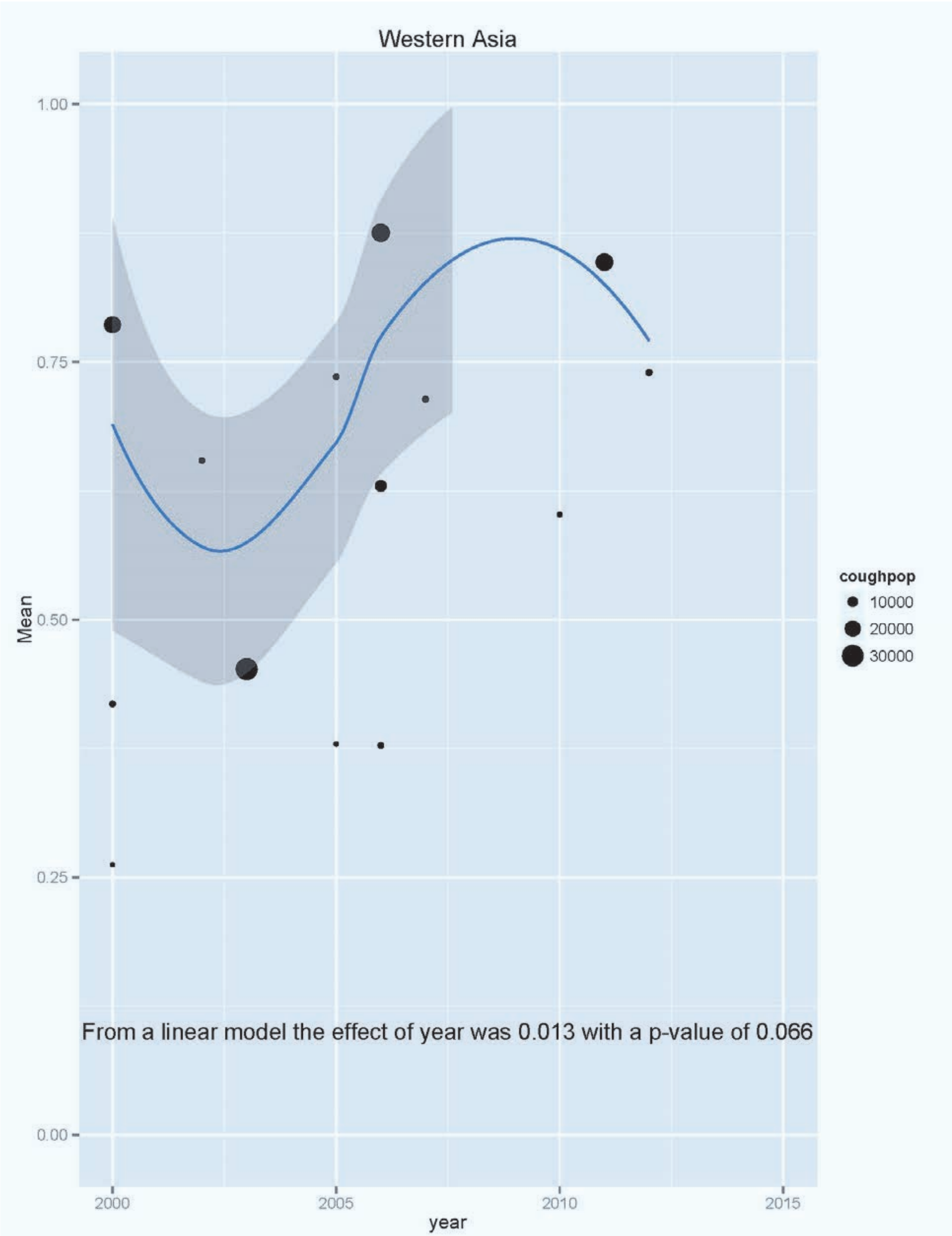

Southern Africa
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
coughpop
800
1000
1200
From a linear model the effect of year was 0.001 with a p-value of 0.873


Southern Asia
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
coughpop
2e+05
4e+05
6e+05
From a linear model the effect of year was 0.012 with a p-value of 0.634

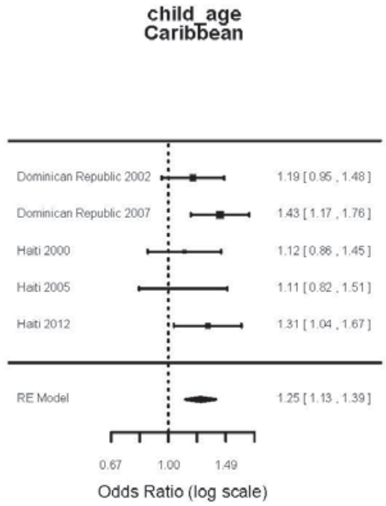

Southern Europe
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
coughpop
2000
4000
6000
8000
From a linear model the effect of year was -0.005 with a p-value of 0.539

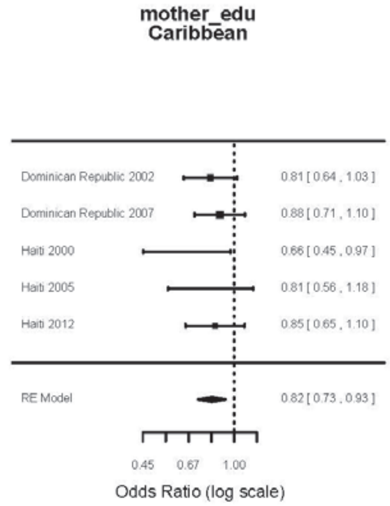


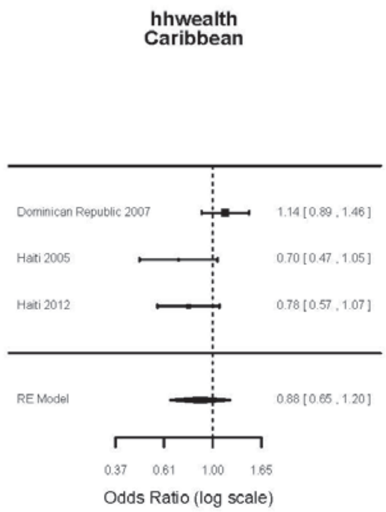
Western Africa
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
coughpop
25000
50000
75000
From a linear model the effect of year was 0 with a p-value of 0.961

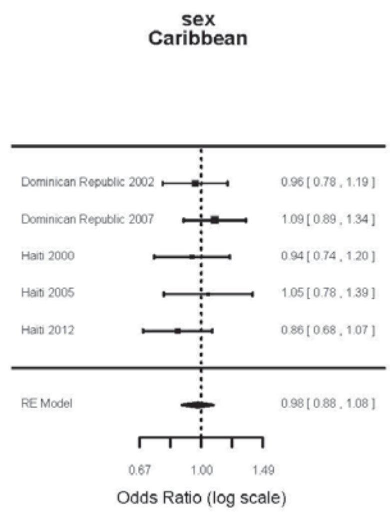

Western Asia
1.00
0.75
0.50
0.25
0.00
Mean
2000
2005
2010
2015
year
coughpop
10000
20000
30000
From a linear model the effect of year was 0.013 with a p-value of 0.066

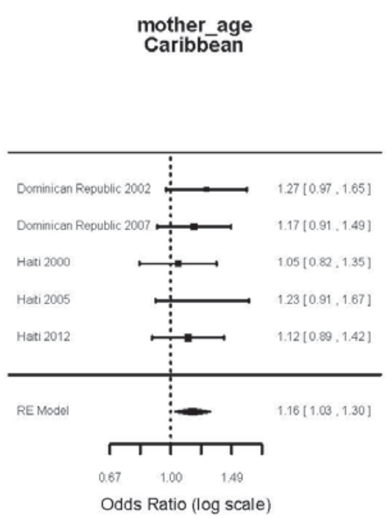
Appendix E: Results of subregional and global meta-analyses of predictors of treatment seeking for diarrhea

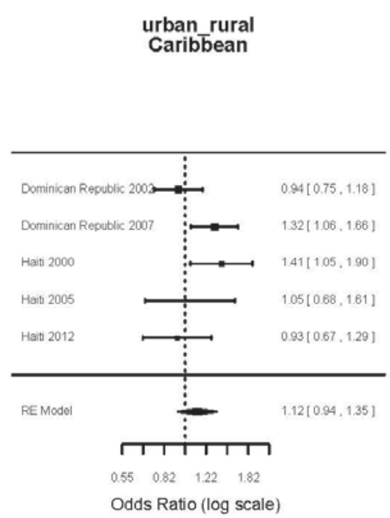


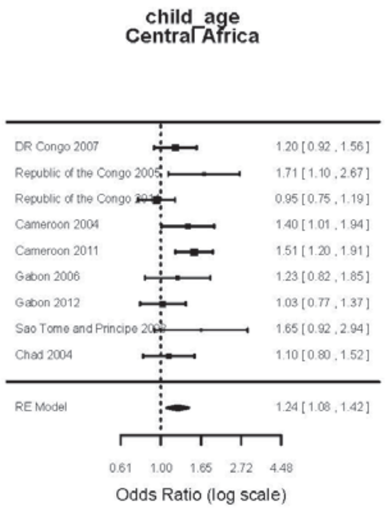


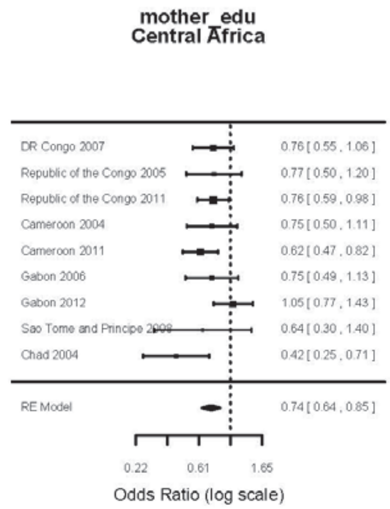


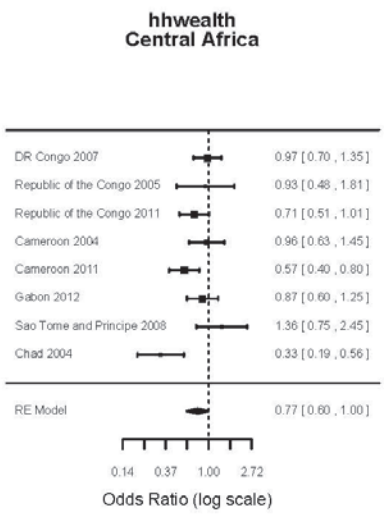


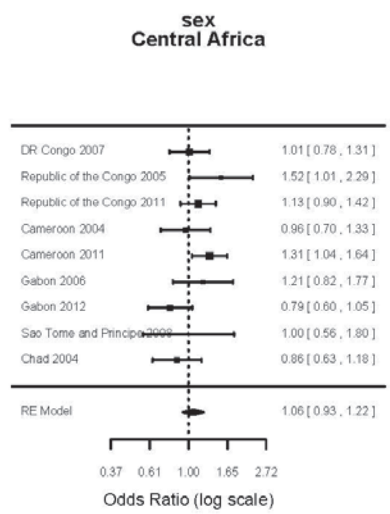


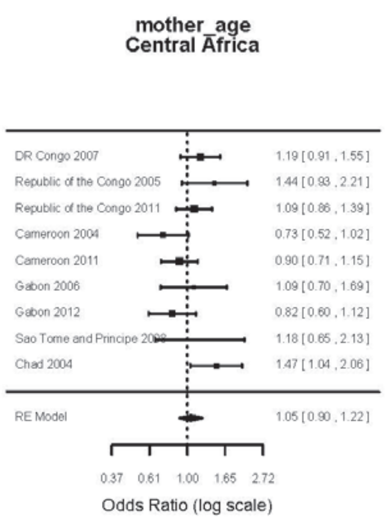


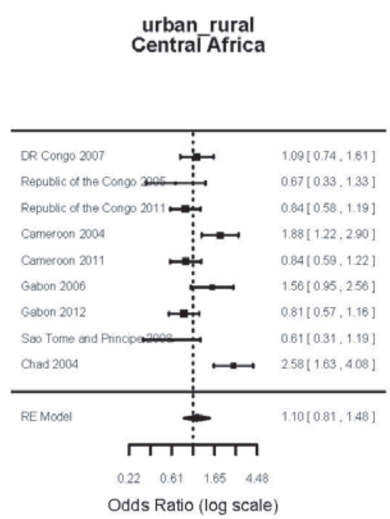

child_age
Central Africa
DR Congo 2007
Republic of the Congo 2005
Republic of the Congo
Cameroon 2004
Cameroon 2011
Gabon 2006
Gabon 2012
Sao Tome and Principe
Chad 2004
RE Model
1.20 [0.92 , 1.56]
1.71 [1.10 , 2.67]
0.95 [0.75 , 1.19]
1.40 [1.01 , 1.94]
1.51 [1.20 , 1.91]
1.23 [0.82 , 1.85]
1.03 [0.77 , 1.37]
1.65 [0.92 , 2.94]
1.10 [0.80 , 1.52]
1.24 [1.08 , 1.42]
0.61 1.00 1.65 2.72 4.48
Odds Ratio (log scale)

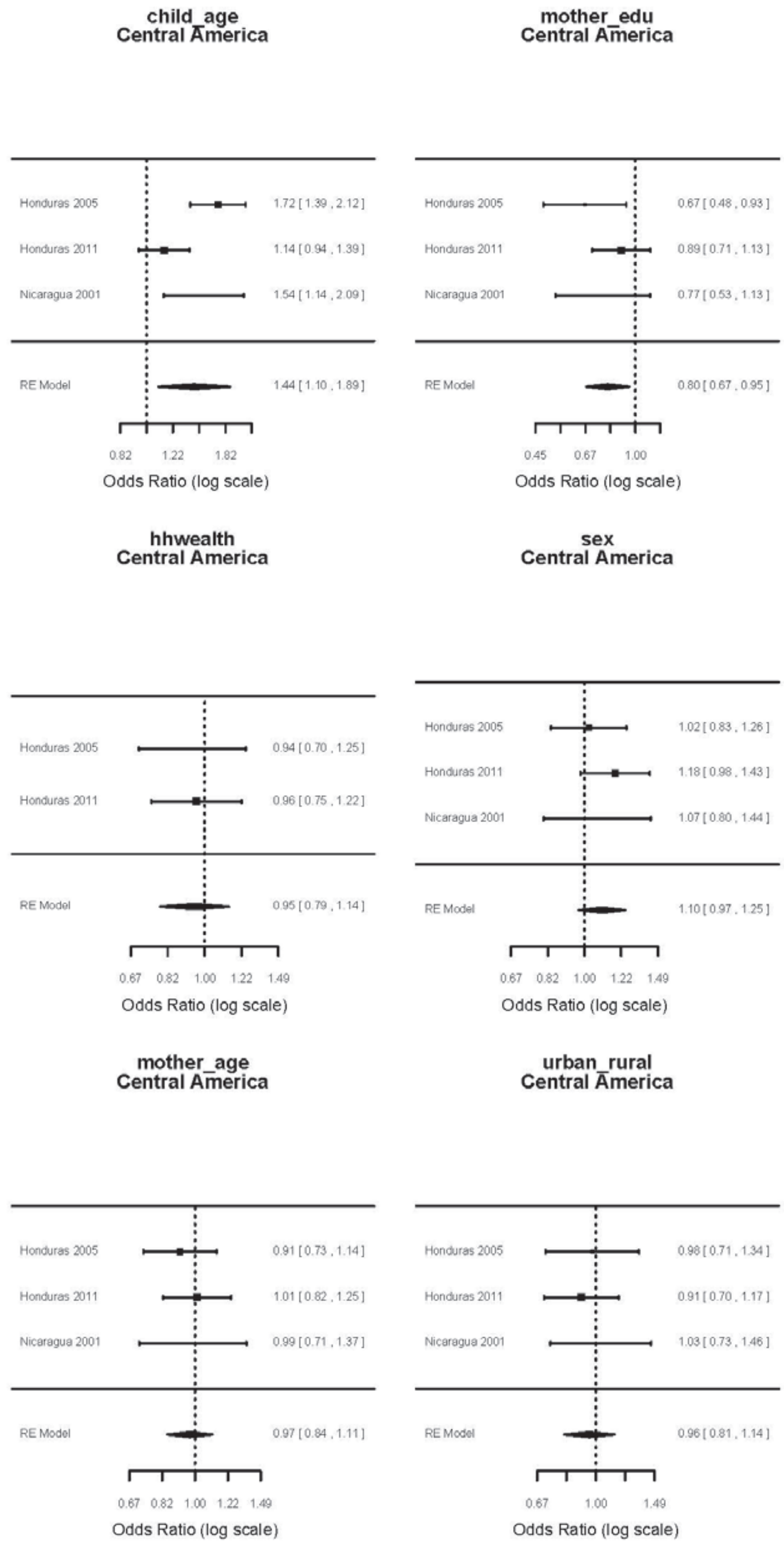

mother_edu
Central Africa
DR Congo 2007
Republic of the Congo 2005
Republic of the Congo 2011
Cameroon 2004
Cameroon 2011
Gabon 2006
Gabon 2012
Sao Tome and Principe
Chad 2004
RE Model
0.76 [0.55 , 1.06]
0.77 [0.50 , 1.20]
0.76 [0.59 , 0.98]
0.75 [0.50 , 1.11]
0.62 [0.47 , 0.82]
0.75 [0.49 , 1.13]
1.05 [0.77 , 1.43]
0.64 [0.30 , 1.40]
0.42 [0.25 , 0.71]
0.74 [0.64 , 0.85]
0.22 0.61 1.65
Odds Ratio (log scale)

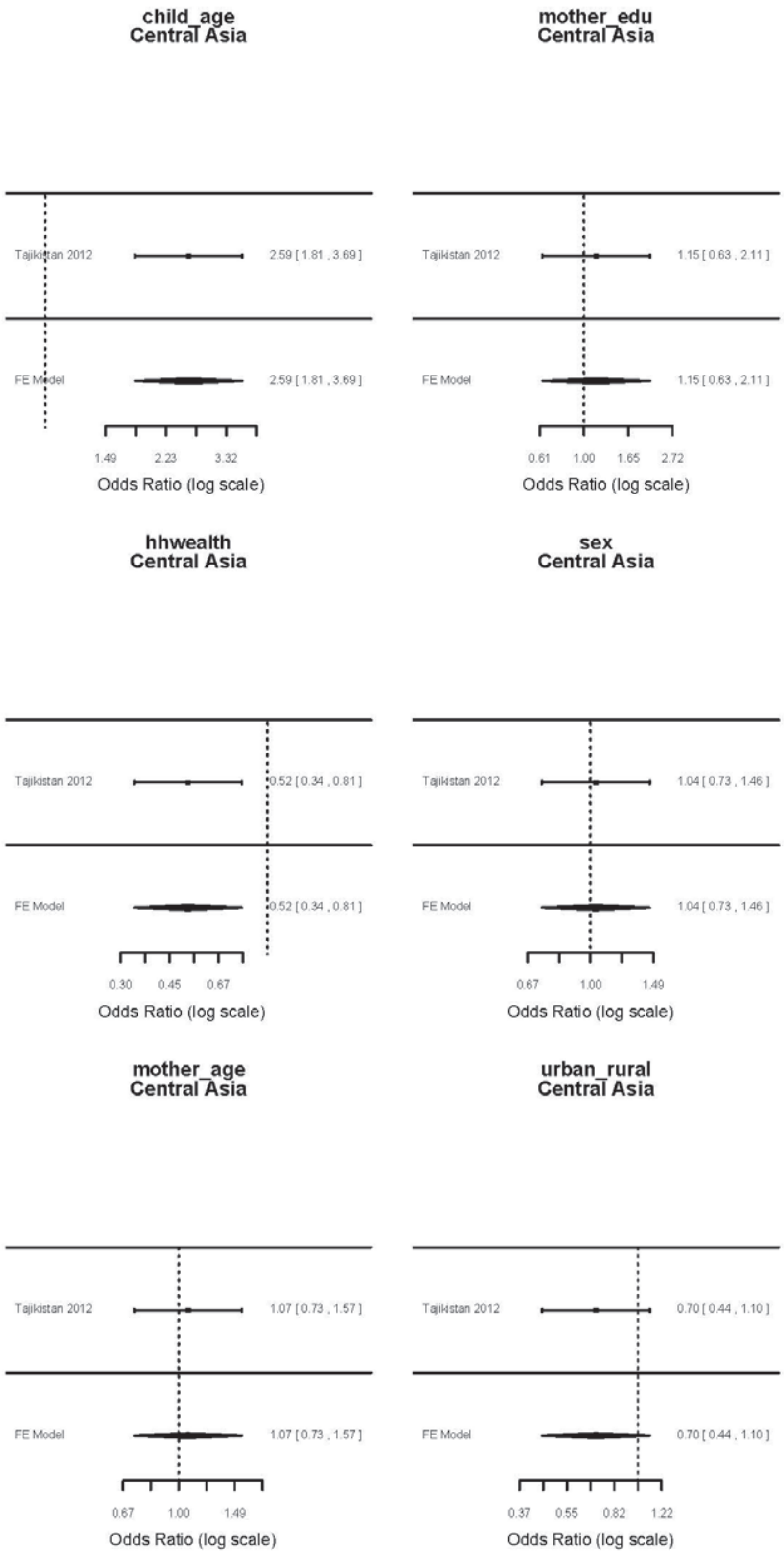

hhwealth
Central Africa
DR Congo 2007
Republic of the Congo 2005
Republic of the Congo 2011
Cameroon 2004
Cameroon 2011
Gabon 2012
Sao Tome and Principe 2008
Chad 2004
RE Model
0.97 [0.70 , 1.35]
0.93 [0.48 , 1.81]
0.71 [0.51 , 1.01]
0.96 [0.63 , 1.45]
0.57 [0.40 , 0.80]
0.87 [0.60 , 1.25]
1.36 [0.75 , 2.45]
0.33 [0.19 , 0.56]
0.77 [0.60 , 1.00]
0.14 0.37 1.00 2.72
Odds Ratio (log scale)

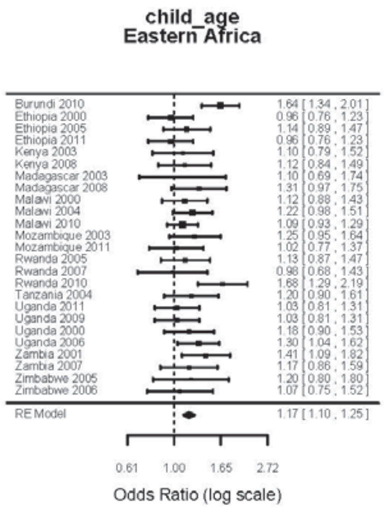

sex
Central Africa
DR Congo 2007
Republic of the Congo 2005
Republic of the Congo 2011
Cameroon 2004
Cameroon 2011
Gabon 2006
Gabon 2012
Sao Tome and Principe
Chad 2004
RE Model
1.01 [0.78 , 1.31]
1.52 [1.01 , 2.29]
1.13 [0.90 , 1.42]
0.96 [0.70 , 1.33]
1.31 [1.04 , 1.64]
1.21 [0.82 , 1.77]
0.79 [0.60 , 1.05]
1.00 [0.56 , 1.80]
0.86 [0.63 , 1.18]
1.06 [0.93 , 1.22]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

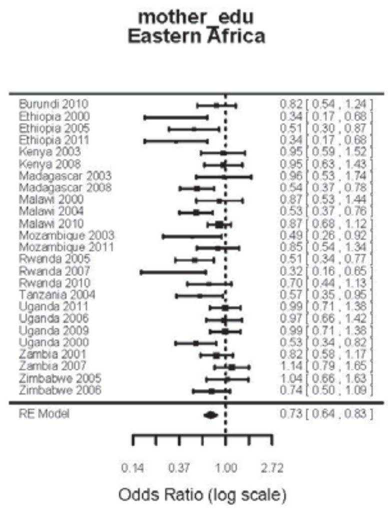

mother_age
Central Africa
DR Congo 2007
Republic of the Congo 2005
Republic of the Congo 2011
Cameroon 2004
Cameroon 2011
Gabon 2006
Gabon 2012
Sao Tome and Principe
Chad 2004
RE Model
1.19 [0.91 , 1.55]
1.44 [0.93 , 2.21]
1.09 [0.86 , 1.39]
0.73 [0.52 , 1.02]
0.90 [0.71 , 1.15]
1.09 [0.70 , 1.69]
0.82 [0.60 , 1.12]
1.18 [0.65 , 2.13]
1.47 [1.04 , 2.06]
1.05 [0.90 , 1.22]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

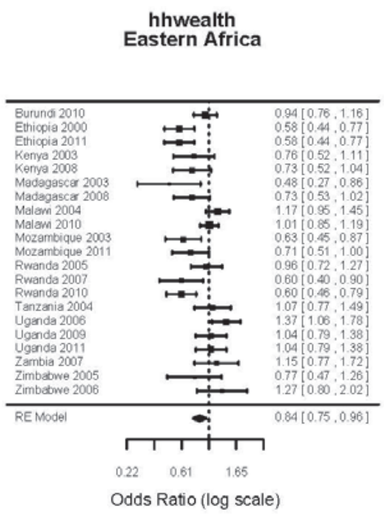

urban_rural
Central Africa
DR Congo 2007
Republic of the Congo
Republic of the Congo 2011
Cameroon 2004
Cameroon 2011
Gabon 2006
Gabon 2012
Sao Tome and Principe
Chad 2004
RE Model
1.09 [0.74 , 1.61]
0.67 [0.33 , 1.33]
0.84 [0.58 , 1.19]
1.88 [1.22 , 2.90]
0.84 [0.59 , 1.22]
1.56 [0.95 , 2.56]
0.81 [0.57 , 1.16]
0.61 [0.31 , 1.19]
2.58 [1.63 , 4.08]
1.10 [0.81 , 1.48]
0.22 0.61 1.65 4.48
Odds Ratio (log scale)

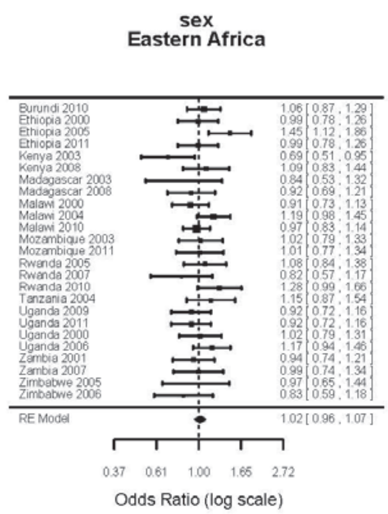

child_age
Central America
Honduras 2005
1.72 [1.39 , 2.12]
Honduras 2011
1.14 [0.94 , 1.39]
Nicaragua 2001
1.54 [1.14 , 2.09]
RE Model
1.44 [1.10 , 1.89]
0.82
1.22
1.82
Odds Ratio (log scale)
mother_edu
Central America
Honduras 2005
0.67 [0.48 , 0.93]
Honduras 2011
0.89 [0.71 , 1.13]
Nicaragua 2001
0.77 [0.53 , 1.13]
RE Model
0.80 [0.67 , 0.95]
0.45
0.67
1.00
Odds Ratio (log scale)
hhwealth
Central America
Honduras 2005
0.94 [0.70 , 1.25]
Honduras 2011
0.96 [0.75 , 1.22]
RE Model
0.95 [0.79 , 1.14]
0.67
0.82
1.00
1.22
1.49
Odds Ratio (log scale)
sex
Central America
Honduras 2005
1.02 [0.83 , 1.26]
Honduras 2011
1.18 [0.98 , 1.43]
Nicaragua 2001
1.07 [0.80 , 1.44]
RE Model
1.10 [0.97 , 1.25]
0.67
0.82
1.00
1.22
1.49
Odds Ratio (log scale)
mother_age
Central America
Honduras 2005
0.91 [0.73 , 1.14]
Honduras 2011
1.01 [0.82 , 1.25]
Nicaragua 2001
0.99 [0.71 , 1.37]
RE Model
0.97 [0.84 , 1.11]
0.67
0.82
1.00
1.22
1.49
Odds Ratio (log scale)
urban_rural
Central America
Honduras 2005
0.98 [0.71 , 1.34]
Honduras 2011
0.91 [0.70 , 1.17]
Nicaragua 2001
1.03 [0.73 , 1.46]
RE Model
0.96 [0.81 , 1.14]
0.67
1.00
1.49
Odds Ratio (log scale)

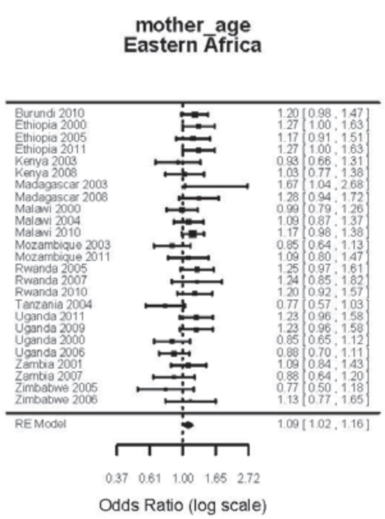

child_age
Central Asia
Tajikistan 2012
2.59 [1.81 , 3.69]
FE Model
2.59 [1.81 , 3.69]
1.49
2.23
3.32
Odds Ratio (log scale)
mother_edu
Central Asia
Tajikistan 2012
1.15 [0.63 , 2.11]
FE Model
1.15 [0.63 , 2.11]
0.61
1.00
1.65
2.72
Odds Ratio (log scale)
hhwealth
Central Asia
Tajikistan 2012
0.52 [0.34 , 0.81]
FE Model
0.52 [0.34 , 0.81]
0.30
0.45
0.67
Odds Ratio (log scale)
sex
Central Asia
Tajikistan 2012
1.04 [0.73 , 1.46]
FE Model
1.04 [0.73 , 1.46]
0.67
1.00
1.49
Odds Ratio (log scale)
mother_age
Central Asia
Tajikistan 2012
1.07 [0.73 , 1.57]
FE Model
1.07 [0.73 , 1.57]
0.67
1.00
1.49
Odds Ratio (log scale)
urban_rural
Central Asia
Tajikistan 2012
0.70 [0.44 , 1.10]
FE Model
0.70 [0.44 , 1.10]
0.37
0.55
0.82
1.22
Odds Ratio (log scale)

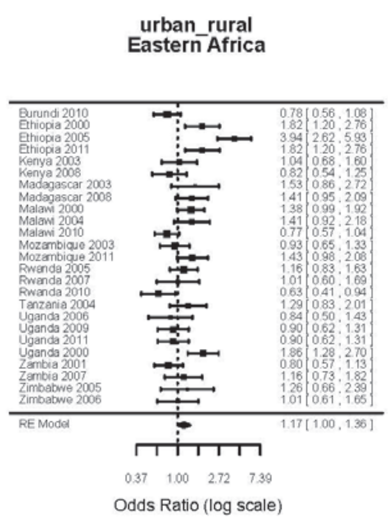

child_age
Eastern Africa
RE Model
0.61 1.00 1.65 2.72
Odds Ratio (log scale)

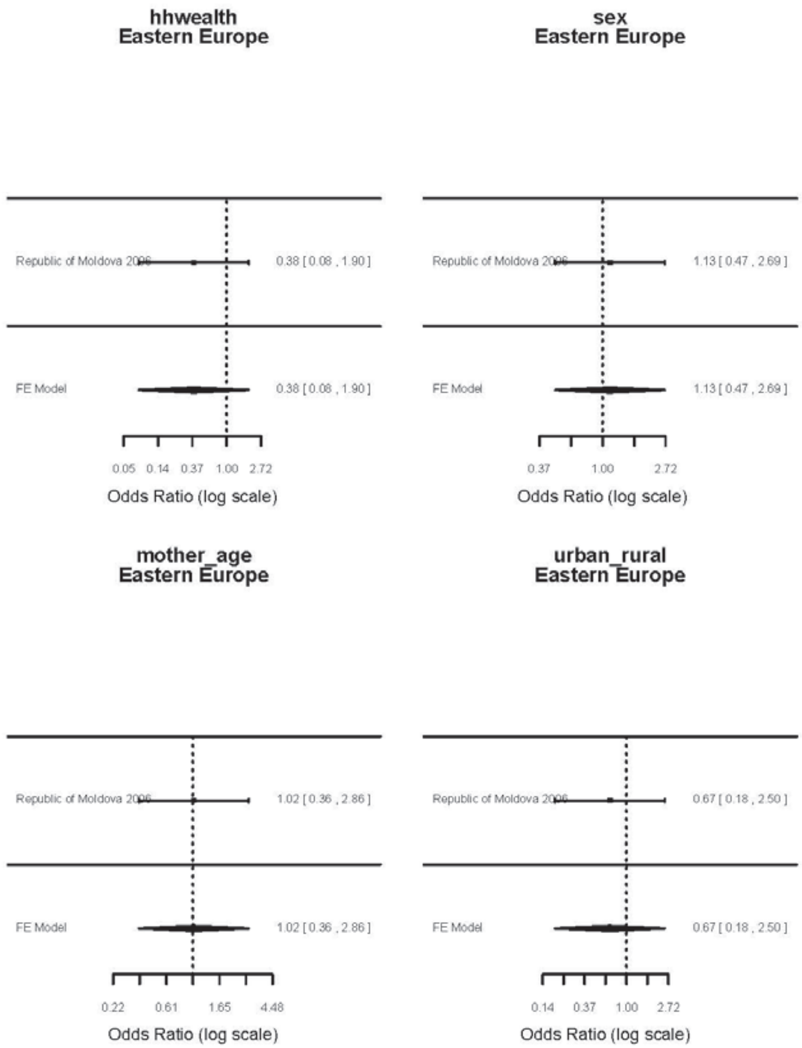

mother_edu
Eastern Africa
RE Model
0.14 0.37 1.00 2.72
Odds Ratio (log scale)

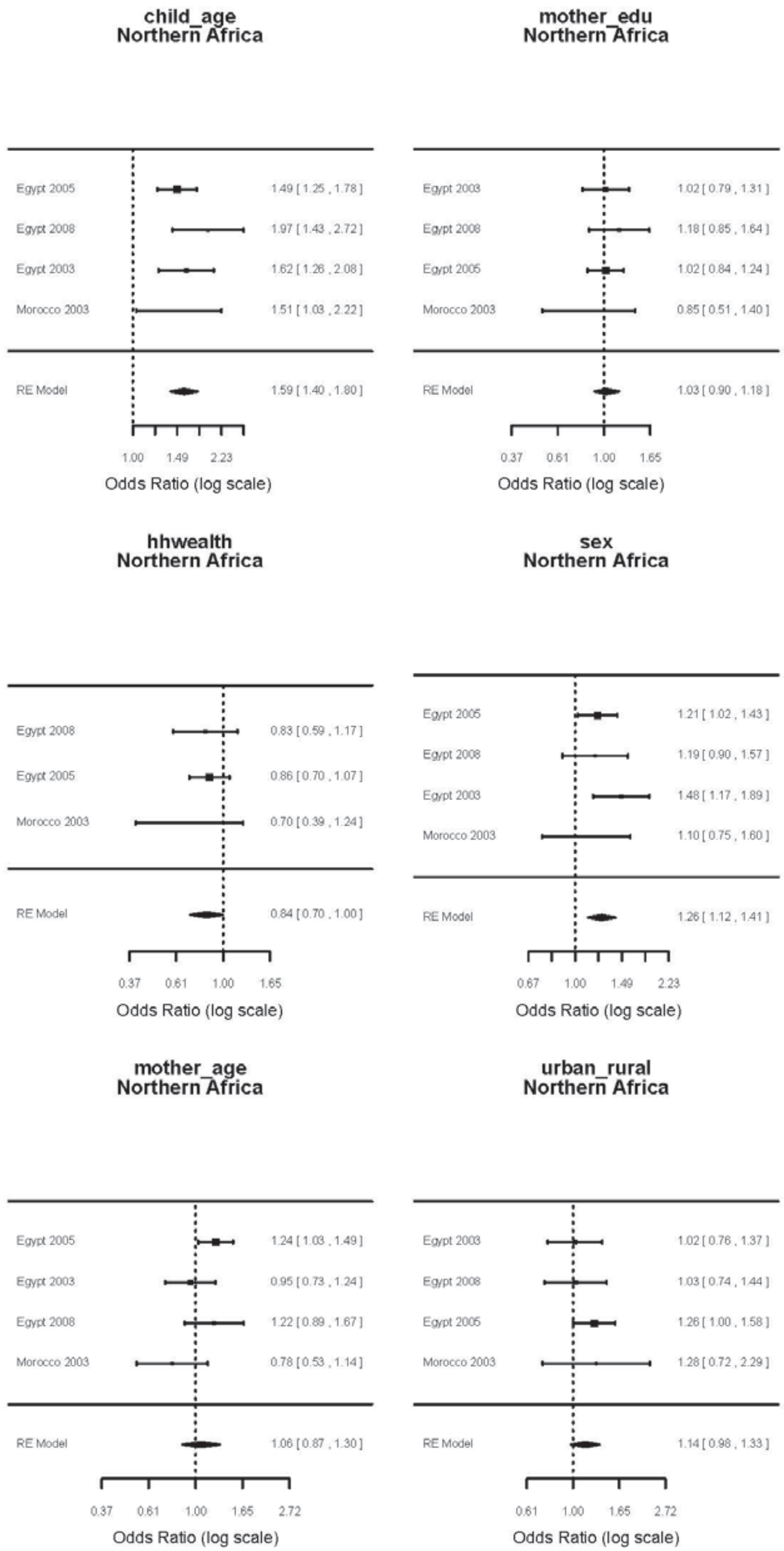

hhwealth
Eastern Africa
RE Model
0.22 0.61 1.65
Odds Ratio (log scale)

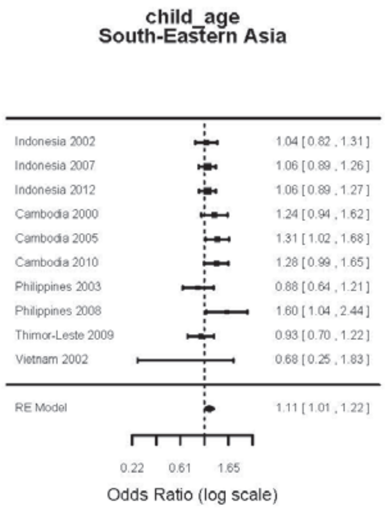

sex
Eastern Africa
RE Model
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

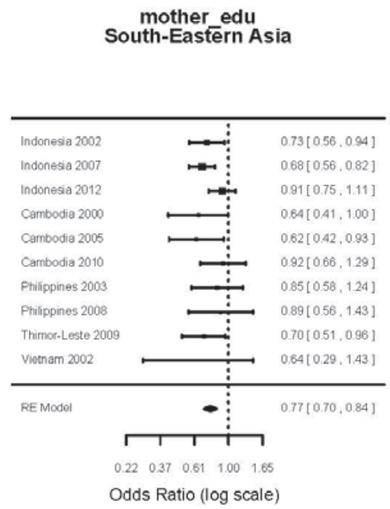

mother_age
Eastern Africa
RE Model
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

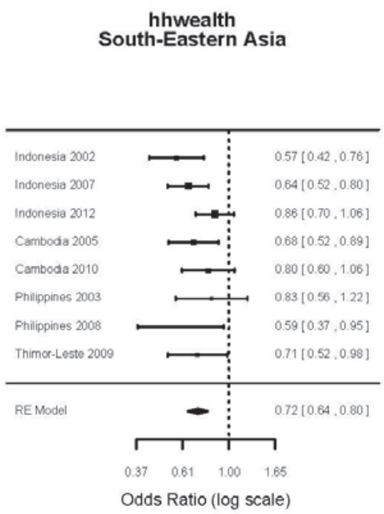

urban_rural
Eastern Africa
RE Model
0.37 1.00 2.72 7.39
Odds Ratio (log scale)

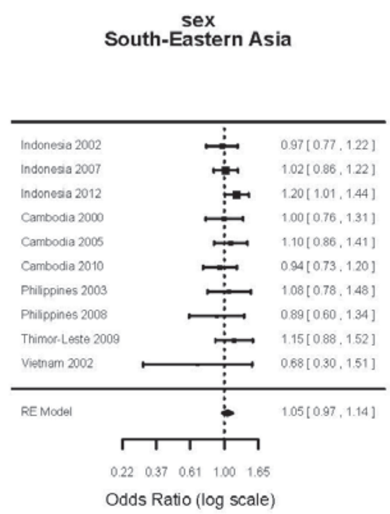

hhwealth
Eastern Europe
Republic of Moldova 2006
0.38 [0.08 , 1.90]
FE Model
0.38 [0.08 , 1.90]
0.05 0.14 0.37 1.00 2.72
Odds Ratio (log scale)
sex
Eastern Europe
Republic of Moldova 2006
1.13 [0.47 , 2.69]
FE Model
1.13 [0.47 , 2.69]
0.37 1.00 2.72
Odds Ratio (log scale)
mother_age
Eastern Europe
Republic of Moldova 2006
1.02 [0.36 , 2.86]
FE Model
1.02 [0.36 , 2.86]
0.22 0.61 1.65 4.48
Odds Ratio (log scale)
urban_rural
Eastern Europe
Republic of Moldova 2006
0.67 [0.18 , 2.50]
FE Model
0.67 [0.18 , 2.50]
0.14 0.37 1.00 2.72
Odds Ratio (log scale)

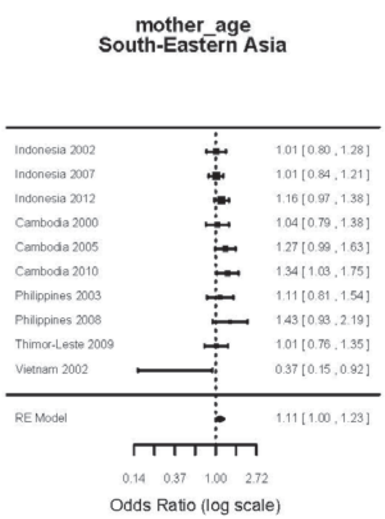

child_age
Northern Africa
Egypt 2005
Egypt 2008
Egypt 2003
Morocco 2003
1.49 [1.25 , 1.78]
1.97 [1.43 , 2.72]
1.62 [1.26 , 2.08]
1.51 [1.03 , 2.22]
RE Model
1.59 [1.40 , 1.80]
1.00
1.49
2.23
Odds Ratio (log scale)
mother_edu
Northern Africa
Egypt 2003
Egypt 2008
Egypt 2005
Morocco 2003
1.02 [0.79 , 1.31]
1.18 [0.85 , 1.64]
1.02 [0.84 , 1.24]
0.85 [0.51 , 1.40]
RE Model
1.03 [0.90 , 1.18]
0.37
0.61
1.00
1.65
Odds Ratio (log scale)
hhwealth
Northern Africa
Egypt 2008
Egypt 2005
Morocco 2003
0.83 [0.59 , 1.17]
0.86 [0.70 , 1.07]
0.70 [0.39 , 1.24]
RE Model
0.84 [0.70 , 1.00]
0.37
0.61
1.00
1.65
Odds Ratio (log scale)
sex
Northern Africa
Egypt 2005
Egypt 2008
Egypt 2003
Morocco 2003
1.21 [1.02 , 1.43]
1.19 [0.90 , 1.57]
1.48 [1.17 , 1.89]
1.10 [0.75 , 1.60]
RE Model
1.26 [1.12 , 1.41]
0.67
1.00
1.49
2.23
Odds Ratio (log scale)
mother_age
Northern Africa
Egypt 2005
Egypt 2003
Egypt 2008
Morocco 2003
1.24 [1.03 , 1.49]
0.95 [0.73 , 1.24]
1.22 [0.89 , 1.67]
0.78 [0.53 , 1.14]
RE Model
1.06 [0.87 , 1.30]
0.37
0.61
1.00
1.65
2.72
Odds Ratio (log scale)
urban_rural
Northern Africa
Egypt 2003
Egypt 2008
Egypt 2005
Morocco 2003
1.02 [0.76 , 1.37]
1.03 [0.74 , 1.44]
1.26 [1.00 , 1.58]
1.28 [0.72 , 2.29]
RE Model
1.14 [0.98 , 1.33]
0.61
1.00
1.65
2.72
Odds Ratio (log scale)

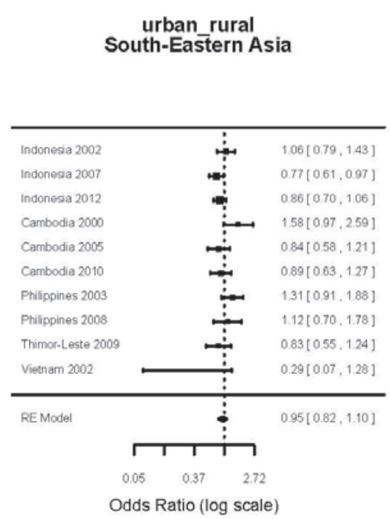

child_age
South-Eastern Asia
Indonesia 2002 1.04 [0.82 , 1.31]
Indonesia 2007 1.06 [0.89 , 1.26]
Indonesia 2012 1.06 [0.89 , 1.27]
Cambodia 2000 1.24 [0.94 , 1.62]
Cambodia 2005 1.31 [1.02 , 1.68]
Cambodia 2010 1.28 [0.99 , 1.65]
Philippines 2003 0.88 [0.64 , 1.21]
Philippines 2008 1.60 [1.04 , 2.44]
Thimor-Leste 2009 0.93 [0.70 , 1.22]
Vietnam 2002 0.68 [0.25 , 1.83]
RE Model 1.11 [1.01 , 1.22]
0.22 0.61 1.65
Odds Ratio (log scale)

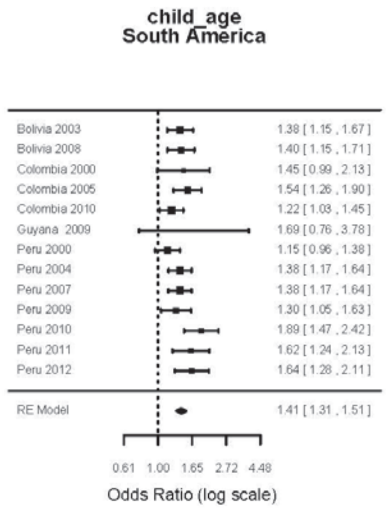

mother_edu
South-Eastern Asia
Indonesia 2002 0.73 [0.56 , 0.94]
Indonesia 2007 0.68 [0.56 , 0.82]
Indonesia 2012 0.91 [0.75 , 1.11]
Cambodia 2000 0.64 [0.41 , 1.00]
Cambodia 2005 0.62 [0.42 , 0.93]
Cambodia 2010 0.92 [0.66 , 1.29]
Philippines 2003 0.85 [0.58 , 1.24]
Philippines 2008 0.89 [0.56 , 1.43]
Thimor-Leste 2009 0.70 [0.51 , 0.96]
Vietnam 2002 0.64 [0.29 , 1.43]
RE Model 0.77 [0.70 , 0.84]
0.22 0.37 0.61 1.00 1.65
Odds Ratio (log scale)

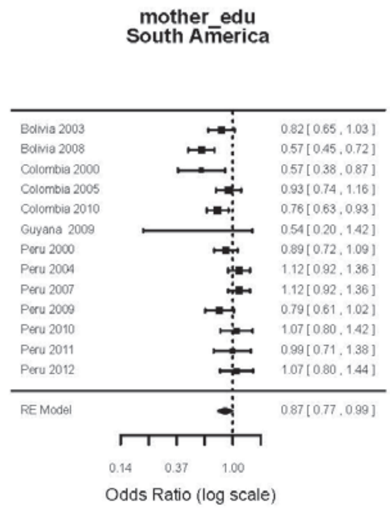

hhwealth
South-Eastern Asia
Indonesia 2002 0.57 [0.42 , 0.76]
Indonesia 2007 0.64 [0.52 , 0.80]
Indonesia 2012 0.86 [0.70 , 1.06]
Cambodia 2005 0.68 [0.52 , 0.89]
Cambodia 2010 0.80 [0.60 , 1.06]
Philippines 2003 0.83 [0.56 , 1.22]
Philippines 2008 0.59 [0.37 , 0.95]
Thimor-Leste 2009 0.71 [0.52 , 0.98]
RE Model 0.72 [0.64 , 0.80]
0.37 0.61 1.00 1.65
Odds Ratio (log scale)

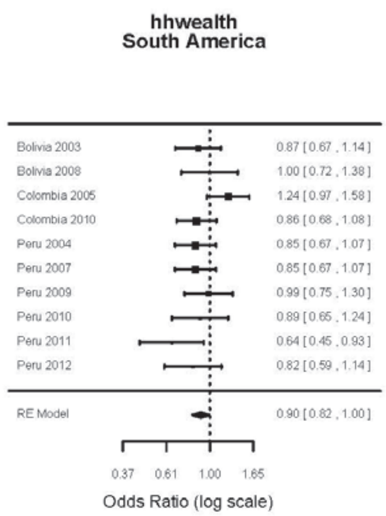

sex
South-Eastern Asia
Indonesia 2002 0.97 [0.77 , 1.22]
Indonesia 2007 1.02 [0.86 , 1.22]
Indonesia 2012 1.20 [1.01 , 1.44]
Cambodia 2000 1.00 [0.76 , 1.31]
Cambodia 2005 1.10 [0.86 , 1.41]
Cambodia 2010 0.94 [0.73 , 1.20]
Philippines 2003 1.08 [0.78 , 1.48]
Philippines 2008 0.89 [0.60 , 1.34]
Thimor-Leste 2009 1.15 [0.88 , 1.52]
Vietnam 2002 0.68 [0.30 , 1.51]
RE Model 1.05 [0.97 , 1.14]
0.22 0.37 0.61 1.00 1.65
Odds Ratio (log scale)

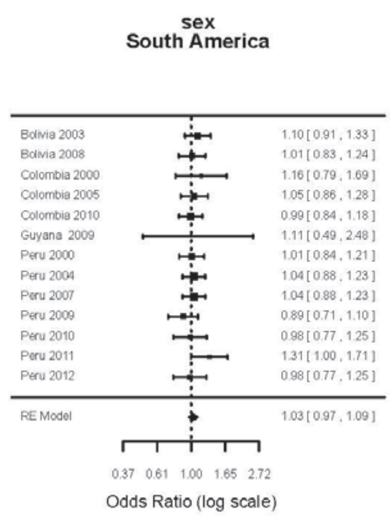

mother_age
South-Eastern Asia
Indonesia 2002 1.01 [0.80 , 1.28]
Indonesia 2007 1.01 [0.84 , 1.21]
Indonesia 2012 1.16 [0.97 , 1.38]
Cambodia 2000 1.04 [0.79 , 1.38]
Cambodia 2005 1.27 [0.99 , 1.63]
Cambodia 2010 1.34 [1.03 , 1.75]
Philippines 2003 1.11 [0.81 , 1.54]
Philippines 2008 1.43 [0.93 , 2.19]
Thimor-Leste 2009 1.01 [0.76 , 1.35]
Vietnam 2002 0.37 [0.15 , 0.92]
RE Model 1.11 [1.00 , 1.23]
0.14 0.37 1.00 2.72
Odds Ratio (log scale)

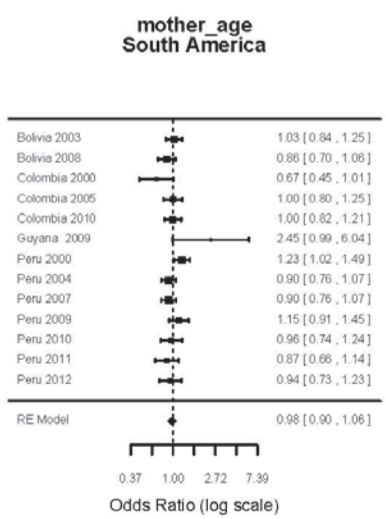

urban_rural
South-Eastern Asia
Indonesia 2002 1.06 [0.79 , 1.43]
Indonesia 2007 0.77 [0.61 , 0.97]
Indonesia 2012 0.86 [0.70 , 1.06]
Cambodia 2000 1.58 [0.97 , 2.59]
Cambodia 2005 0.84 [0.58 , 1.21]
Cambodia 2010 0.89 [0.63 , 1.27]
Philippines 2003 1.31 [0.91 , 1.88]
Philippines 2008 1.12 [0.70 , 1.78]
Thimor-Leste 2009 0.83 [0.55 , 1.24]
Vietnam 2002 0.29 [0.07 , 1.28]
RE Model 0.95 [0.82 , 1.10]
0.05 0.37 2.72
Odds Ratio (log scale)

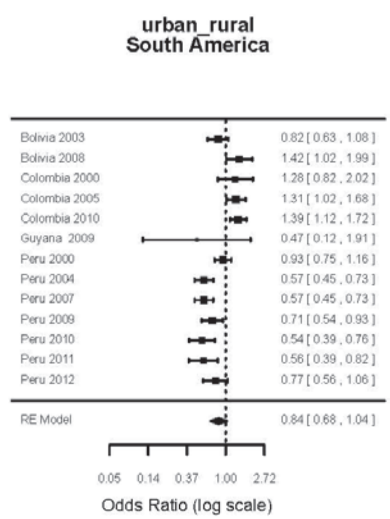

child_age
South America
Bolivia 2003 1.38 [1.15 , 1.67]
Bolivia 2008 1.40 [1.15 , 1.71]
Colombia 2000 1.45 [0.99 , 2.13]
Colombia 2005 1.54 [1.26 , 1.90]
Colombia 2010 1.22 [1.03 , 1.45]
Guyana 2009 1.69 [0.76 , 3.78]
Peru 2000 1.15 [0.96 , 1.38]
Peru 2004 1.38 [1.17 , 1.64]
Peru 2007 1.38 [1.17 , 1.64]
Peru 2009 1.30 [1.05 , 1.63]
Peru 2010 1.89 [1.47 , 2.42]
Peru 2011 1.62 [1.24 , 2.13]
Peru 2012 1.64 [1.28 , 2.11]
RE Model 1.41 [1.31 , 1.51]
0.61 1.00 1.65 2.72 4.48
Odds Ratio (log scale)

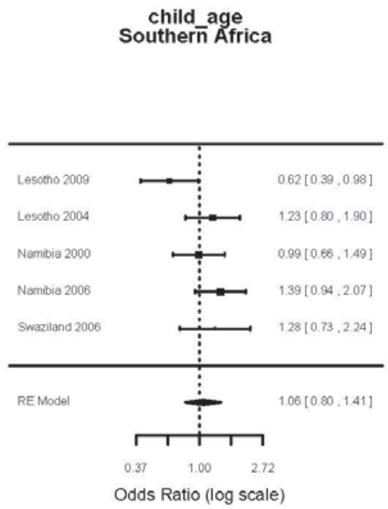

mother_edu
South America
Bolivia 2003 0.82 [0.65 , 1.03]
Bolivia 2008 0.57 [0.45 , 0.72]
Colombia 2000 0.57 [0.38 , 0.87]
Colombia 2005 0.93 [0.74 , 1.16]
Colombia 2010 0.76 [0.63 , 0.93]
Guyana 2009 0.54 [0.20 , 1.42]
Peru 2000 0.89 [0.72 , 1.09]
Peru 2004 1.12 [0.92 , 1.36]
Peru 2007 1.12 [0.92 , 1.36]
Peru 2009 0.79 [0.61 , 1.02]
Peru 2010 1.07 [0.80 , 1.42]
Peru 2011 0.99 [0.71 , 1.38]
Peru 2012 1.07 [0.80 , 1.44]
RE Model 0.87 [0.77 , 0.99]
0.14 0.37 1.00
Odds Ratio (log scale)

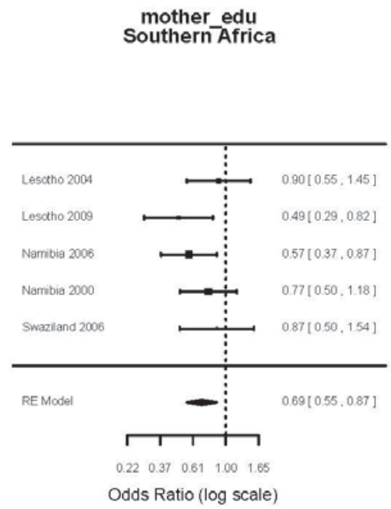

hhwealth
South America
Bolivia 2003 0.87 [0.67 , 1.14]
Bolivia 2008 1.00 [0.72 , 1.38]
Colombia 2005 1.24 [0.97 , 1.58]
Colombia 2010 0.86 [0.68 , 1.08]
Peru 2004 0.85 [0.67 , 1.07]
Peru 2007 0.85 [0.67 , 1.07]
Peru 2009 0.99 [0.75 , 1.30]
Peru 2010 0.89 [0.65 , 1.24]
Peru 2011 0.64 [0.45 , 0.93]
Peru 2012 0.82 [0.59 , 1.14]
RE Model 0.90 [0.82 , 1.00]
0.37 0.61 1.00 1.65
Odds Ratio (log scale)

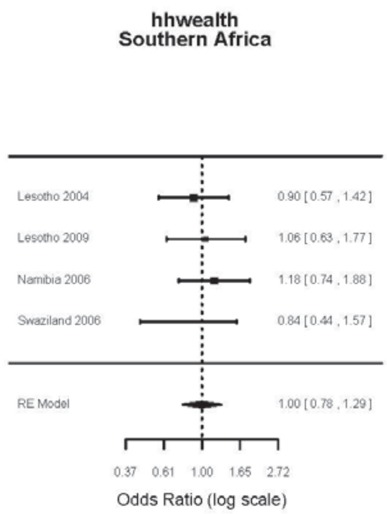

sex
South America
Bolivia 2003 1.10 [0.91 , 1.33]
Bolivia 2008 1.01 [0.83 , 1.24]
Colombia 2000 1.16 [0.79 , 1.69]
Colombia 2005 1.05 [0.86 , 1.28]
Colombia 2010 0.99 [0.84 , 1.18]
Guyana 2009 1.11 [0.49 , 2.48]
Peru 2000 1.01 [0.84 , 1.21]
Peru 2004 1.04 [0.88 , 1.23]
Peru 2007 1.04 [0.88 , 1.23]
Peru 2009 0.89 [0.71 , 1.10]
Peru 2010 0.98 [0.77 , 1.25]
Peru 2011 1.31 [1.00 , 1.71]
Peru 2012 0.98 [0.77 , 1.25]
RE Model 1.03 [0.97 , 1.09]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

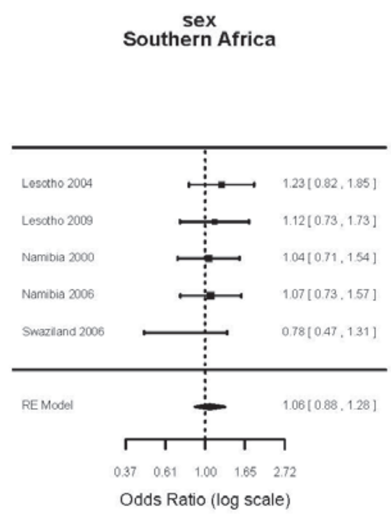

mother_age
South America
Bolivia 2003 1.03 [0.84 , 1.25]
Bolivia 2008 0.86 [0.70 , 1.06]
Colombia 2000 0.67 [0.45 , 1.01]
Colombia 2005 1.00 [0.80 , 1.25]
Colombia 2010 1.00 [0.82 , 1.21]
Guyana 2009 2.45 [0.99 , 6.04]
Peru 2000 1.23 [1.02 , 1.49]
Peru 2004 0.90 [0.76 , 1.07]
Peru 2007 0.90 [0.76 , 1.07]
Peru 2009 1.15 [0.91 , 1.45]
Peru 2010 0.96 [0.74 , 1.24]
Peru 2011 0.87 [0.66 , 1.14]
Peru 2012 0.94 [0.73 , 1.23]
RE Model 0.98 [0.90 , 1.06]
0.37 1.00 2.72 7.39
Odds Ratio (log scale)

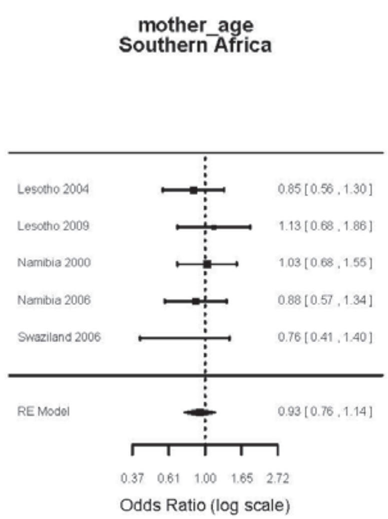

urban_rural
South America
Bolivia 2003 0.82 [0.63 , 1.08]
Bolivia 2008 1.42 [1.02 , 1.99]
Colombia 2000 1.28 [0.82 , 2.02]
Colombia 2005 1.31 [1.02 , 1.68]
Colombia 2010 1.39 [1.12 , 1.72]
Guyana 2009 0.47 [0.12 , 1.91]
Peru 2000 0.93 [0.75 , 1.16]
Peru 2004 0.57 [0.45 , 0.73]
Peru 2007 0.57 [0.45 , 0.73]
Peru 2009 0.71 [0.54 , 0.93]
Peru 2010 0.54 [0.39 , 0.76]
Peru 2011 0.56 [0.39 , 0.82]
Peru 2012 0.77 [0.56 , 1.06]
RE Model 0.84 [0.68 , 1.04]
0.05 0.14 0.37 1.00 2.72
Odds Ratio (log scale)

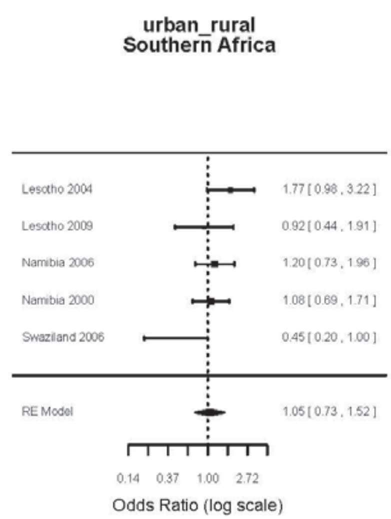

child_age
Southern Africa
Lesotho 2009 0.62 [0.39 , 0.98]
Lesotho 2004 1.23 [0.80 , 1.90]
Namibia 2000 0.99 [0.66 , 1.49]
Namibia 2006 1.39 [0.94 , 2.07]
Swaziland 2006 1.28 [0.73 , 2.24]
RE Model 1.06 [0.80 , 1.41]
0.37 1.00 2.72
Odds Ratio (log scale)

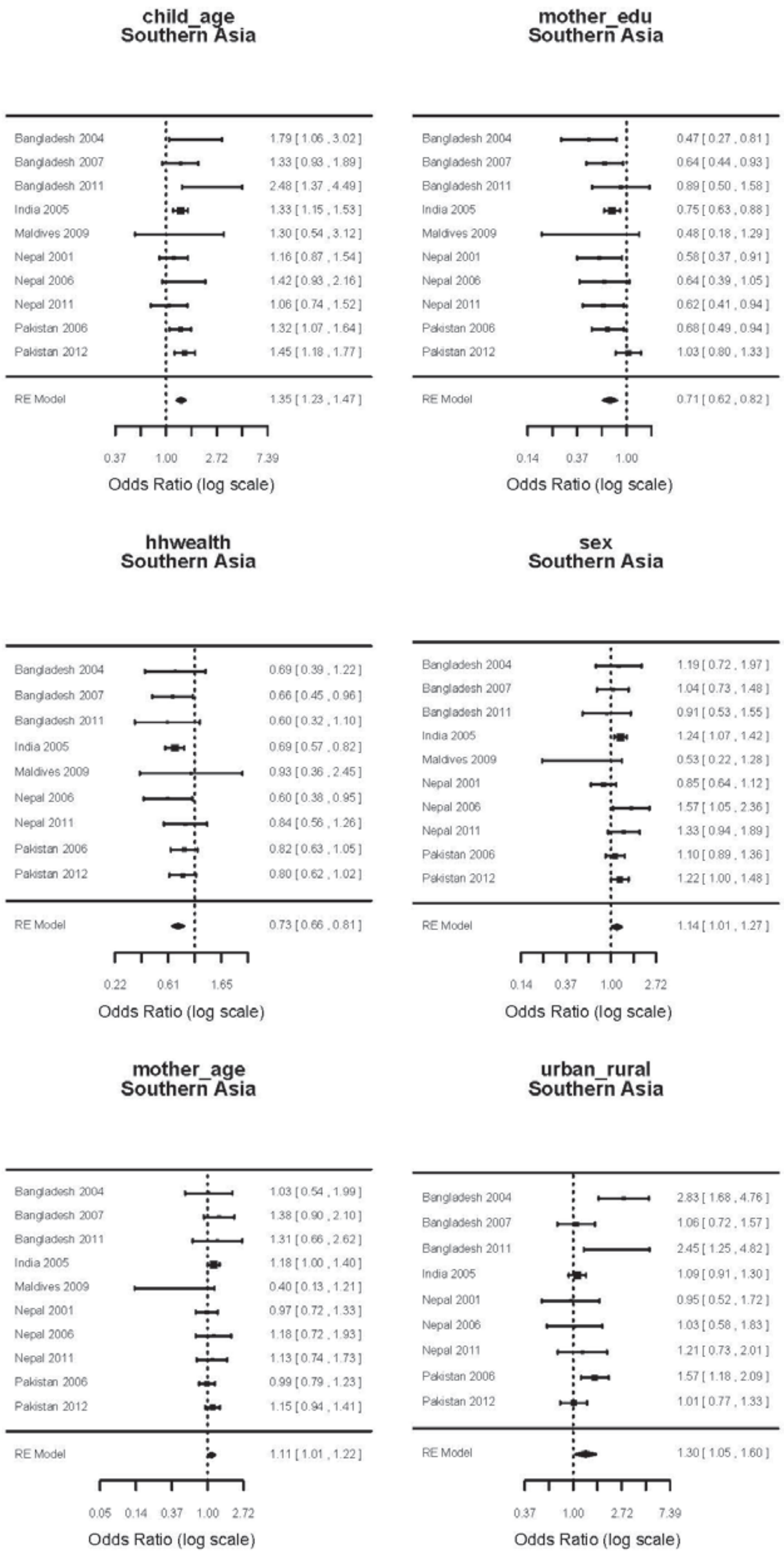

mother_edu
Southern Africa
Lesotho 2004 0.90 [0.55 , 1.45]
Lesotho 2009 0.49 [0.29 , 0.82]
Namibia 2006 0.57 [0.37 , 0.87]
Namibia 2000 0.77 [0.50 , 1.18]
Swaziland 2006 0.87 [0.50 , 1.54]
RE Model 0.69 [0.55 , 0.87]
0.22 0.37 0.61 1.00 1.65
Odds Ratio (log scale)

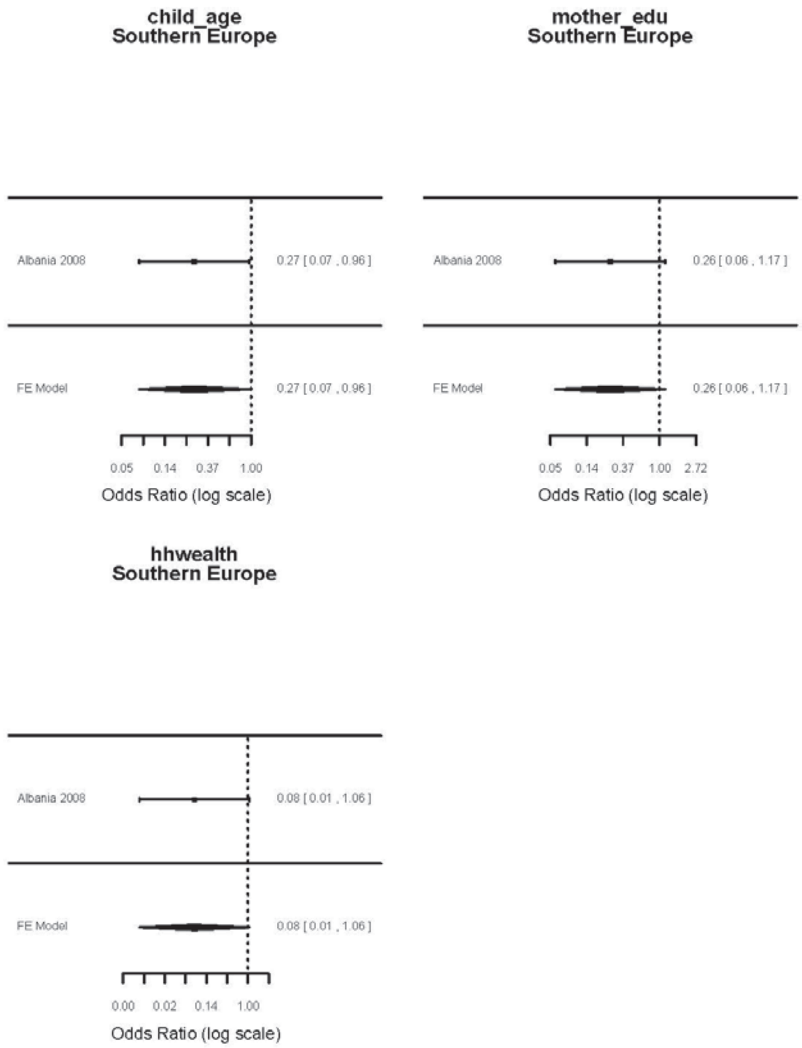

hhwealth
Southern Africa
Lesotho 2004 0.90 [0.57 , 1.42]
Lesotho 2009 1.06 [0.63 , 1.77]
Namibia 2006 1.18 [0.74 , 1.88]
Swaziland 2006 0.84 [0.44 , 1.57]
RE Model 1.00 [0.78 , 1.29]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

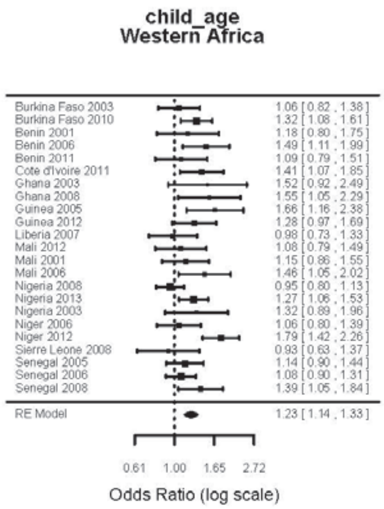

sex
Southern Africa
Lesotho 2004 1.23 [0.82 , 1.85]
Lesotho 2009 1.12 [0.73 , 1.73]
Namibia 2000 1.04 [0.71 , 1.54]
Namibia 2006 1.07 [0.73 , 1.57]
Swaziland 2006 0.78 [0.47 , 1.31]
RE Model 1.06 [0.88 , 1.28]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

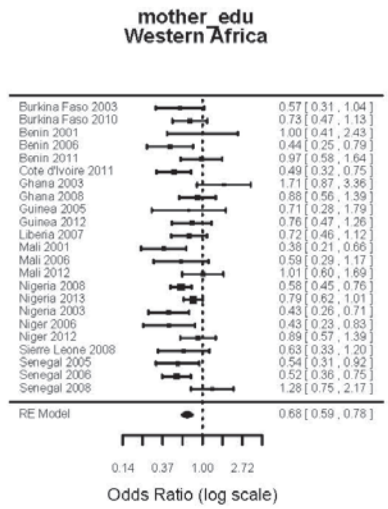

mother_age
Southern Africa
Lesotho 2004 0.85 [0.56 , 1.30]
Lesotho 2009 1.13 [0.68 , 1.86]
Namibia 2000 1.03 [0.68 , 1.55]
Namibia 2006 0.88 [0.57 , 1.34]
Swaziland 2006 0.76 [0.41 , 1.40]
RE Model 0.93 [0.76 , 1.14]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

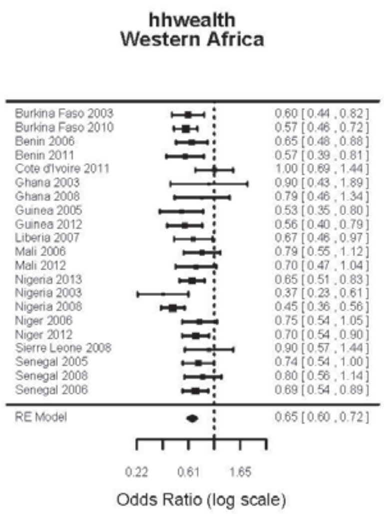

urban_rural
Southern Africa
Lesotho 2004 1.77 [0.98 , 3.22]
Lesotho 2009 0.92 [0.44 , 1.91]
Namibia 2006 1.20 [0.73 , 1.96]
Namibia 2000 1.08 [0.69 , 1.71]
Swaziland 2006 0.45 [0.20 , 1.00]
RE Model 1.05 [0.73 , 1.52]
0.14 0.37 1.00 2.72
Odds Ratio (log scale)

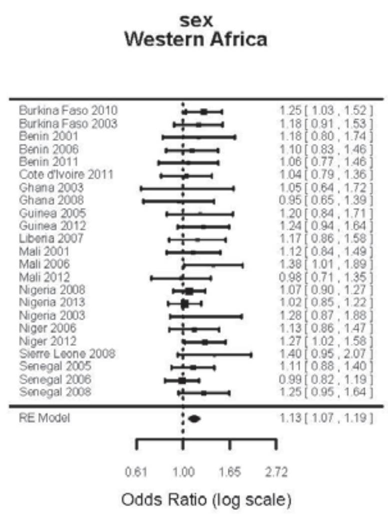

child_age
Southern Asia
Bangladesh 2004 1.79 [1.06 , 3.02]
Bangladesh 2007 1.33 [0.93 , 1.89]
Bangladesh 2011 2.48 [1.37 , 4.49]
India 2005 1.33 [1.15 , 1.53]
Maldives 2009 1.30 [0.54 , 3.12]
Nepal 2001 1.16 [0.87 , 1.54]
Nepal 2006 1.42 [0.93 , 2.16]
Nepal 2011 1.06 [0.74 , 1.52]
Pakistan 2006 1.32 [1.07 , 1.64]
Pakistan 2012 1.45 [1.18 , 1.77]
RE Model 1.35 [1.23 , 1.47]
0.37 1.00 2.72 7.39
Odds Ratio (log scale)
mother_edu
Southern Asia
Bangladesh 2004 0.47 [0.27 , 0.81]
Bangladesh 2007 0.64 [0.44 , 0.93]
Bangladesh 2011 0.89 [0.50 , 1.58]
India 2005 0.75 [0.63 , 0.88]
Maldives 2009 0.48 [0.18 , 1.29]
Nepal 2001 0.58 [0.37 , 0.91]
Nepal 2006 0.64 [0.39 , 1.05]
Nepal 2011 0.62 [0.41 , 0.94]
Pakistan 2006 0.68 [0.49 , 0.94]
Pakistan 2012 1.03 [0.80 , 1.33]
RE Model 0.71 [0.62 , 0.82]
0.14 0.37 1.00
Odds Ratio (log scale)
hhwealth
Southern Asia
Bangladesh 2004 0.69 [0.39 , 1.22]
Bangladesh 2007 0.66 [0.45 , 0.96]
Bangladesh 2011 0.60 [0.32 , 1.10]
India 2005 0.69 [0.57 , 0.82]
Maldives 2009 0.93 [0.36 , 2.45]
Nepal 2006 0.60 [0.38 , 0.95]
Nepal 2011 0.84 [0.56 , 1.26]
Pakistan 2006 0.82 [0.63 , 1.05]
Pakistan 2012 0.80 [0.62 , 1.02]
RE Model 0.73 [0.66 , 0.81]
0.22 0.61 1.65
Odds Ratio (log scale)
sex
Southern Asia
Bangladesh 2004 1.19 [0.72 , 1.97]
Bangladesh 2007 1.04 [0.73 , 1.48]
Bangladesh 2011 0.91 [0.53 , 1.55]
India 2005 1.24 [1.07 , 1.42]
Maldives 2009 0.53 [0.22 , 1.28]
Nepal 2001 0.85 [0.64 , 1.12]
Nepal 2006 1.57 [1.05 , 2.36]
Nepal 2011 1.33 [0.94 , 1.89]
Pakistan 2006 1.10 [0.89 , 1.36]
Pakistan 2012 1.22 [1.00 , 1.48]
RE Model 1.14 [1.01 , 1.27]
0.14 0.37 1.00 2.72
Odds Ratio (log scale)
mother_age
Southern Asia
Bangladesh 2004 1.03 [0.54 , 1.99]
Bangladesh 2007 1.38 [0.90 , 2.10]
Bangladesh 2011 1.31 [0.66 , 2.62]
India 2005 1.18 [1.00 , 1.40]
Maldives 2009 0.40 [0.13 , 1.21]
Nepal 2001 0.97 [0.72 , 1.33]
Nepal 2006 1.18 [0.72 , 1.93]
Nepal 2011 1.13 [0.74 , 1.73]
Pakistan 2006 0.99 [0.79 , 1.23]
Pakistan 2012 1.15 [0.94 , 1.41]
RE Model 1.11 [1.01 , 1.22]
0.05 0.14 0.37 1.00 2.72
Odds Ratio (log scale)
urban_rural
Southern Asia
Bangladesh 2004 2.83 [1.68 , 4.76]
Bangladesh 2007 1.06 [0.72 , 1.57]
Bangladesh 2011 2.45 [1.25 , 4.82]
India 2005 1.09 [0.91 , 1.30]
Nepal 2001 0.95 [0.52 , 1.72]
Nepal 2006 1.03 [0.58 , 1.83]
Nepal 2011 1.21 [0.73 , 2.01]
Pakistan 2006 1.57 [1.18 , 2.09]
Pakistan 2012 1.01 [0.77 , 1.33]
RE Model 1.30 [1.05 , 1.60]
0.37 1.00 2.72 7.39
Odds Ratio (log scale)

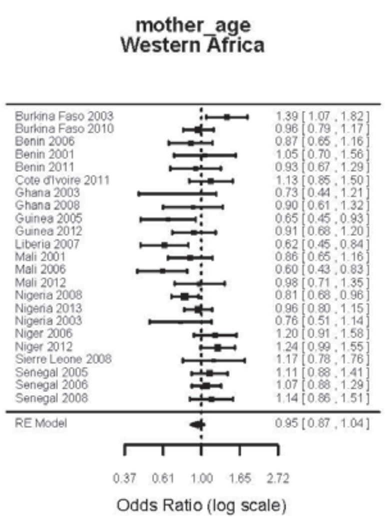

child_age
Southern Europe
Albania 2008
0.27 [0.07 , 0.96]
FE Model
0.27 [0.07 , 0.96]
0.05 0.14 0.37 1.00
Odds Ratio (log scale)
mother_edu
Southern Europe
Albania 2008
0.26 [0.06 , 1.17]
FE Model
0.26 [0.06 , 1.17]
0.05 0.14 0.37 1.00 2.72
Odds Ratio (log scale)
hhwealth
Southern Europe
Albania 2008
0.08 [0.01 , 1.06]
FE Model
0.08 [0.01 , 1.06]
0.00 0.02 0.14 1.00
Odds Ratio (log scale)

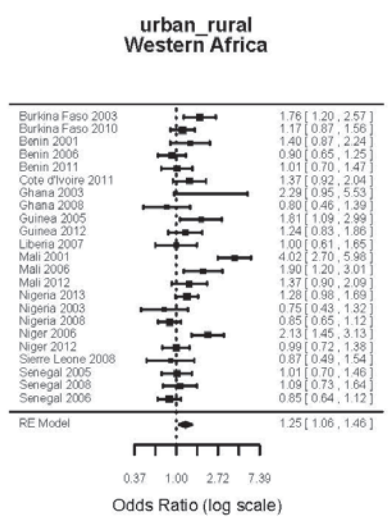

child_age
Western Africa
Burkina Faso 2003 1.06 [0.82 , 1.38]
Burkina Faso 2010 1.32 [1.08 , 1.61]
Benin 2001 1.18 [0.80 , 1.75]
Benin 2006 1.49 [1.11 , 1.99]
Benin 2011 1.09 [0.79 , 1.51]
Cote d'Ivoire 2011 1.41 [1.07 , 1.85]
Ghana 2003 1.52 [0.92 , 2.49]
Ghana 2008 1.55 [1.05 , 2.29]
Guinea 2005 1.66 [1.16 , 2.38]
Guinea 2012 1.28 [0.97 , 1.69]
Liberia 2007 0.98 [0.73 , 1.33]
Mali 2012 1.08 [0.79 , 1.49]
Mali 2001 1.15 [0.86 , 1.55]
Mali 2006 1.46 [1.05 , 2.02]
Nigeria 2008 0.95 [0.80 , 1.13]
Nigeria 2013 1.27 [1.06 , 1.53]
Nigeria 2003 1.32 [0.89 , 1.96]
Niger 2006 1.06 [0.80 , 1.39]
Niger 2012 1.79 [1.42 , 2.26]
Sierre Leone 2008 0.93 [0.63 , 1.37]
Senegal 2005 1.14 [0.90 , 1.44]
Senegal 2006 1.08 [0.90 , 1.31]
Senegal 2008 1.39 [1.05 , 1.84]
RE Model 1.23 [1.14 , 1.33]
0.61 1.00 1.65 2.72
Odds Ratio (log scale)

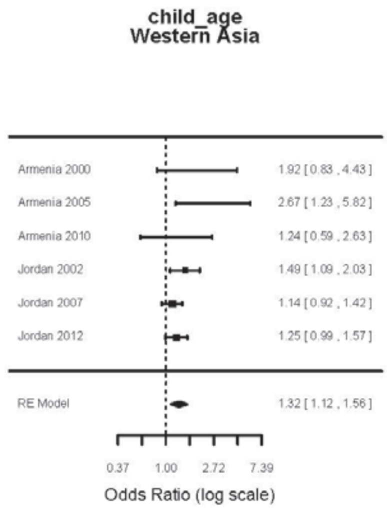

mother_edu
Western Africa
Burkina Faso 2003 0.57 [0.31 , 1.04]
Burkina Faso 2010 0.73 [0.47 , 1.13]
Benin 2001 1.00 [0.41 , 2.43]
Benin 2006 0.44 [0.25 , 0.79]
Benin 2011 0.97 [0.58 , 1.64]
Cote d'Ivoire 2011 0.49 [0.32 , 0.75]
Ghana 2003 1.71 [0.87 , 3.36]
Ghana 2008 0.88 [0.56 , 1.39]
Guinea 2005 0.71 [0.28 , 1.79]
Guinea 2012 0.76 [0.47 , 1.26]
Liberia 2007 0.72 [0.46 , 1.12]
Mali 2001 0.38 [0.21 , 0.66]
Mali 2006 0.59 [0.29 , 1.17]
Mali 2012 1.01 [0.60 , 1.69]
Nigeria 2008 0.58 [0.45 , 0.76]
Nigeria 2013 0.79 [0.62 , 1.01]
Nigeria 2003 0.43 [0.26 , 0.71]
Niger 2006 0.43 [0.23 , 0.83]
Niger 2012 0.89 [0.57 , 1.39]
Sierre Leone 2008 0.63 [0.33 , 1.20]
Senegal 2005 0.54 [0.31 , 0.92]
Senegal 2006 0.52 [0.36 , 0.75]
Senegal 2008 1.28 [0.75 , 2.17]
RE Model 0.68 [0.59 , 0.78]
0.14 0.37 1.00 2.72
Odds Ratio (log scale)

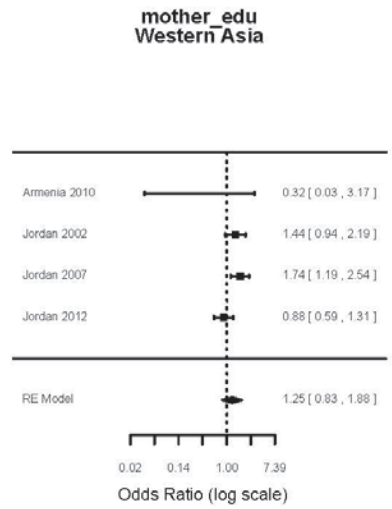

hhwealth
Western Africa
Burkina Faso 2003 0.60 [0.44 , 0.82]
Burkina Faso 2010 0.57 [0.46 , 0.72]
Benin 2006 0.65 [0.48 , 0.88]
Benin 2011 0.57 [0.39 , 0.81]
Cote d'Ivoire 2011 1.00 [0.69 , 1.44]
Ghana 2003 0.90 [0.43 , 1.89]
Ghana 2008 0.79 [0.46 , 1.34]
Guinea 2005 0.53 [0.35 , 0.80]
Guinea 2012 0.56 [0.40 , 0.79]
Liberia 2007 0.67 [0.46 , 0.97]
Mali 2006 0.79 [0.55 , 1.12]
Mali 2012 0.70 [0.47 , 1.04]
Nigeria 2013 0.65 [0.51 , 0.83]
Nigeria 2003 0.37 [0.23 , 0.61]
Nigeria 2008 0.45 [0.36 , 0.56]
Niger 2006 0.75 [0.54 , 1.05]
Niger 2012 0.70 [0.54 , 0.90]
Sierre Leone 2008 0.90 [0.57 , 1.44]
Senegal 2005 0.74 [0.54 , 1.00]
Senegal 2008 0.80 [0.56 , 1.14]
Senegal 2006 0.69 [0.54 , 0.89]
RE Model 0.65 [0.60 , 0.72]
0.22 0.61 1.65
Odds Ratio (log scale)

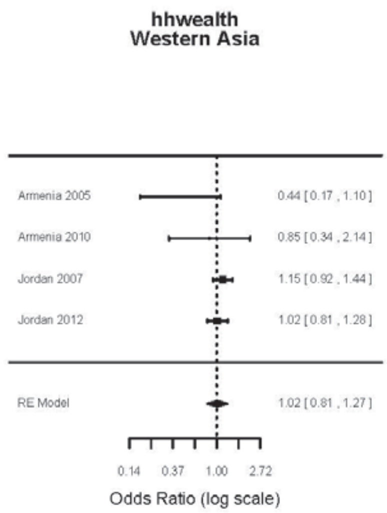

sex
Western Africa
Burkina Faso 2010 1.25 [1.03 , 1.52]
Burkina Faso 2003 1.18 [0.91 , 1.53]
Benin 2001 1.18 [0.80 , 1.74]
Benin 2006 1.10 [0.83 , 1.46]
Benin 2011 1.06 [0.77 , 1.46]
Cote d'Ivoire 2011 1.04 [0.79 , 1.36]
Ghana 2003 1.05 [0.64 , 1.72]
Ghana 2008 0.95 [0.65 , 1.39]
Guinea 2005 1.20 [0.84 , 1.71]
Guinea 2012 1.24 [0.94 , 1.64]
Liberia 2007 1.17 [0.86 , 1.58]
Mali 2001 1.12 [0.84 , 1.49]
Mali 2006 1.38 [1.01 , 1.89]
Mali 2012 0.98 [0.71 , 1.35]
Nigeria 2008 1.07 [0.90 , 1.27]
Nigeria 2013 1.02 [0.85 , 1.22]
Nigeria 2003 1.28 [0.87 , 1.88]
Niger 2006 1.13 [0.86 , 1.47]
Niger 2012 1.27 [1.02 , 1.58]
Sierre Leone 2008 1.40 [0.95 , 2.07]
Senegal 2005 1.11 [0.88 , 1.40]
Senegal 2006 0.99 [0.82 , 1.19]
Senegal 2008 1.25 [0.95 , 1.64]
RE Model 1.13 [1.07 , 1.19]
0.61 1.00 1.65 2.72
Odds Ratio (log scale)

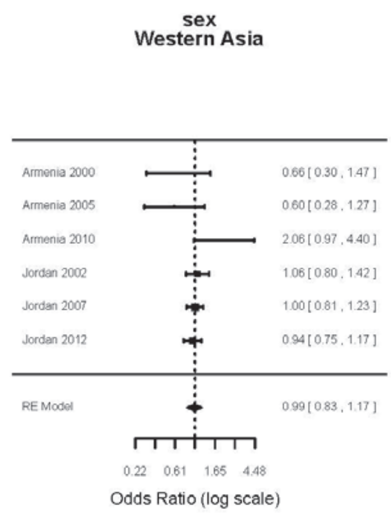

mother_age
Western Africa
Burkina Faso 2003 1.39 [1.07 , 1.82]
Burkina Faso 2010 0.96 [0.79 , 1.17]
Benin 2006 0.87 [0.65 , 1.16]
Benin 2001 1.05 [0.70 , 1.56]
Benin 2011 0.93 [0.67 , 1.29]
Cote d'Ivoire 2011 1.13 [0.85 , 1.50]
Ghana 2003 0.73 [0.44 , 1.21]
Ghana 2008 0.90 [0.61 , 1.32]
Guinea 2005 0.65 [0.45 , 0.93]
Guinea 2012 0.91 [0.68 , 1.20]
Liberia 2007 0.62 [0.45 , 0.84]
Mali 2001 0.86 [0.65 , 1.16]
Mali 2006 0.60 [0.43 , 0.83]
Mali 2012 0.98 [0.71 , 1.35]
Nigeria 2008 0.81 [0.68 , 0.96]
Nigeria 2013 0.96 [0.80 , 1.15]
Nigeria 2003 0.76 [0.51 , 1.14]
Niger 2006 1.20 [0.91 , 1.58]
Niger 2012 1.24 [0.99 , 1.55]
Sierre Leone 2008 1.17 [0.78 , 1.76]
Senegal 2005 1.11 [0.88 , 1.41]
Senegal 2006 1.07 [0.88 , 1.29]
Senegal 2008 1.14 [0.86 , 1.51]
RE Model 0.95 [0.87 , 1.04]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

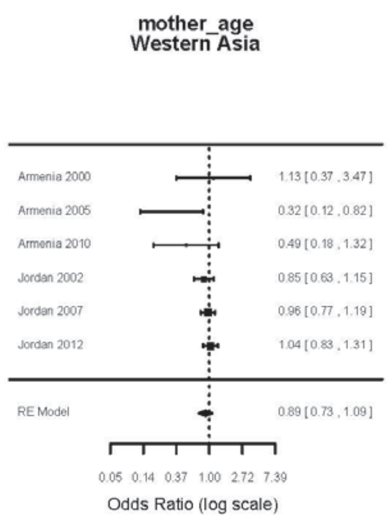

urban_rural
Western Africa
Burkina Faso 2003 1.76 [1.20 , 2.57]
Burkina Faso 2010 1.17 [0.87 , 1.56]
Benin 2001 1.40 [0.87 , 2.24]
Benin 2006 0.90 [0.65 , 1.25]
Benin 2011 1.01 [0.70 , 1.47]
Cote d'Ivoire 2011 1.37 [0.92 , 2.04]
Ghana 2003 2.29 [0.95 , 5.53]
Ghana 2008 0.80 [0.46 , 1.39]
Guinea 2005 1.81 [1.09 , 2.99]
Guinea 2012 1.24 [0.83 , 1.86]
Liberia 2007 1.00 [0.61 , 1.65]
Mali 2001 4.02 [2.70 , 5.98]
Mali 2006 1.90 [1.20 , 3.01]
Mali 2012 1.37 [0.90 , 2.09]
Nigeria 2013 1.28 [0.98 , 1.69]
Nigeria 2003 0.75 [0.43 , 1.32]
Nigeria 2008 0.85 [0.65 , 1.12]
Niger 2006 2.13 [1.45 , 3.13]
Niger 2012 0.99 [0.72 , 1.38]
Sierre Leone 2008 0.87 [0.49 , 1.54]
Senegal 2005 1.01 [0.70 , 1.46]
Senegal 2008 1.09 [0.73 , 1.64]
Senegal 2006 0.85 [0.64 , 1.12]
RE Model 1.25 [1.06 , 1.46]
0.37 1.00 2.72 7.39
Odds Ratio (log scale)

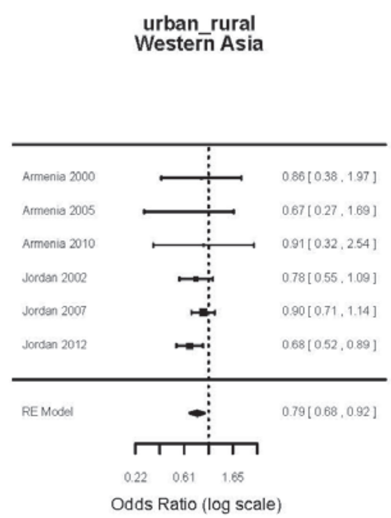

child_age
Western Asia
Armenia 2000
Armenia 2005
Armenia 2010
Jordan 2002
Jordan 2007
Jordan 2012
RE Model
1.92 [0.83 , 4.43]
2.67 [1.23 , 5.82]
1.24 [0.59 , 2.63]
1.49 [1.09 , 2.03]
1.14 [0.92 , 1.42]
1.25 [0.99 , 1.57]
1.32 [1.12 , 1.56]
0.37 1.00 2.72 7.39
Odds Ratio (log scale)


mother_edu
Western Asia
Armenia 2010
Jordan 2002
Jordan 2007
Jordan 2012
RE Model
0.32 [0.03 , 3.17]
1.44 [0.94 , 2.19]
1.74 [1.19 , 2.54]
0.88 [0.59 , 1.31]
1.25 [0.83 , 1.88]
0.02 0.14 1.00 7.39
Odds Ratio (log scale)

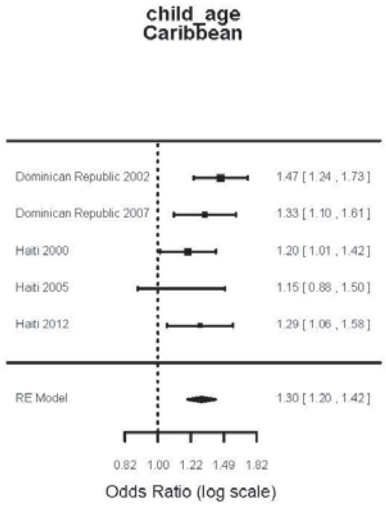

hhwealth
Western Asia
Armenia 2005
Armenia 2010
Jordan 2007
Jordan 2012
RE Model
0.44 [0.17 , 1.10]
0.85 [0.34 , 2.14]
1.15 [0.92 , 1.44]
1.02 [0.81 , 1.28]
1.02 [0.81 , 1.27]
0.14 0.37 1.00 2.72
Odds Ratio (log scale)

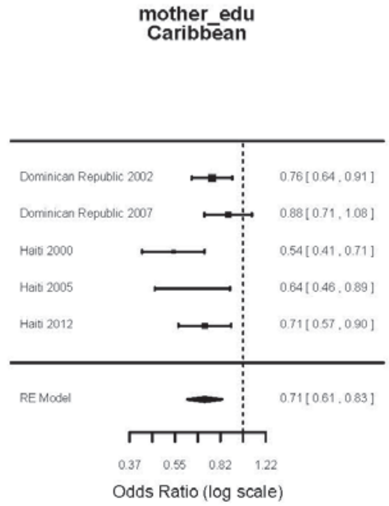

sex
Western Asia
Armenia 2000
Armenia 2005
Armenia 2010
Jordan 2002
Jordan 2007
Jordan 2012
RE Model
0.66 [0.30 , 1.47]
0.60 [0.28 , 1.27]
2.06 [0.97 , 4.40]
1.06 [0.80 , 1.42]
1.00 [0.81 , 1.23]
0.94 [0.75 , 1.17]
0.99 [0.83 , 1.17]
0.22 0.61 1.65 4.48
Odds Ratio (log scale)

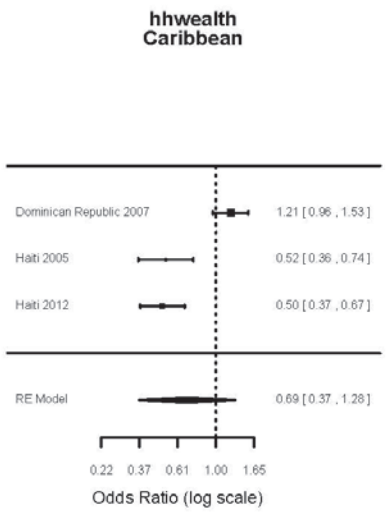

mother_age
Western Asia
Armenia 2000
Armenia 2005
Armenia 2010
Jordan 2002
Jordan 2007
Jordan 2012
RE Model
1.13 [0.37 , 3.47]
0.32 [0.12 , 0.82]
0.49 [0.18 , 1.32]
0.85 [0.63 , 1.15]
0.96 [0.77 , 1.19]
1.04 [0.83 , 1.31]
0.89 [0.73 , 1.09]
0.05 0.14 0.37 1.00 2.72 7.39
Odds Ratio (log scale)

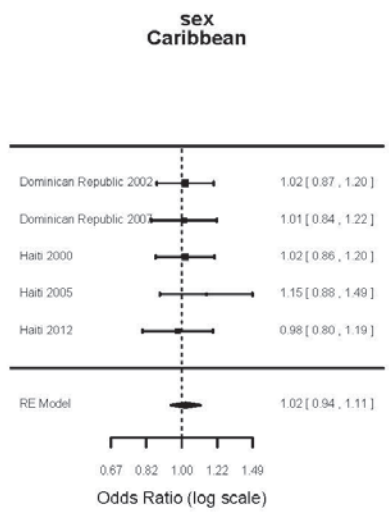

urban_rural
Western Asia
Armenia 2000
Armenia 2005
Armenia 2010
Jordan 2002
Jordan 2007
Jordan 2012
RE Model
0.86 [0.38 , 1.97]
0.67 [0.27 , 1.69]
0.91 [0.32 , 2.54]
0.78 [0.55 , 1.09]
0.90 [0.71 , 1.14]
0.68 [0.52 , 0.89]
0.79 [0.68 , 0.92]
0.22 0.61 1.65
Odds Ratio (log scale)

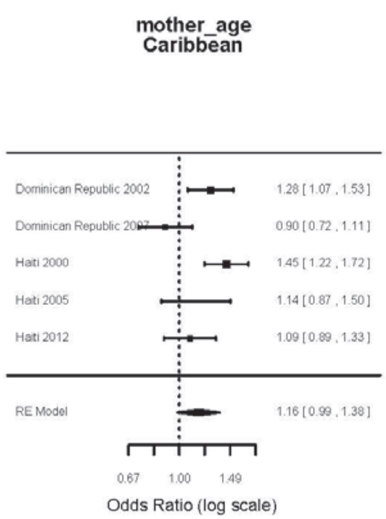
Appendix F: Results of subregional and global meta-analyses of predictors of treatment seeking for fever

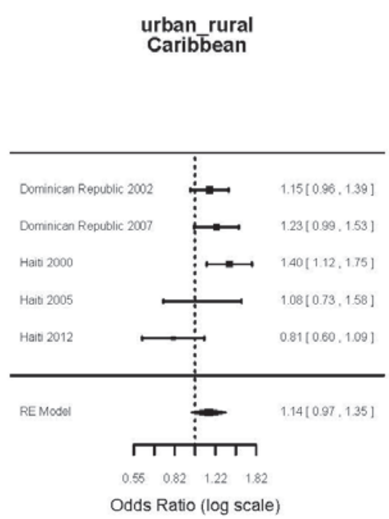


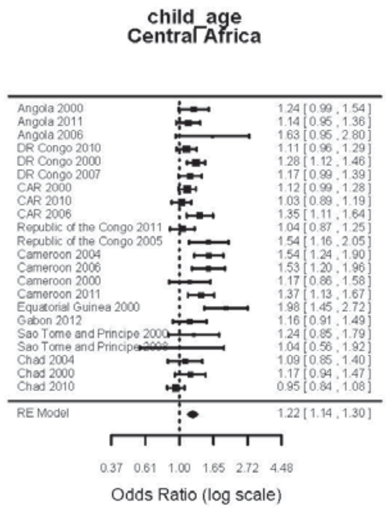


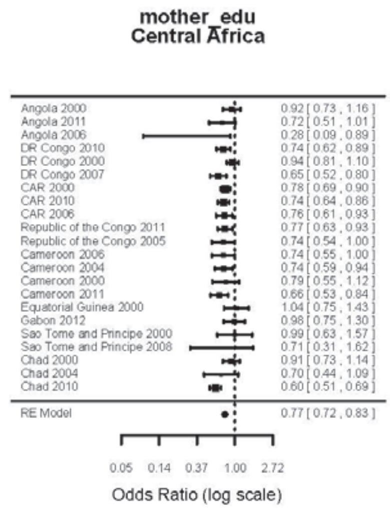


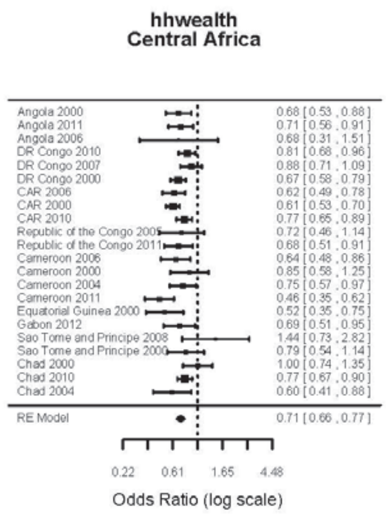


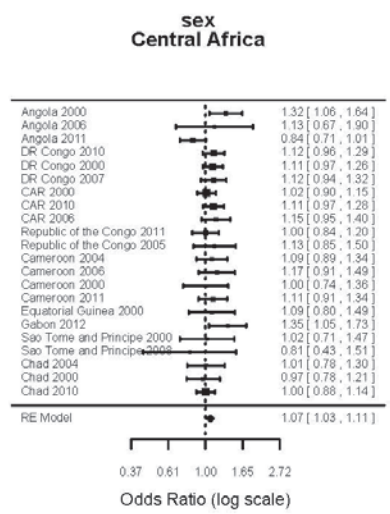


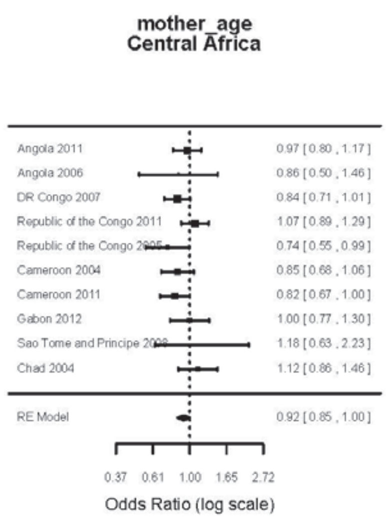


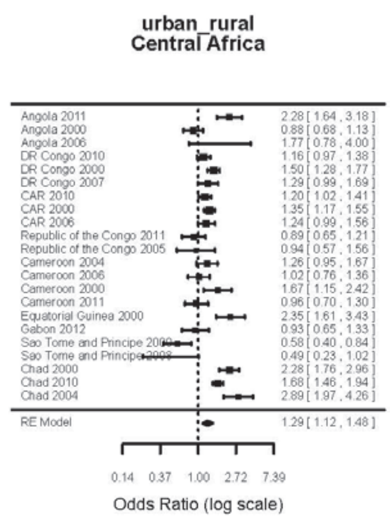

child_age
Central Africa
Angola 2000 1.24 [0.99 , 1.54]
Angola 2011 1.14 [0.95 , 1.36]
Angola 2006 1.63 [0.95 , 2.80]
DR Congo 2010 1.11 [0.96 , 1.29]
DR Congo 2000 1.28 [1.12 , 1.46]
DR Congo 2007 1.17 [0.99 , 1.39]
CAR 2000 1.12 [0.99 , 1.28]
CAR 2010 1.03 [0.89 , 1.19]
CAR 2006 1.35 [1.11 , 1.64]
Republic of the Congo 2011 1.04 [0.87 , 1.25]
Republic of the Congo 2005 1.54 [1.16 , 2.05]
Cameroon 2004 1.54 [1.24 , 1.90]
Cameroon 2006 1.53 [1.20 , 1.96]
Cameroon 2000 1.17 [0.86 , 1.58]
Cameroon 2011 1.37 [1.13 , 1.67]
Equatorial Guinea 2000 1.98 [1.45 , 2.72]
Gabon 2012 1.16 [0.91 , 1.49]
Sao Tome and Principe 2000 1.24 [0.85 , 1.79]
Sao Tome and Principe 2008 1.04 [0.56 , 1.92]
Chad 2004 1.09 [0.85 , 1.40]
Chad 2000 1.17 [0.94 , 1.47]
Chad 2010 0.95 [0.84 , 1.08]
RE Model 1.22 [1.14 , 1.30]
0.37 0.61 1.00 1.65 2.72 4.48
Odds Ratio (log scale)

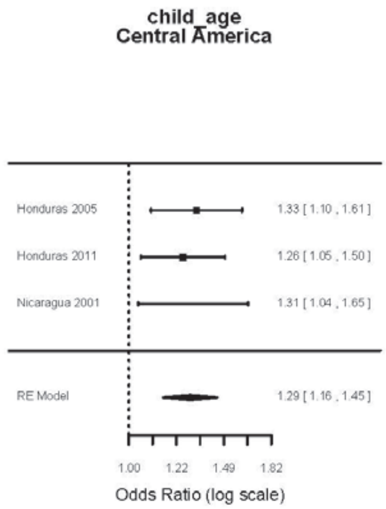

mother_edu
Central Africa
Angola 2000 0.92 [0.73 , 1.16]
Angola 2011 0.72 [0.51 , 1.01]
Angola 2006 0.28 [0.09 , 0.89]
DR Congo 2010 0.74 [0.62 , 0.89]
DR Congo 2000 0.94 [0.81 , 1.10]
DR Congo 2007 0.65 [0.52 , 0.80]
CAR 2000 0.78 [0.69 , 0.90]
CAR 2010 0.74 [0.64 , 0.86]
CAR 2006 0.76 [0.61 , 0.93]
Republic of the Congo 2011 0.77 [0.63 , 0.93]
Republic of the Congo 2005 0.74 [0.54 , 1.00]
Cameroon 2006 0.74 [0.55 , 1.00]
Cameroon 2004 0.74 [0.59 , 0.94]
Cameroon 2000 0.79 [0.55 , 1.12]
Cameroon 2011 0.66 [0.53 , 0.84]
Equatorial Guinea 2000 1.04 [0.75 , 1.43]
Gabon 2012 0.98 [0.75 , 1.30]
Sao Tome and Principe 2000 0.99 [0.63 , 1.57]
Sao Tome and Principe 2008 0.71 [0.31 , 1.62]
Chad 2000 0.91 [0.73 , 1.14]
Chad 2004 0.70 [0.44 , 1.09]
Chad 2010 0.60 [0.51 , 0.69]
RE Model 0.77 [0.72 , 0.83]
0.05 0.14 0.37 1.00 2.72
Odds Ratio (log scale)

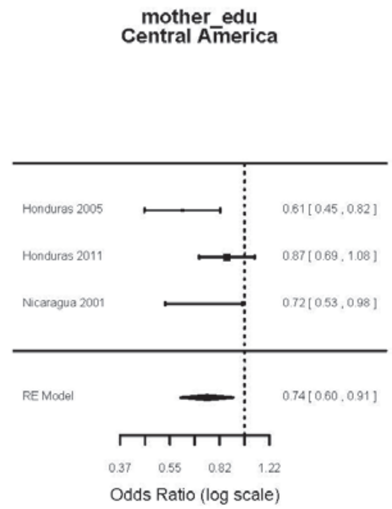

hhwealth
Central Africa
Angola 2000 0.68 [0.53 , 0.88]
Angola 2011 0.71 [0.56 , 0.91]
Angola 2006 0.68 [0.31 , 1.51]
DR Congo 2010 0.81 [0.68 , 0.96]
DR Congo 2007 0.88 [0.71 , 1.09]
DR Congo 2000 0.67 [0.58 , 0.79]
CAR 2006 0.62 [0.49 , 0.78]
CAR 2000 0.61 [0.53 , 0.70]
CAR 2010 0.77 [0.65 , 0.89]
Republic of the Congo 2005 0.72 [0.46 , 1.14]
Republic of the Congo 2011 0.68 [0.51 , 0.91]
Cameroon 2006 0.64 [0.48 , 0.86]
Cameroon 2000 0.85 [0.58 , 1.25]
Cameroon 2004 0.75 [0.57 , 0.97]
Cameroon 2011 0.46 [0.35 , 0.62]
Equatorial Guinea 2000 0.52 [0.35 , 0.75]
Gabon 2012 0.69 [0.51 , 0.95]
Sao Tome and Principe 2008 1.44 [0.73 , 2.82]
Sao Tome and Principe 2000 0.79 [0.54 , 1.14]
Chad 2000 1.00 [0.74 , 1.35]
Chad 2010 0.77 [0.67 , 0.90]
Chad 2004 0.60 [0.41 , 0.88]
RE Model 0.71 [0.66 , 0.77]
0.22 0.61 1.65 4.48
Odds Ratio (log scale)

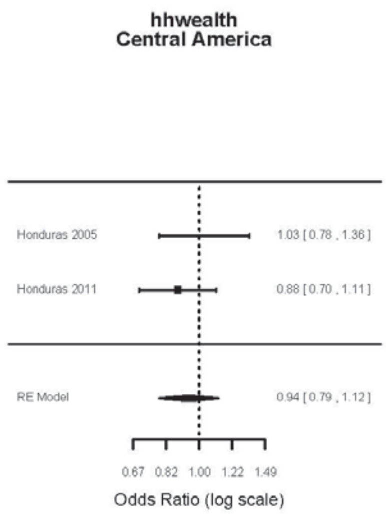

sex
Central Africa
Angola 2000 1.32 [1.06 , 1.64]
Angola 2006 1.13 [0.67 , 1.90]
Angola 2011 0.84 [0.71 , 1.01]
DR Congo 2010 1.12 [0.96 , 1.29]
DR Congo 2000 1.11 [0.97 , 1.26]
DR Congo 2007 1.12 [0.94 , 1.32]
CAR 2000 1.02 [0.90 , 1.15]
CAR 2010 1.11 [0.97 , 1.28]
CAR 2006 1.15 [0.95 , 1.40]
Republic of the Congo 2011 1.00 [0.84 , 1.20]
Republic of the Congo 2005 1.13 [0.85 , 1.50]
Cameroon 2004 1.09 [0.89 , 1.34]
Cameroon 2006 1.17 [0.91 , 1.49]
Cameroon 2000 1.00 [0.74 , 1.36]
Cameroon 2011 1.11 [0.91 , 1.34]
Equatorial Guinea 2000 1.09 [0.80 , 1.49]
Gabon 2012 1.35 [1.05 , 1.73]
Sao Tome and Principe 2000 1.02 [0.71 , 1.47]
Sao Tome and Principe 2008 0.81 [0.43 , 1.51]
Chad 2004 1.01 [0.78 , 1.30]
Chad 2000 0.97 [0.78 , 1.21]
Chad 2010 1.00 [0.88 , 1.14]
RE Model 1.07 [1.03 , 1.11]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

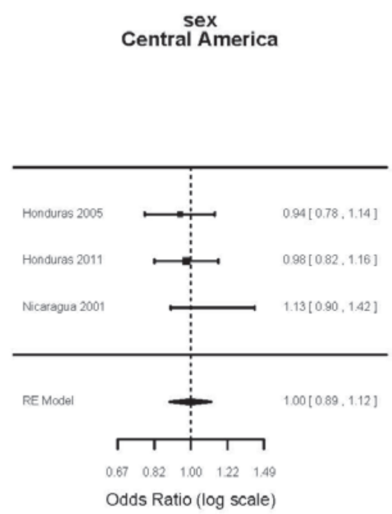

mother_age
Central Africa
Angola 2011 0.97 [0.80 , 1.17]
Angola 2006 0.86 [0.50 , 1.46]
DR Congo 2007 0.84 [0.71 , 1.01]
Republic of the Congo 2011 1.07 [0.89 , 1.29]
Republic of the Congo 2005 0.74 [0.55 , 0.99]
Cameroon 2004 0.85 [0.68 , 1.06]
Cameroon 2011 0.82 [0.67 , 1.00]
Gabon 2012 1.00 [0.77 , 1.30]
Sao Tome and Principe 2008 1.18 [0.63 , 2.23]
Chad 2004 1.12 [0.86 , 1.46]
RE Model 0.92 [0.85 , 1.00]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

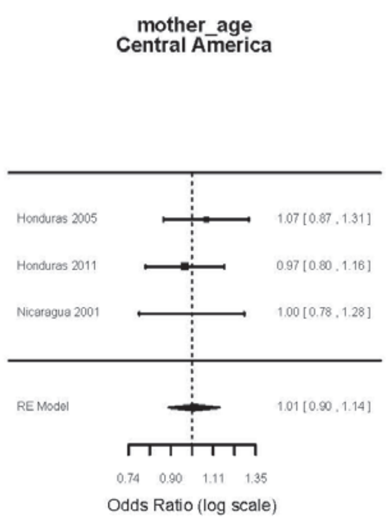

urban_rural
Central Africa
Angola 2011 2.28 [1.64 , 3.18]
Angola 2000 0.88 [0.68 , 1.13]
Angola 2006 1.77 [0.78 , 4.00]
DR Congo 2010 1.16 [0.97 , 1.38]
DR Congo 2000 1.50 [1.28 , 1.77]
DR Congo 2007 1.29 [0.99 , 1.69]
CAR 2010 1.20 [1.02 , 1.41]
CAR 2000 1.35 [1.17 , 1.55]
CAR 2006 1.24 [0.99 , 1.56]
Republic of the Congo 2011 0.89 [0.65 , 1.21]
Republic of the Congo 2005 0.94 [0.57 , 1.56]
Cameroon 2004 1.26 [0.95 , 1.67]
Cameroon 2006 1.02 [0.76 , 1.36]
Cameroon 2000 1.67 [1.15 , 2.42]
Cameroon 2011 0.96 [0.70 , 1.30]
Equatorial Guinea 2000 2.35 [1.61 , 3.43]
Gabon 2012 0.93 [0.65 , 1.33]
Sao Tome and Principe 2000 0.58 [0.40 , 0.84]
Sao Tome and Principe 2008 0.49 [0.23 , 1.02]
Chad 2000 2.28 [1.76 , 2.96]
Chad 2010 1.68 [1.46 , 1.94]
Chad 2004 2.89 [1.97 , 4.26]
RE Model 1.29 [1.12 , 1.48]
0.14 0.37 1.00 2.72 7.39
Odds Ratio (log scale)


child_age
Central America
Honduras 2005
1.33 [1.10 , 1.61]
Honduras 2011
1.26 [1.05 , 1.50]
Nicaragua 2001
1.31 [1.04 , 1.65]
RE Model
1.29 [1.16 , 1.45]
1.00 1.22 1.49 1.82
Odds Ratio (log scale)


mother_edu
Central America
Honduras 2005
0.61 [0.45 , 0.82]
Honduras 2011
0.87 [0.69 , 1.08]
Nicaragua 2001
0.72 [0.53 , 0.98]
RE Model
0.74 [0.60 , 0.91]
0.37 0.55 0.82 1.22
Odds Ratio (log scale)


hhwealth
Central America
Honduras 2005
1.03 [0.78 , 1.36]
Honduras 2011
0.88 [0.70 , 1.11]
RE Model
0.94 [0.79 , 1.12]
0.67 0.82 1.00 1.22 1.49
Odds Ratio (log scale)


sex
Central America
Honduras 2005
0.94 [0.78 , 1.14]
Honduras 2011
0.98 [0.82 , 1.16]
Nicaragua 2001
1.13 [0.90 , 1.42]
RE Model
1.00 [0.89 , 1.12]
0.67 0.82 1.00 1.22 1.49
Odds Ratio (log scale)


mother_age
Central America
Honduras 2005
1.07 [0.87 , 1.31]
Honduras 2011
0.97 [0.80 , 1.16]
Nicaragua 2001
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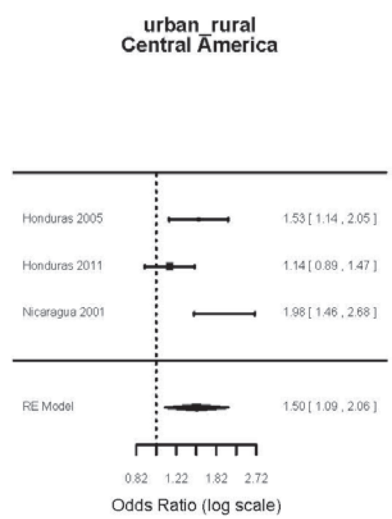
RE Model
1.01 [0.90 , 1.14]
0.74 0.90 1.11 1.35
Odds Ratio (log scale)


urban_rural
Central America
Honduras 2005
1.53 [1.14 , 2.05]
Honduras 2011
1.14 [0.89 , 1.47]
Nicaragua 2001
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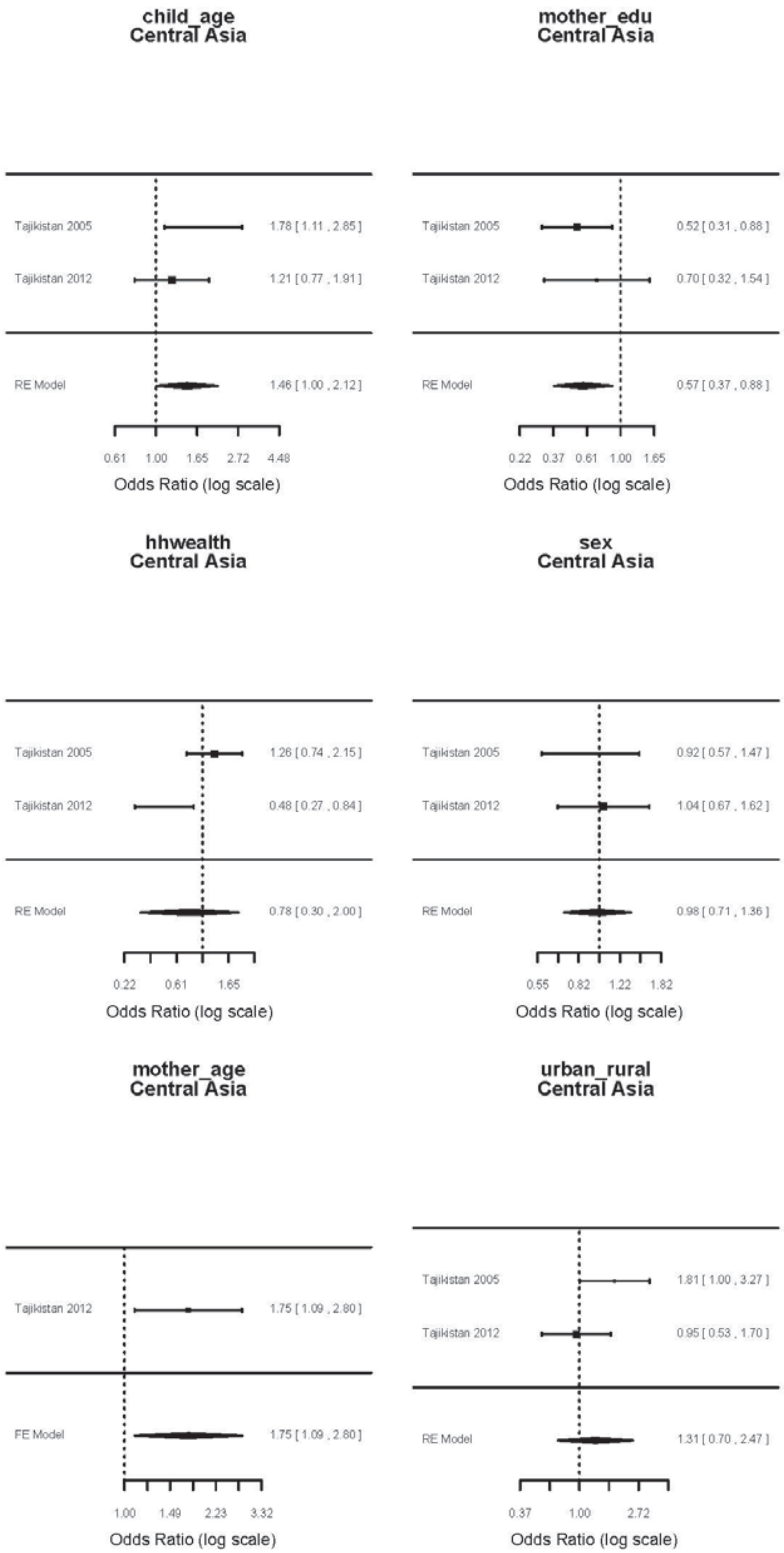
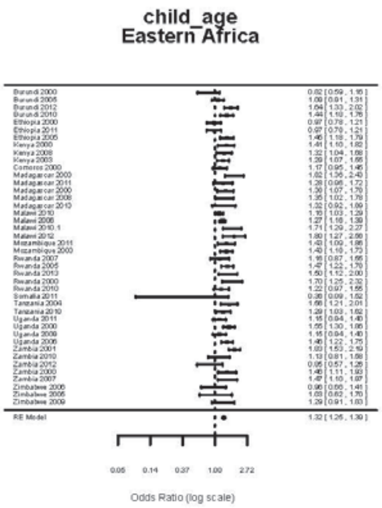
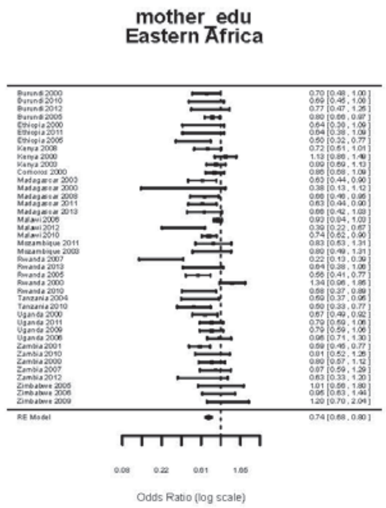
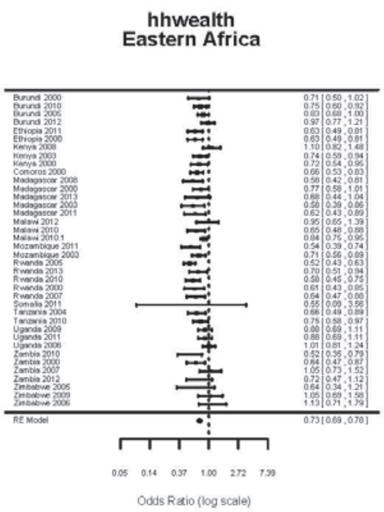
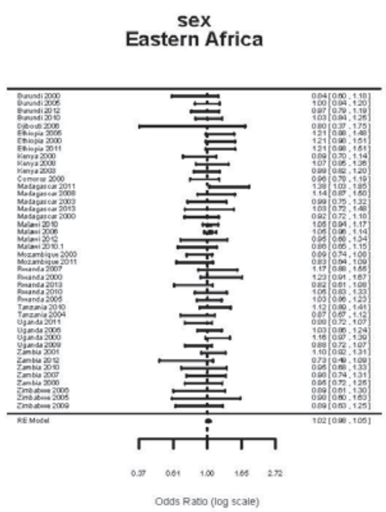
RE Model
1.50 [1.09 , 2.06]
0.82 1.22 1.82 2.72
Odds Ratio (log scale)

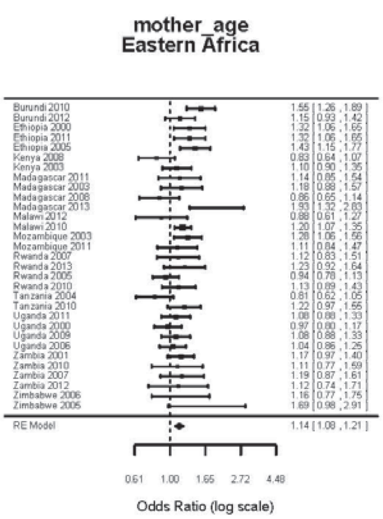

child_age
Central Asia
Tajikistan 2005
1.78 [1.11 , 2.85]
Tajikistan 2012
1.21 [0.77 , 1.91]
RE Model
1.46 [1.00 , 2.12]
0.61 1.00 1.65 2.72 4.48
Odds Ratio (log scale)
mother_edu
Central Asia
Tajikistan 2005
0.52 [0.31 , 0.88]
Tajikistan 2012
0.70 [0.32 , 1.54]
RE Model
0.57 [0.37 , 0.88]
0.22 0.37 0.61 1.00 1.65
Odds Ratio (log scale)
hhwealth
Central Asia
Tajikistan 2005
1.26 [0.74 , 2.15]
Tajikistan 2012
0.48 [0.27 , 0.84]
RE Model
0.78 [0.30 , 2.00]
0.22 0.61 1.65
Odds Ratio (log scale)
sex
Central Asia
Tajikistan 2005
0.92 [0.57 , 1.47]
Tajikistan 2012
1.04 [0.67 , 1.62]
RE Model
0.98 [0.71 , 1.36]
0.55 0.82 1.22 1.82
Odds Ratio (log scale)
mother_age
Central Asia
Tajikistan 2012
1.75 [1.09 , 2.80]
FE Model
1.75 [1.09 , 2.80]
1.00 1.49 2.23 3.32
Odds Ratio (log scale)
urban_rural
Central Asia
Tajikistan 2005
1.81 [1.00 , 3.27]
Tajikistan 2012
0.95 [0.53 , 1.70]
RE Model
1.31 [0.70 , 2.47]
0.37 1.00 2.72
Odds Ratio (log scale)

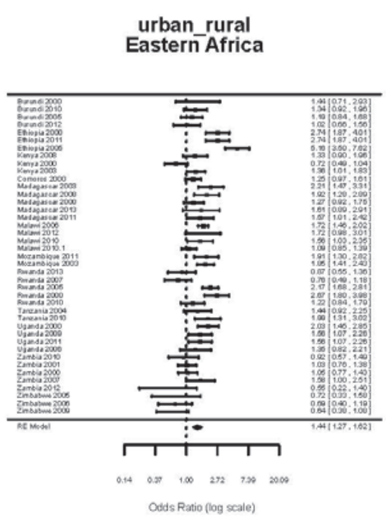

child_age
Eastern Africa
RE Model
1.32 [1.25, 1.39]
Odds Ratio (log scale)

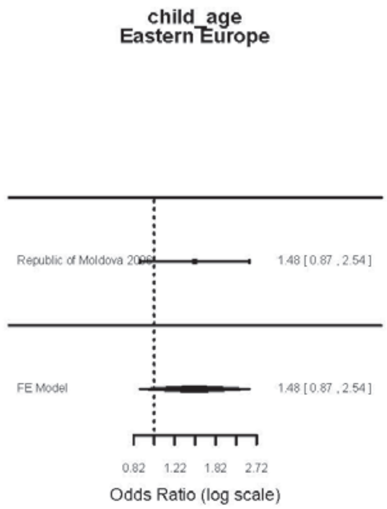

mother_edu
Eastern Africa
RE Model
0.74 [0.68, 0.80]
Odds Ratio (log scale)

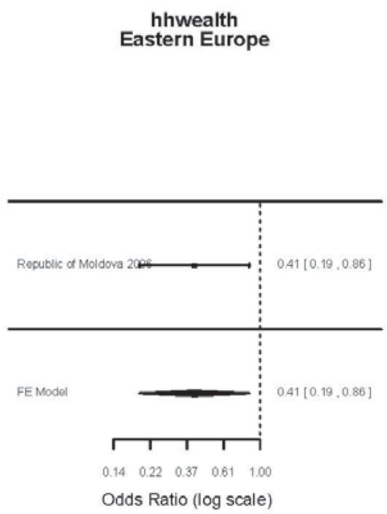

hhwealth
Eastern Africa
RE Model
0.73 [0.69, 0.78]
Odds Ratio (log scale)

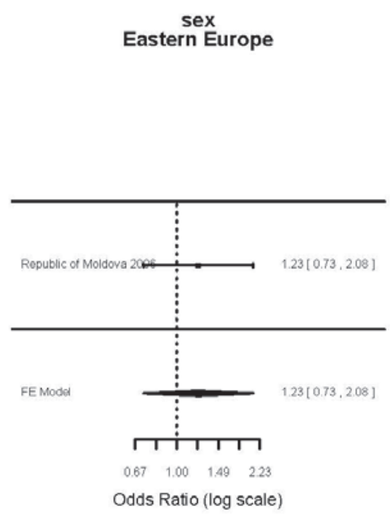

sex
Eastern Africa
RE Model
1.02 [0.98, 1.05]
Odds Ratio (log scale)

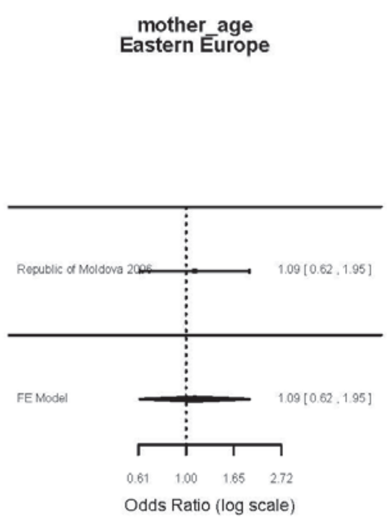

mother_age
Eastern Africa
RE Model
1.14 [1.08, 1.21]
Odds Ratio (log scale)

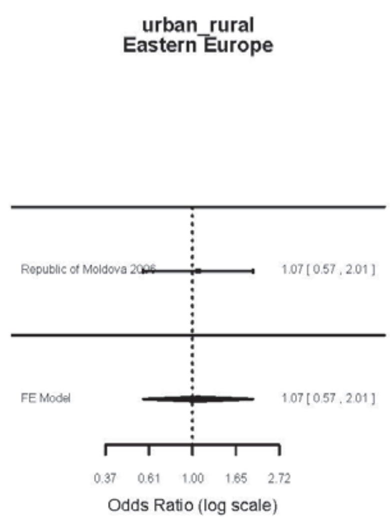

urban_rural
Eastern Africa
RE Model
1.44 [1.27, 1.62]
Odds Ratio (log scale)

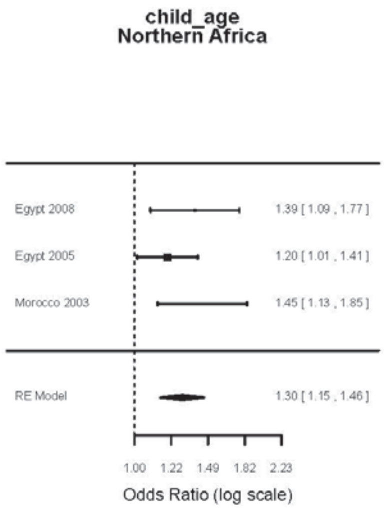

child_age
Eastern Europe
Republic of Moldova 2006
1.48 [0.87 , 2.54]
FE Model
1.48 [0.87 , 2.54]
0.82 1.22 1.82 2.72
Odds Ratio (log scale)

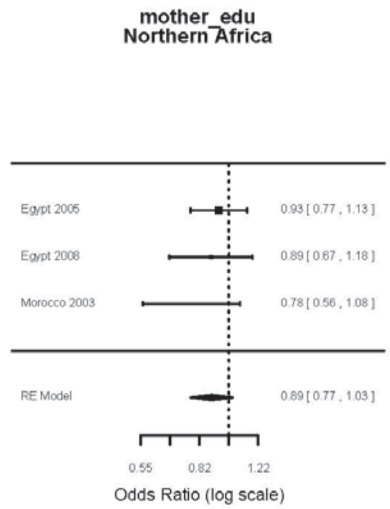

hhwealth
Eastern Europe
Republic of Moldova 2006
0.41 [0.19 , 0.86]
FE Model
0.41 [0.19 , 0.86]
0.14 0.22 0.37 0.61 1.00
Odds Ratio (log scale)

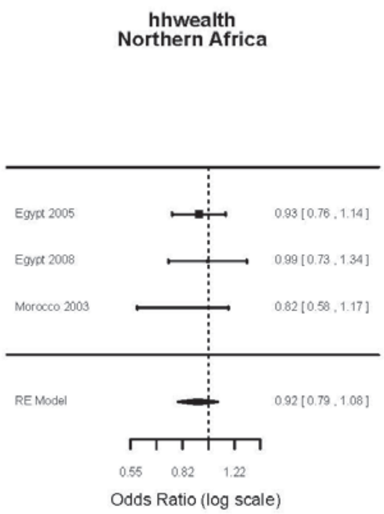

sex
Eastern Europe
Republic of Moldova 2006
1.23 [0.73 , 2.08]
FE Model
1.23 [0.73 , 2.08]
0.67 1.00 1.49 2.23
Odds Ratio (log scale)

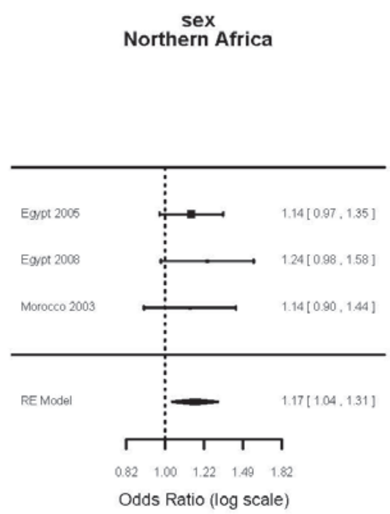

mother_age
Eastern Europe
Republic of Moldova 2006
1.09 [0.62 , 1.95]
FE Model
1.09 [0.62 , 1.95]
0.61 1.00 1.65 2.72
Odds Ratio (log scale)

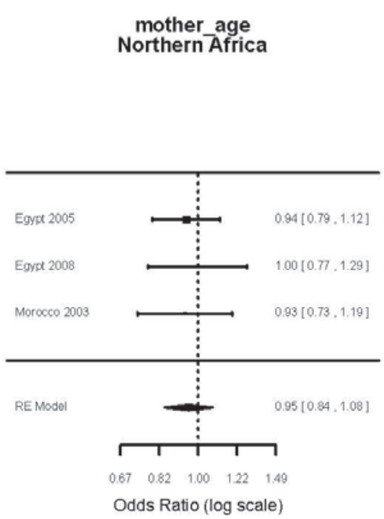

urban_rural
Eastern Europe
Republic of Moldova 2006
1.07 [0.57 , 2.01]
FE Model
1.07 [0.57 , 2.01]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

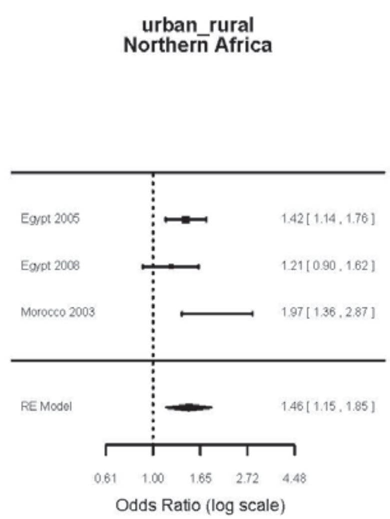

child_age
Northern Africa
Egypt 2008
1.39 [1.09 , 1.77]
Egypt 2005
1.20 [1.01 , 1.41]
Morocco 2003
1.45 [1.13 , 1.85]
RE Model
1.30 [1.15 , 1.46]
1.00 1.22 1.49 1.82 2.23
Odds Ratio (log scale)

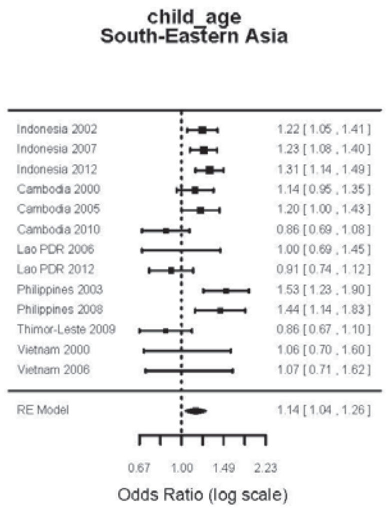

mother_edu
Northern Africa
Egypt 2005
0.93 [0.77 , 1.13]
Egypt 2008
0.89 [0.67 , 1.18]
Morocco 2003
0.78 [0.56 , 1.08]
RE Model
0.89 [0.77 , 1.03]
0.55 0.82 1.22
Odds Ratio (log scale)

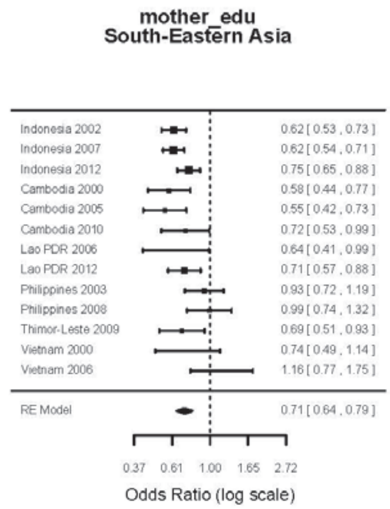

hhwealth
Northern Africa
Egypt 2005
0.93 [0.76 , 1.14]
Egypt 2008
0.99 [0.73 , 1.34]
Morocco 2003
0.82 [0.58 , 1.17]
RE Model
0.92 [0.79 , 1.08]
0.55 0.82 1.22
Odds Ratio (log scale)

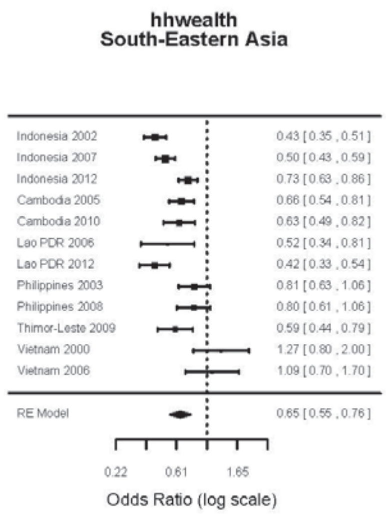

sex
Northern Africa
Egypt 2005
1.14 [0.97 , 1.35]
Egypt 2008
1.24 [0.98 , 1.58]
Morocco 2003
1.14 [0.90 , 1.44]
RE Model
1.17 [1.04 , 1.31]
0.82 1.00 1.22 1.49 1.82
Odds Ratio (log scale)

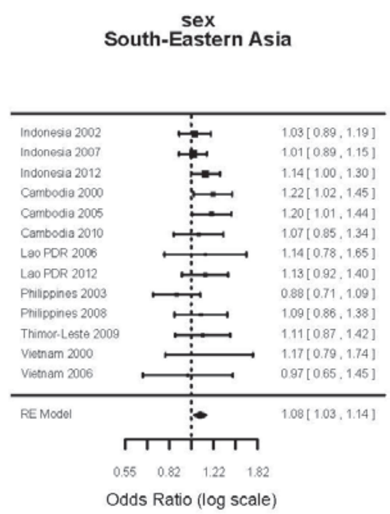

mother_age
Northern Africa
Egypt 2005
0.94 [0.79 , 1.12]
Egypt 2008
1.00 [0.77 , 1.29]
Morocco 2003
0.93 [0.73 , 1.19]
RE Model
0.95 [0.84 , 1.08]
0.67 0.82 1.00 1.22 1.49
Odds Ratio (log scale)

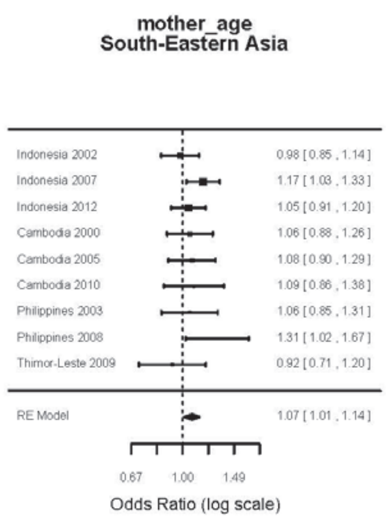

urban_rural
Northern Africa
Egypt 2005
1.42 [1.14 , 1.76]
Egypt 2008
1.21 [0.90 , 1.62]
Morocco 2003
1.97 [1.36 , 2.87]
RE Model
1.46 [1.15 , 1.85]
0.61 1.00 1.65 2.72 4.48
Odds Ratio (log scale)

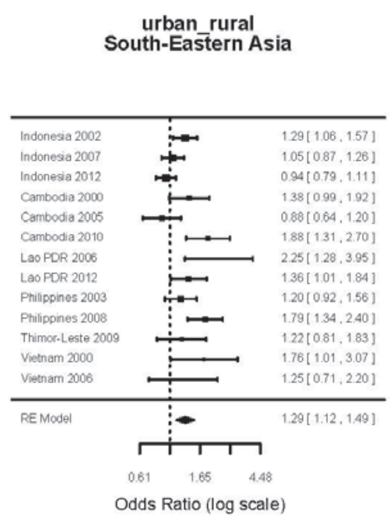

child_age
South-Eastern Asia
Indonesia 2002 1.22 [1.05 , 1.41]
Indonesia 2007 1.23 [1.08 , 1.40]
Indonesia 2012 1.31 [1.14 , 1.49]
Cambodia 2000 1.14 [0.95 , 1.35]
Cambodia 2005 1.20 [1.00 , 1.43]
Cambodia 2010 0.86 [0.69 , 1.08]
Lao PDR 2006 1.00 [0.69 , 1.45]
Lao PDR 2012 0.91 [0.74 , 1.12]
Philippines 2003 1.53 [1.23 , 1.90]
Philippines 2008 1.44 [1.14 , 1.83]
Thimor-Leste 2009 0.86 [0.67 , 1.10]
Vietnam 2000 1.06 [0.70 , 1.60]
Vietnam 2006 1.07 [0.71 , 1.62]
RE Model 1.14 [1.04 , 1.26]
0.67 1.00 1.49 2.23
Odds Ratio (log scale)

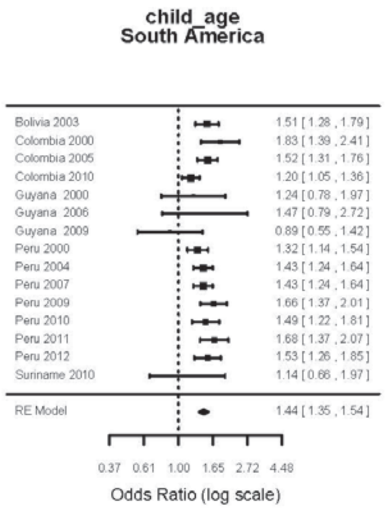

mother_edu
South-Eastern Asia
Indonesia 2002 0.62 [0.53 , 0.73]
Indonesia 2007 0.62 [0.54 , 0.71]
Indonesia 2012 0.75 [0.65 , 0.88]
Cambodia 2000 0.58 [0.44 , 0.77]
Cambodia 2005 0.55 [0.42 , 0.73]
Cambodia 2010 0.72 [0.53 , 0.99]
Lao PDR 2006 0.64 [0.41 , 0.99]
Lao PDR 2012 0.71 [0.57 , 0.88]
Philippines 2003 0.93 [0.72 , 1.19]
Philippines 2008 0.99 [0.74 , 1.32]
Thimor-Leste 2009 0.69 [0.51 , 0.93]
Vietnam 2000 0.74 [0.49 , 1.14]
Vietnam 2006 1.16 [0.77 , 1.75]
RE Model 0.71 [0.64 , 0.79]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

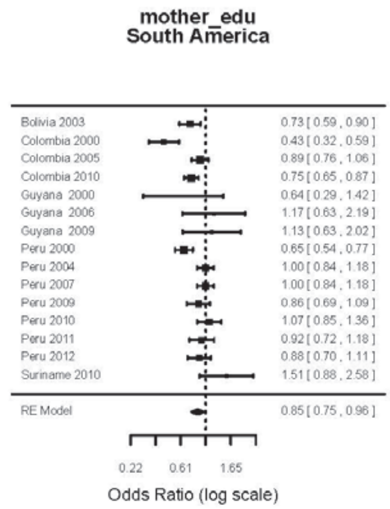

hhwealth
South-Eastern Asia
Indonesia 2002 0.43 [0.35 , 0.51]
Indonesia 2007 0.50 [0.43 , 0.59]
Indonesia 2012 0.73 [0.63 , 0.86]
Cambodia 2005 0.66 [0.54 , 0.81]
Cambodia 2010 0.63 [0.49 , 0.82]
Lao PDR 2006 0.52 [0.34 , 0.81]
Lao PDR 2012 0.42 [0.33 , 0.54]
Philippines 2003 0.81 [0.63 , 1.06]
Philippines 2008 0.80 [0.61 , 1.06]
Thimor-Leste 2009 0.59 [0.44 , 0.79]
Vietnam 2000 1.27 [0.80 , 2.00]
Vietnam 2006 1.09 [0.70 , 1.70]
RE Model 0.65 [0.55 , 0.76]
0.22 0.61 1.65
Odds Ratio (log scale)

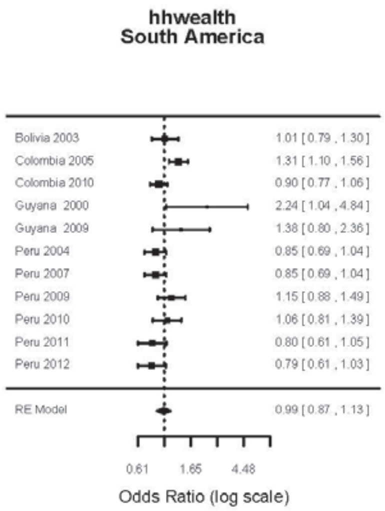

sex
South-Eastern Asia
Indonesia 2002 1.03 [0.89 , 1.19]
Indonesia 2007 1.01 [0.89 , 1.15]
Indonesia 2012 1.14 [1.00 , 1.30]
Cambodia 2000 1.22 [1.02 , 1.45]
Cambodia 2005 1.20 [1.01 , 1.44]
Cambodia 2010 1.07 [0.85 , 1.34]
Lao PDR 2006 1.14 [0.78 , 1.65]
Lao PDR 2012 1.13 [0.92 , 1.40]
Philippines 2003 0.88 [0.71 , 1.09]
Philippines 2008 1.09 [0.86 , 1.38]
Thimor-Leste 2009 1.11 [0.87 , 1.42]
Vietnam 2000 1.17 [0.79 , 1.74]
Vietnam 2006 0.97 [0.65 , 1.45]
RE Model 1.08 [1.03 , 1.14]
0.55 0.82 1.22 1.82
Odds Ratio (log scale)

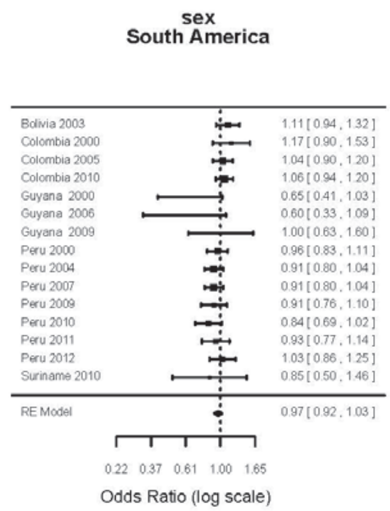

mother_age
South-Eastern Asia
Indonesia 2002 0.98 [0.85 , 1.14]
Indonesia 2007 1.17 [1.03 , 1.33]
Indonesia 2012 1.05 [0.91 , 1.20]
Cambodia 2000 1.06 [0.88 , 1.26]
Cambodia 2005 1.08 [0.90 , 1.29]
Cambodia 2010 1.09 [0.86 , 1.38]
Philippines 2003 1.06 [0.85 , 1.31]
Philippines 2008 1.31 [1.02 , 1.67]
Thimor-Leste 2009 0.92 [0.71 , 1.20]
RE Model 1.07 [1.01 , 1.14]
0.67 1.00 1.49
Odds Ratio (log scale)

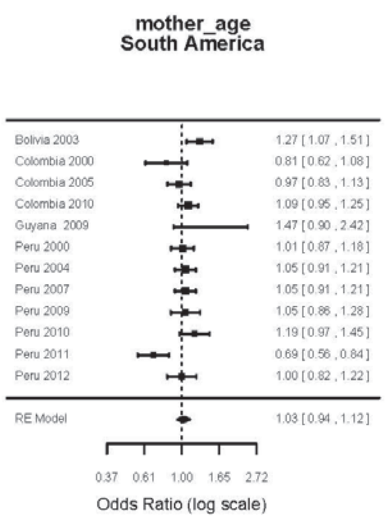

urban_rural
South-Eastern Asia
Indonesia 2002 1.29 [1.06 , 1.57]
Indonesia 2007 1.05 [0.87 , 1.26]
Indonesia 2012 0.94 [0.79 , 1.11]
Cambodia 2000 1.38 [0.99 , 1.92]
Cambodia 2005 0.88 [0.64 , 1.20]
Cambodia 2010 1.88 [1.31 , 2.70]
Lao PDR 2006 2.25 [1.28 , 3.95]
Lao PDR 2012 1.36 [1.01 , 1.84]
Philippines 2003 1.20 [0.92 , 1.56]
Philippines 2008 1.79 [1.34 , 2.40]
Thimor-Leste 2009 1.22 [0.81 , 1.83]
Vietnam 2000 1.76 [1.01 , 3.07]
Vietnam 2006 1.25 [0.71 , 2.20]
RE Model 1.29 [1.12 , 1.49]
0.61 1.65 4.48
Odds Ratio (log scale)

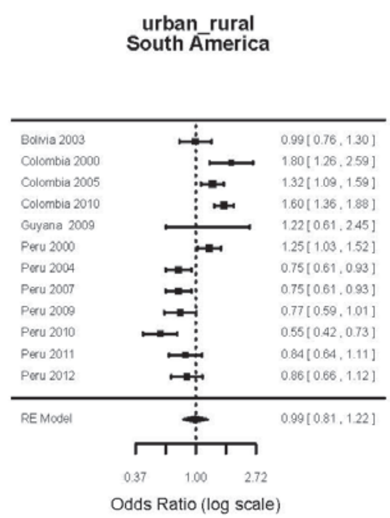

child_age
South America
Bolivia 2003 1.51 [1.28 , 1.79]
Colombia 2000 1.83 [1.39 , 2.41]
Colombia 2005 1.52 [1.31 , 1.76]
Colombia 2010 1.20 [1.05 , 1.36]
Guyana 2000 1.24 [0.78 , 1.97]
Guyana 2006 1.47 [0.79 , 2.72]
Guyana 2009 0.89 [0.55 , 1.42]
Peru 2000 1.32 [1.14 , 1.54]
Peru 2004 1.43 [1.24 , 1.64]
Peru 2007 1.43 [1.24 , 1.64]
Peru 2009 1.66 [1.37 , 2.01]
Peru 2010 1.49 [1.22 , 1.81]
Peru 2011 1.68 [1.37 , 2.07]
Peru 2012 1.53 [1.26 , 1.85]
Suriname 2010 1.14 [0.66 , 1.97]
RE Model 1.44 [1.35 , 1.54]
0.37 0.61 1.00 1.65 2.72 4.48
Odds Ratio (log scale)

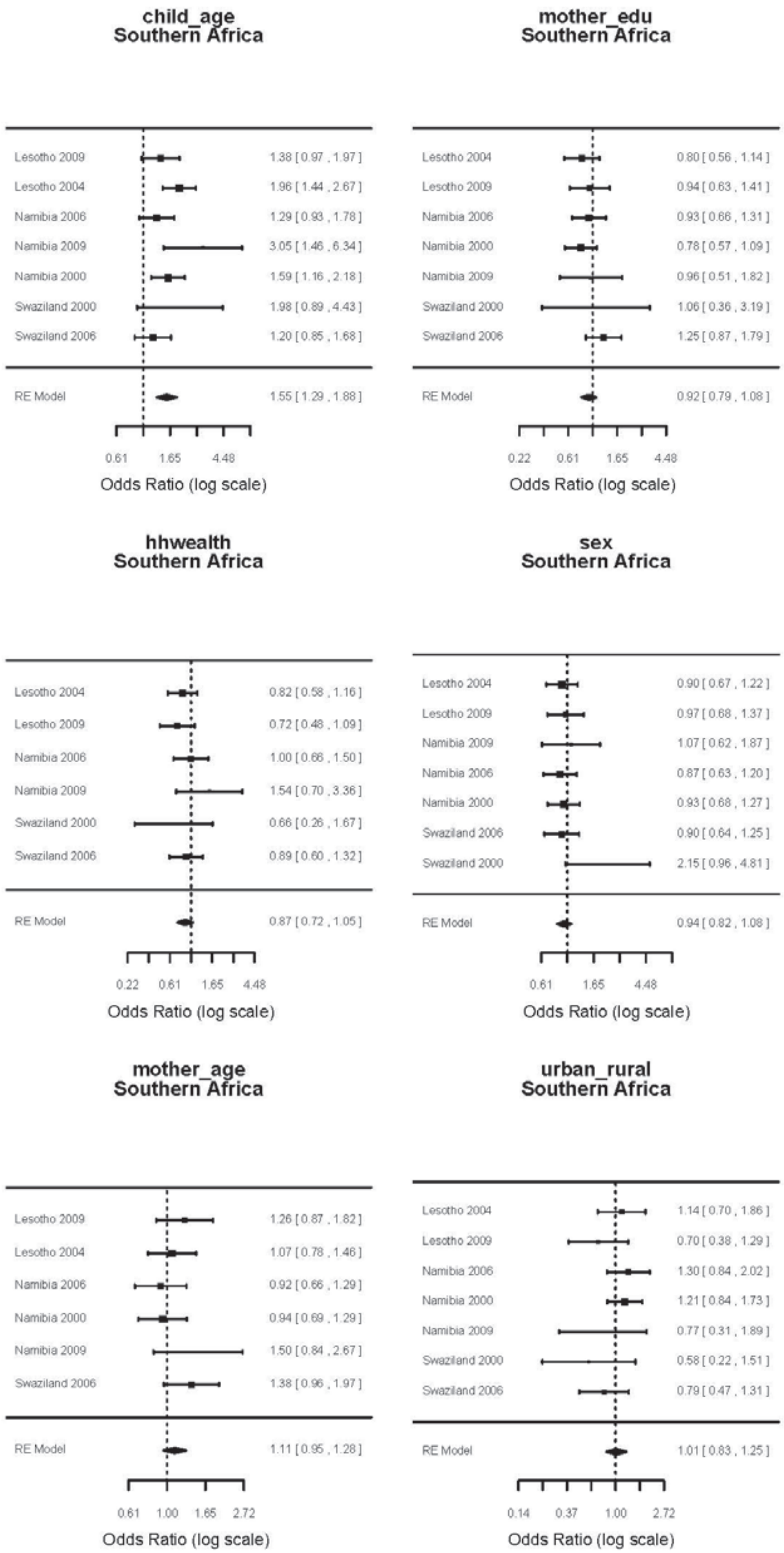

mother_edu
South America
Bolivia 2003 0.73 [0.59 , 0.90]
Colombia 2000 0.43 [0.32 , 0.59]
Colombia 2005 0.89 [0.76 , 1.06]
Colombia 2010 0.75 [0.65 , 0.87]
Guyana 2000 0.64 [0.29 , 1.42]
Guyana 2006 1.17 [0.63 , 2.19]
Guyana 2009 1.13 [0.63 , 2.02]
Peru 2000 0.65 [0.54 , 0.77]
Peru 2004 1.00 [0.84 , 1.18]
Peru 2007 1.00 [0.84 , 1.18]
Peru 2009 0.86 [0.69 , 1.09]
Peru 2010 1.07 [0.85 , 1.36]
Peru 2011 0.92 [0.72 , 1.18]
Peru 2012 0.88 [0.70 , 1.11]
Suriname 2010 1.51 [0.88 , 2.58]
RE Model 0.85 [0.75 , 0.96]
0.22 0.61 1.65
Odds Ratio (log scale)


hhwealth
South America
Bolivia 2003 1.01 [0.79 , 1.30]
Colombia 2005 1.31 [1.10 , 1.56]
Colombia 2010 0.90 [0.77 , 1.06]
Guyana 2000 2.24 [1.04 , 4.84]
Guyana 2009 1.38 [0.80 , 2.36]
Peru 2004 0.85 [0.69 , 1.04]
Peru 2007 0.85 [0.69 , 1.04]
Peru 2009 1.15 [0.88 , 1.49]
Peru 2010 1.06 [0.81 , 1.39]
Peru 2011 0.80 [0.61 , 1.05]
Peru 2012 0.79 [0.61 , 1.03]
RE Model 0.99 [0.87 , 1.13]
0.61 1.65 4.48
Odds Ratio (log scale)


sex
South America
Bolivia 2003 1.11 [0.94 , 1.32]
Colombia 2000 1.17 [0.90 , 1.53]
Colombia 2005 1.04 [0.90 , 1.20]
Colombia 2010 1.06 [0.94 , 1.20]
Guyana 2000 0.65 [0.41 , 1.03]
Guyana 2006 0.60 [0.33 , 1.09]
Guyana 2009 1.00 [0.63 , 1.60]
Peru 2000 0.96 [0.83 , 1.11]
Peru 2004 0.91 [0.80 , 1.04]
Peru 2007 0.91 [0.80 , 1.04]
Peru 2009 0.91 [0.76 , 1.10]
Peru 2010 0.84 [0.69 , 1.02]
Peru 2011 0.93 [0.77 , 1.14]
Peru 2012 1.03 [0.86 , 1.25]
Suriname 2010 0.85 [0.50 , 1.46]
RE Model 0.97 [0.92 , 1.03]
0.22 0.37 0.61 1.00 1.65
Odds Ratio (log scale)


mother_age
South America
Bolivia 2003 1.27 [1.07 , 1.51]
Colombia 2000 0.81 [0.62 , 1.08]
Colombia 2005 0.97 [0.83 , 1.13]
Colombia 2010 1.09 [0.95 , 1.25]
Guyana 2009 1.47 [0.90 , 2.42]
Peru 2000 1.01 [0.87 , 1.18]
Peru 2004 1.05 [0.91 , 1.21]
Peru 2007 1.05 [0.91 , 1.21]
Peru 2009 1.05 [0.86 , 1.28]
Peru 2010 1.19 [0.97 , 1.45]
Peru 2011 0.69 [0.56 , 0.84]
Peru 2012 1.00 [0.82 , 1.22]
RE Model 1.03 [0.94 , 1.12]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)


urban_rural
South America
Bolivia 2003 0.99 [0.76 , 1.30]
Colombia 2000 1.80 [1.26 , 2.59]
Colombia 2005 1.32 [1.09 , 1.59]
Colombia 2010 1.60 [1.36 , 1.88]
Guyana 2009 1.22 [0.61 , 2.45]
Peru 2000 1.25 [1.03 , 1.52]
Peru 2004 0.75 [0.61 , 0.93]
Peru 2007 0.75 [0.61 , 0.93]
Peru 2009 0.77 [0.59 , 1.01]
Peru 2010 0.55 [0.42 , 0.73]
Peru 2011 0.84 [0.64 , 1.11]
Peru 2012 0.86 [0.66 , 1.12]
RE Model 0.99 [0.81 , 1.22]
0.37 1.00 2.72
Odds Ratio (log scale)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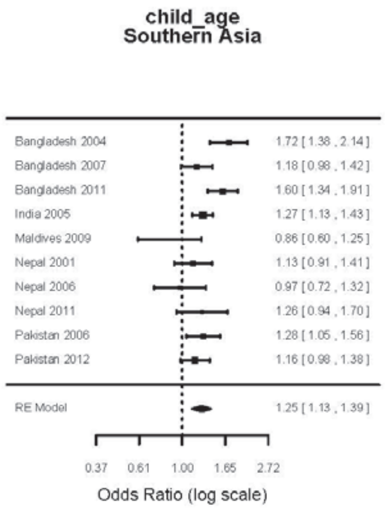
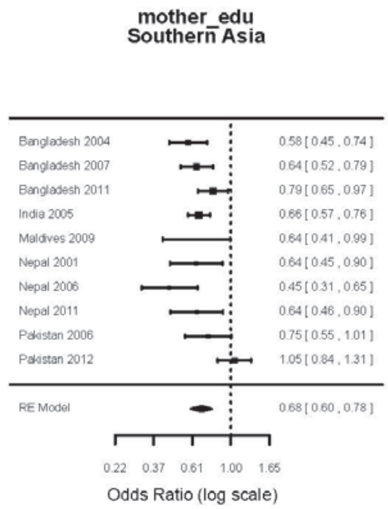
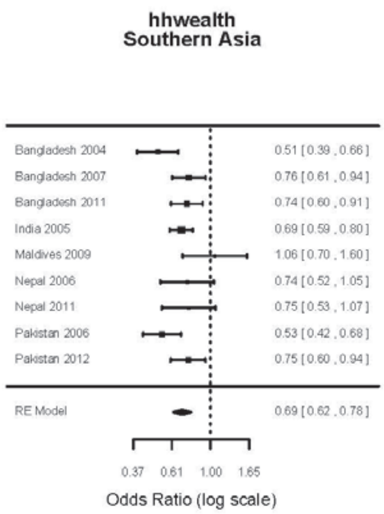
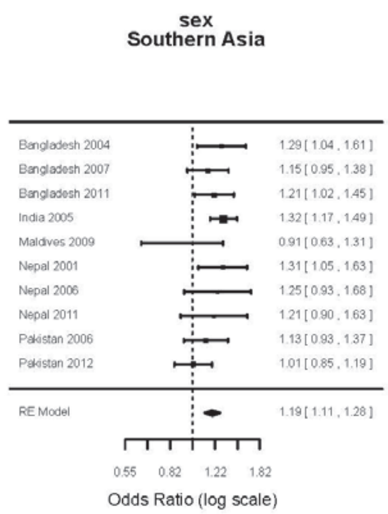
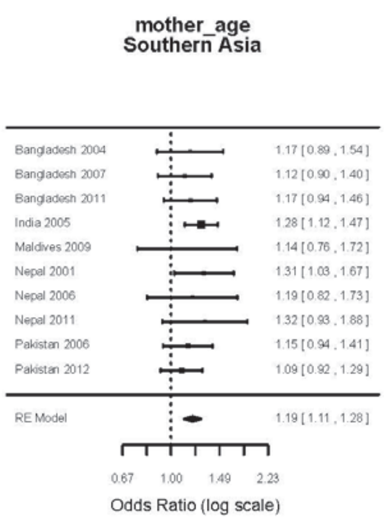
Southern Africa
Lesotho 2009
Lesotho 2004
Namibia 2006
Namibia 2009
Namibia 2000
Swaziland 2000
Swaziland 2006
RE Model
1.38 [0.97 , 1.97]
1.96 [1.44 , 2.67]
1.29 [0.93 , 1.78]
3.05 [1.46 , 6.34]
1.59 [1.16 , 2.18]
1.98 [0.89 , 4.43]
1.20 [0.85 , 1.68]
1.55 [1.29 , 1.88]
0.61
1.65
4.48
Odds Ratio (log scale)
mother_edu
Southern Africa
Lesotho 2004
Lesotho 2009
Namibia 2006
Namibia 2000
Namibia 2009
Swaziland 2000
Swaziland 2006
RE Model
0.80 [0.56 , 1.14]
0.94 [0.63 , 1.41]
0.93 [0.66 , 1.31]
0.78 [0.57 , 1.09]
0.96 [0.51 , 1.82]
1.06 [0.36 , 3.19]
1.25 [0.87 , 1.79]
0.92 [0.79 , 1.08]
0.22
0.61
1.65
4.48
Odds Ratio (log scale)
hhwealth
Southern Africa
Lesotho 2004
Lesotho 2009
Namibia 2006
Namibia 2009
Swaziland 2000
Swaziland 2006
RE Model
0.82 [0.58 , 1.16]
0.72 [0.48 , 1.09]
1.00 [0.66 , 1.50]
1.54 [0.70 , 3.36]
0.66 [0.26 , 1.67]
0.89 [0.60 , 1.32]
0.87 [0.72 , 1.05]
0.22
0.61
1.65
4.48
Odds Ratio (log scale)
sex
Southern Africa
Lesotho 2004
Lesotho 2009
Namibia 2009
Namibia 2006
Namibia 2000
Swaziland 2006
Swaziland 2000
RE Model
0.90 [0.67 , 1.22]
0.97 [0.68 , 1.37]
1.07 [0.62 , 1.87]
0.87 [0.63 , 1.20]
0.93 [0.68 , 1.27]
0.90 [0.64 , 1.25]
2.15 [0.96 , 4.81]
0.94 [0.82 , 1.08]
0.61
1.65
4.48
Odds Ratio (log scale)
mother_age
Southern Africa
Lesotho 2009
Lesotho 2004
Namibia 2006
Namibia 2000
Namibia 2009
Swaziland 2006
RE Model
1.26 [0.87 , 1.82]
1.07 [0.78 , 1.46]
0.92 [0.66 , 1.29]
0.94 [0.69 , 1.29]
1.50 [0.84 , 2.67]
1.38 [0.96 , 1.97]
1.11 [0.95 , 1.28]
0.61
1.00
1.65
2.72
Odds Ratio (log scale)
urban_rural
Southern Africa
Lesotho 2004
Lesotho 2009
Namibia 2006
Namibia 2000
Namibia 2009
Swaziland 2000
Swaziland 2006
RE Model
1.14 [0.70 , 1.86]
0.70 [0.38 , 1.29]
1.30 [0.84 , 2.02]
1.21 [0.84 , 1.73]
0.77 [0.31 , 1.89]
0.58 [0.22 , 1.51]
0.79 [0.47 , 1.31]
1.01 [0.83 , 1.25]
0.14
0.37
1.00
2.72
Odds Ratio (log scale)

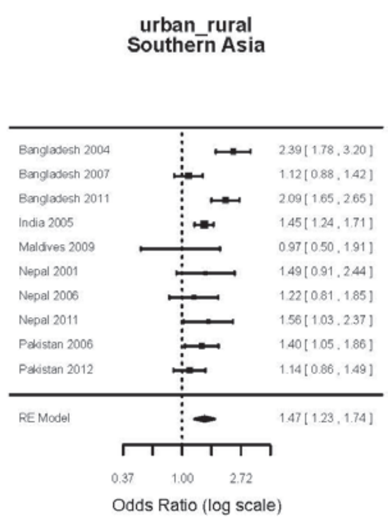

child_age
Southern Asia
Bangladesh 2004 1.72 [1.38 , 2.14]
Bangladesh 2007 1.18 [0.98 , 1.42]
Bangladesh 2011 1.60 [1.34 , 1.91]
India 2005 1.27 [1.13 , 1.43]
Maldives 2009 0.86 [0.60 , 1.25]
Nepal 2001 1.13 [0.91 , 1.41]
Nepal 2006 0.97 [0.72 , 1.32]
Nepal 2011 1.26 [0.94 , 1.70]
Pakistan 2006 1.28 [1.05 , 1.56]
Pakistan 2012 1.16 [0.98 , 1.38]
RE Model 1.25 [1.13 , 1.39]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

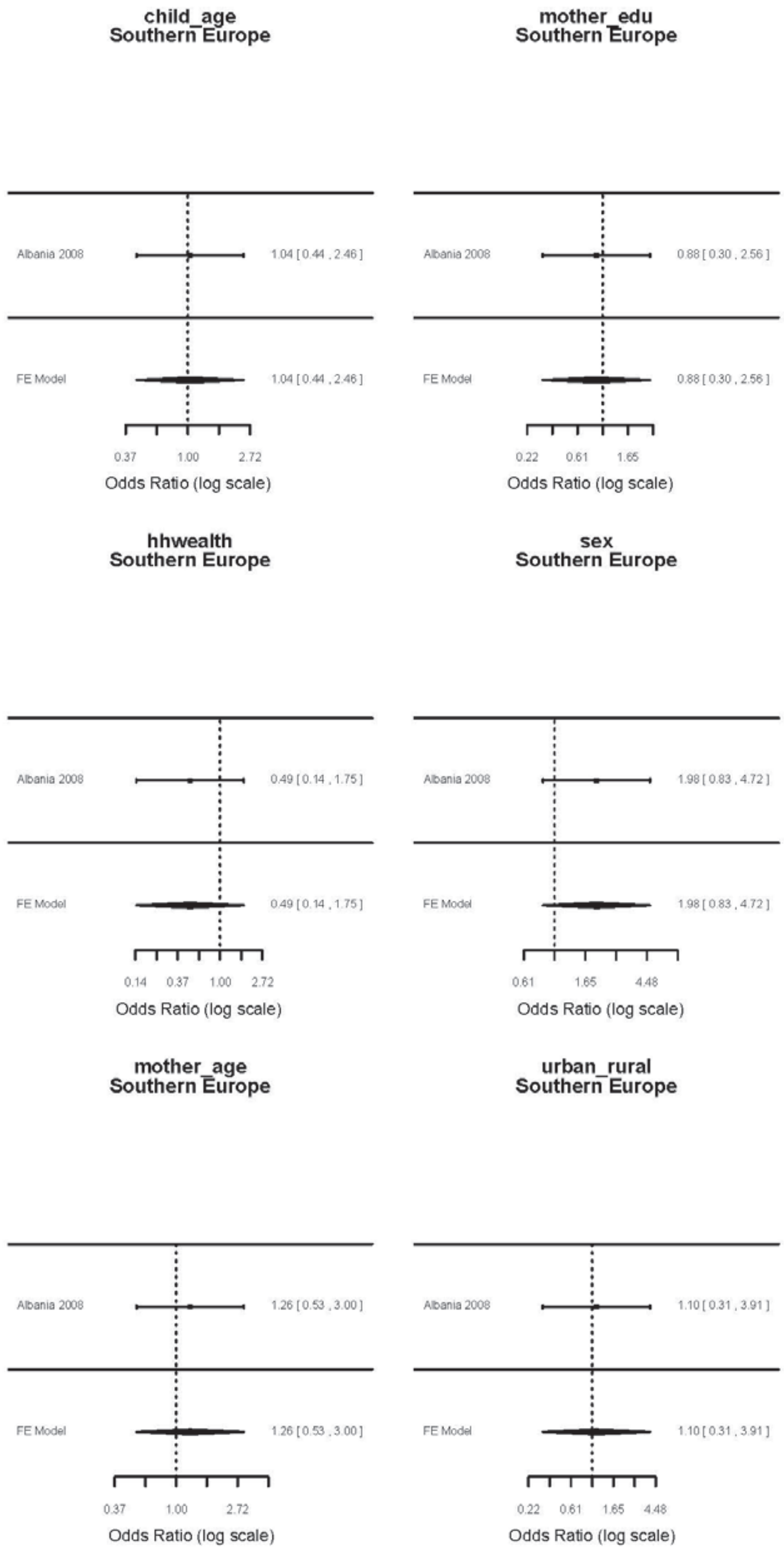

mother_edu
Southern Asia
Bangladesh 2004 0.58 [0.45 , 0.74]
Bangladesh 2007 0.64 [0.52 , 0.79]
Bangladesh 2011 0.79 [0.65 , 0.97]
India 2005 0.66 [0.57 , 0.76]
Maldives 2009 0.64 [0.41 , 0.99]
Nepal 2001 0.64 [0.45 , 0.90]
Nepal 2006 0.45 [0.31 , 0.65]
Nepal 2011 0.64 [0.46 , 0.90]
Pakistan 2006 0.75 [0.55 , 1.01]
Pakistan 2012 1.05 [0.84 , 1.31]
RE Model 0.68 [0.60 , 0.78]
0.22 0.37 0.61 1.00 1.65
Odds Ratio (log scale)

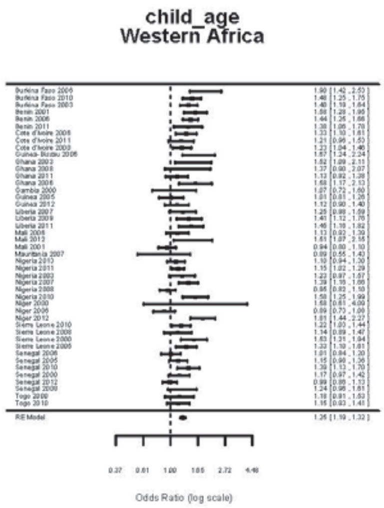

hhwealth
Southern Asia
Bangladesh 2004 0.51 [0.39 , 0.66]
Bangladesh 2007 0.76 [0.61 , 0.94]
Bangladesh 2011 0.74 [0.60 , 0.91]
India 2005 0.69 [0.59 , 0.80]
Maldives 2009 1.06 [0.70 , 1.60]
Nepal 2006 0.74 [0.52 , 1.05]
Nepal 2011 0.75 [0.53 , 1.07]
Pakistan 2006 0.53 [0.42 , 0.68]
Pakistan 2012 0.75 [0.60 , 0.94]
RE Model 0.69 [0.62 , 0.78]
0.37 0.61 1.00 1.65
Odds Ratio (log scale)

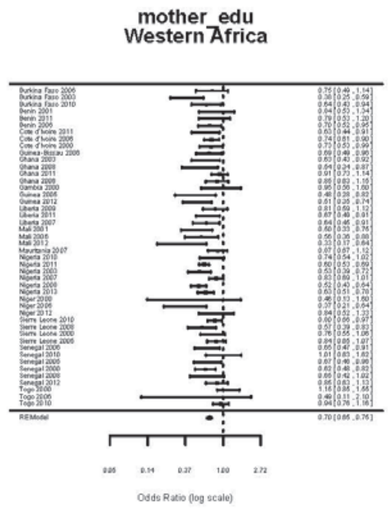

sex
Southern Asia
Bangladesh 2004 1.29 [1.04 , 1.61]
Bangladesh 2007 1.15 [0.95 , 1.38]
Bangladesh 2011 1.21 [1.02 , 1.45]
India 2005 1.32 [1.17 , 1.49]
Maldives 2009 0.91 [0.63 , 1.31]
Nepal 2001 1.31 [1.05 , 1.63]
Nepal 2006 1.25 [0.93 , 1.68]
Nepal 2011 1.21 [0.90 , 1.63]
Pakistan 2006 1.13 [0.93 , 1.37]
Pakistan 2012 1.01 [0.85 , 1.19]
RE Model 1.19 [1.11 , 1.28]
0.55 0.82 1.22 1.82
Odds Ratio (log scale)

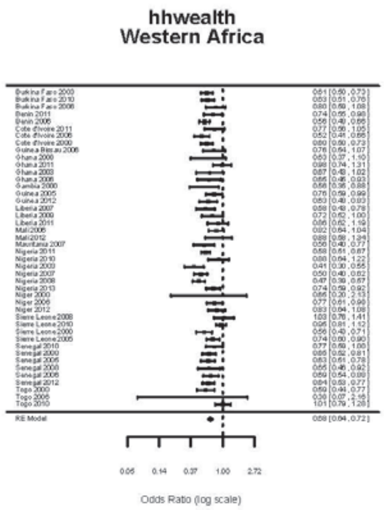

mother_age
Southern Asia
Bangladesh 2004 1.17 [0.89 , 1.54]
Bangladesh 2007 1.12 [0.90 , 1.40]
Bangladesh 2011 1.17 [0.94 , 1.46]
India 2005 1.28 [1.12 , 1.47]
Maldives 2009 1.14 [0.76 , 1.72]
Nepal 2001 1.31 [1.03 , 1.67]
Nepal 2006 1.19 [0.82 , 1.73]
Nepal 2011 1.32 [0.93 , 1.88]
Pakistan 2006 1.15 [0.94 , 1.41]
Pakistan 2012 1.09 [0.92 , 1.29]
RE Model 1.19 [1.11 , 1.28]
0.67 1.00 1.49 2.23
Odds Ratio (log scale)

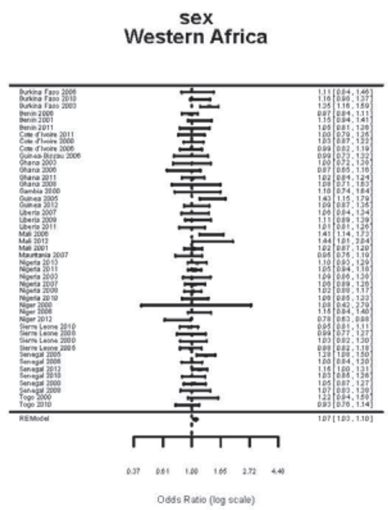

urban_rural
Southern Asia
Bangladesh 2004 2.39 [1.78 , 3.20]
Bangladesh 2007 1.12 [0.88 , 1.42]
Bangladesh 2011 2.09 [1.65 , 2.65]
India 2005 1.45 [1.24 , 1.71]
Maldives 2009 0.97 [0.50 , 1.91]
Nepal 2001 1.49 [0.91 , 2.44]
Nepal 2006 1.22 [0.81 , 1.85]
Nepal 2011 1.56 [1.03 , 2.37]
Pakistan 2006 1.40 [1.05 , 1.86]
Pakistan 2012 1.14 [0.86 , 1.49]
RE Model 1.47 [1.23 , 1.74]
0.37 1.00 2.72
Odds Ratio (log scale)

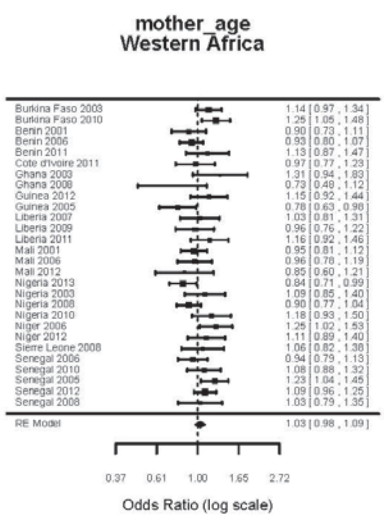

child_age
Southern Europe
Albania 2008
1.04 [0.44 , 2.46]
FE Model
1.04 [0.44 , 2.46]
0.37
1.00
2.72
Odds Ratio (log scale)
mother_edu
Southern Europe
Albania 2008
0.88 [0.30 , 2.56]
FE Model
0.88 [0.30 , 2.56]
0.22
0.61
1.65
Odds Ratio (log scale)
hhwealth
Southern Europe
Albania 2008
0.49 [0.14 , 1.75]
FE Model
0.49 [0.14 , 1.75]
0.14
0.37
1.00
2.72
Odds Ratio (log scale)
sex
Southern Europe
Albania 2008
1.98 [0.83 , 4.72]
FE Model
1.98 [0.83 , 4.72]
0.61
1.65
4.48
Odds Ratio (log scale)
mother_age
Southern Europe
Albania 2008
1.26 [0.53 , 3.00]
FE Model
1.26 [0.53 , 3.00]
0.37
1.00
2.72
Odds Ratio (log scale)
urban_rural
Southern Europe
Albania 2008
1.10 [0.31 , 3.91]
FE Model
1.10 [0.31 , 3.91]
0.22
0.61
1.65
4.48
Odds Ratio (log scale)

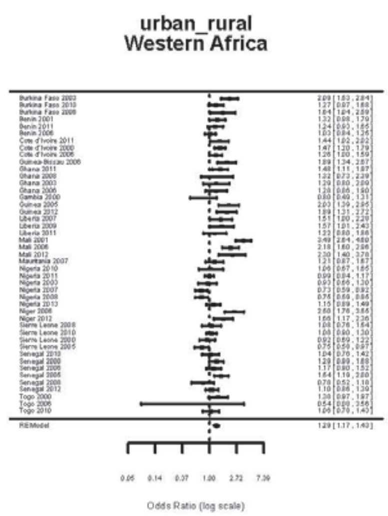

child_age
Western Africa
RE Model
1.26 [1.19 , 1.32]
0.37 0.61 1.00 1.65 2.72 4.48
Odds Ratio (log scale)

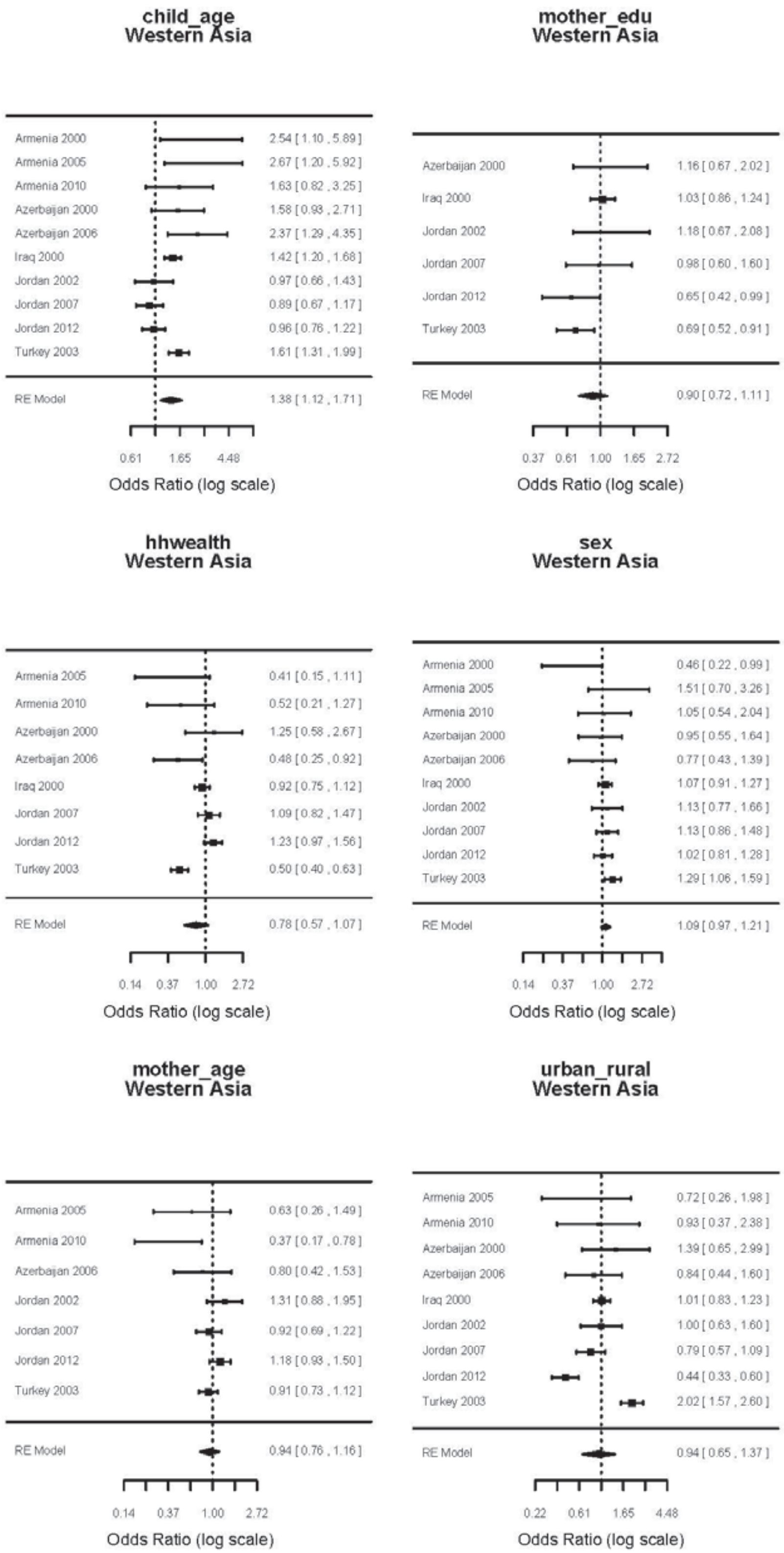

mother_edu
Western Africa
RE Model
0.70 [0.65 , 0.75]
0.05 0.14 0.37 1.00 2.72
Odds Ratio (log scale)


hhwealth
Western Africa
RE Model
0.68 [0.64 , 0.72]
0.05 0.14 0.37 1.00 2.72
Odds Ratio (log scale)

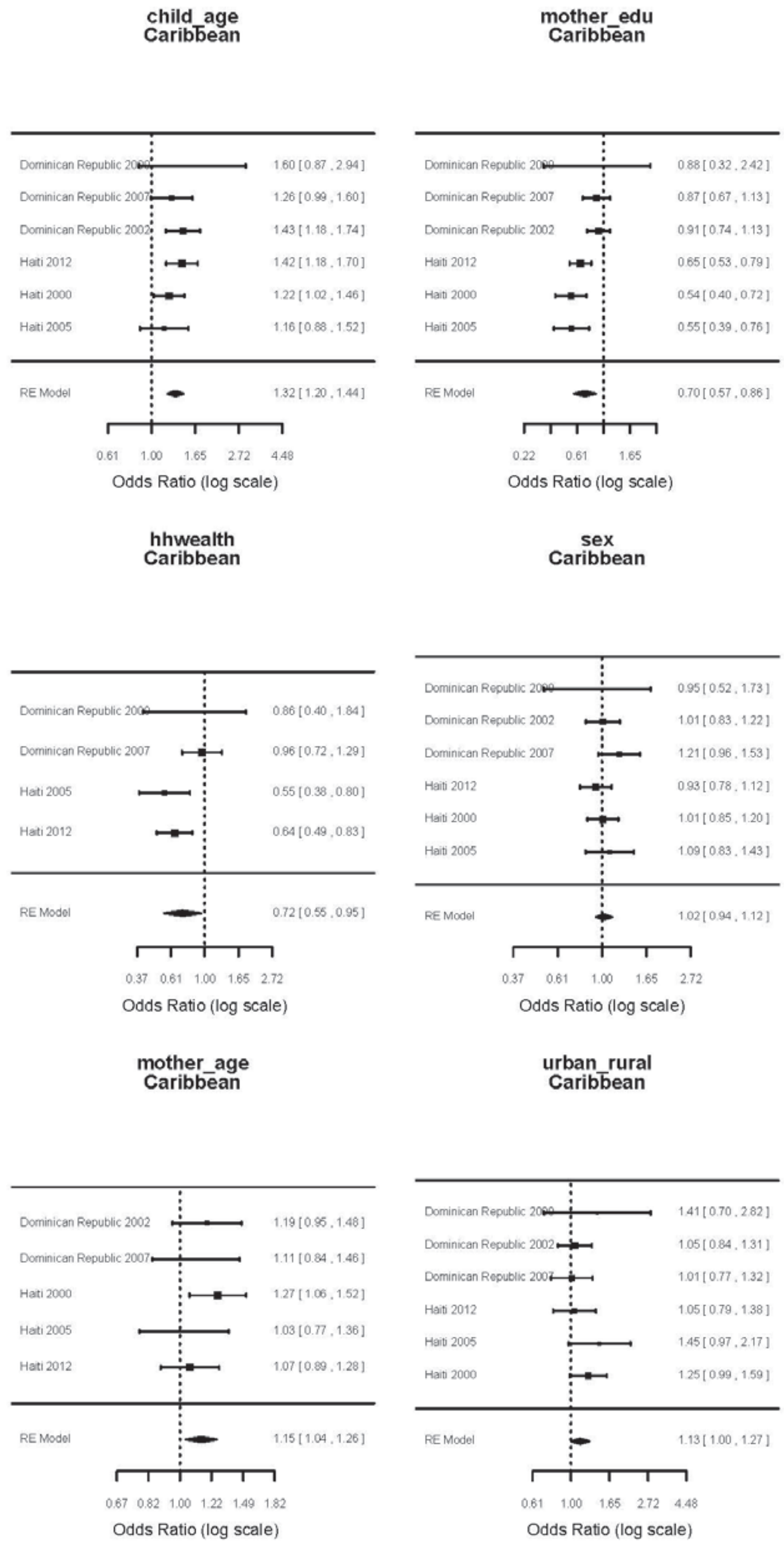

sex
Western Africa
RE Model
1.07 [1.03 , 1.10]
0.37 0.61 1.00 1.65 2.72 4.48
Odds Ratio (log scale)

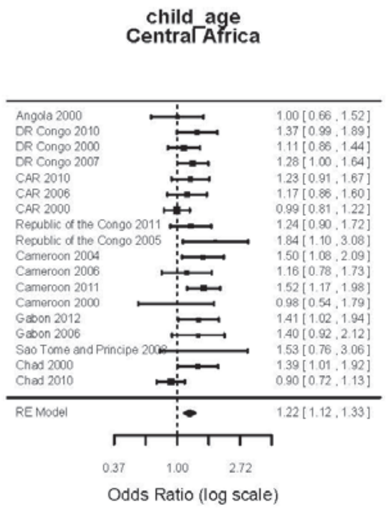

mother_age
Western Africa
Burkina Faso 2003 1.14 [0.97 , 1.34]
Burkina Faso 2010 1.25 [1.05 , 1.48]
Benin 2001 0.90 [0.73 , 1.11]
Benin 2006 0.93 [0.80 , 1.07]
Benin 2011 1.13 [0.87 , 1.47]
Cote d'Ivoire 2011 0.97 [0.77 , 1.23]
Ghana 2003 1.31 [0.94 , 1.83]
Ghana 2008 0.73 [0.48 , 1.12]
Guinea 2012 1.15 [0.92 , 1.44]
Guinea 2005 0.78 [0.63 , 0.98]
Liberia 2007 1.03 [0.81 , 1.31]
Liberia 2009 0.96 [0.76 , 1.22]
Liberia 2011 1.16 [0.92 , 1.46]
Mali 2001 0.95 [0.81 , 1.12]
Mali 2006 0.96 [0.78 , 1.19]
Mali 2012 0.85 [0.60 , 1.21]
Nigeria 2013 0.84 [0.71 , 0.99]
Nigeria 2003 1.09 [0.85 , 1.40]
Nigeria 2008 0.90 [0.77 , 1.04]
Nigeria 2010 1.18 [0.93 , 1.50]
Niger 2006 1.25 [1.02 , 1.53]
Niger 2012 1.11 [0.89 , 1.40]
Sierre Leone 2008 1.06 [0.82 , 1.38]
Senegal 2006 0.94 [0.79 , 1.13]
Senegal 2010 1.08 [0.88 , 1.32]
Senegal 2005 1.23 [1.04 , 1.45]
Senegal 2012 1.09 [0.96 , 1.25]
Senegal 2008 1.03 [0.79 , 1.35]
RE Model 1.03 [0.98 , 1.09]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

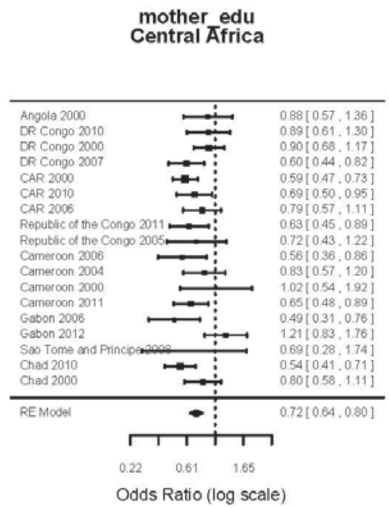

urban_rural
Western Africa
RE Model
1.29 [1.17 , 1.43]
0.05 0.14 0.37 1.00 2.72 7.39
Odds Ratio (log scale)

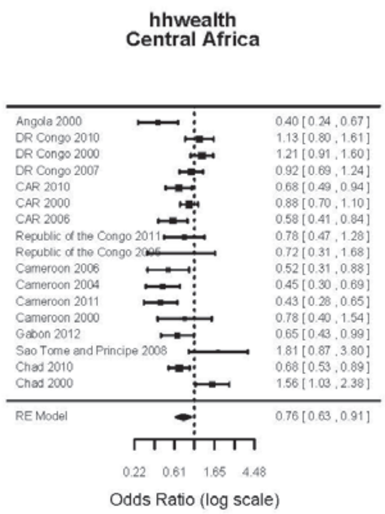

child_age
Western Asia
Armenia 2000 2.54 [1.10 , 5.89]
Armenia 2005 2.67 [1.20 , 5.92]
Armenia 2010 1.63 [0.82 , 3.25]
Azerbaijan 2000 1.58 [0.93 , 2.71]
Azerbaijan 2006 2.37 [1.29 , 4.35]
Iraq 2000 1.42 [1.20 , 1.68]
Jordan 2002 0.97 [0.66 , 1.43]
Jordan 2007 0.89 [0.67 , 1.17]
Jordan 2012 0.96 [0.76 , 1.22]
Turkey 2003 1.61 [1.31 , 1.99]
RE Model 1.38 [1.12 , 1.71]
0.61 1.65 4.48
Odds Ratio (log scale)
mother_edu
Western Asia
Azerbaijan 2000 1.16 [0.67 , 2.02]
Iraq 2000 1.03 [0.86 , 1.24]
Jordan 2002 1.18 [0.67 , 2.08]
Jordan 2007 0.98 [0.60 , 1.60]
Jordan 2012 0.65 [0.42 , 0.99]
Turkey 2003 0.69 [0.52 , 0.91]
RE Model 0.90 [0.72 , 1.11]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)
hhwealth
Western Asia
Armenia 2005 0.41 [0.15 , 1.11]
Armenia 2010 0.52 [0.21 , 1.27]
Azerbaijan 2000 1.25 [0.58 , 2.67]
Azerbaijan 2006 0.48 [0.25 , 0.92]
Iraq 2000 0.92 [0.75 , 1.12]
Jordan 2007 1.09 [0.82 , 1.47]
Jordan 2012 1.23 [0.97 , 1.56]
Turkey 2003 0.50 [0.40 , 0.63]
RE Model 0.78 [0.57 , 1.07]
0.14 0.37 1.00 2.72
Odds Ratio (log scale)
sex
Western Asia
Armenia 2000 0.46 [0.22 , 0.99]
Armenia 2005 1.51 [0.70 , 3.26]
Armenia 2010 1.05 [0.54 , 2.04]
Azerbaijan 2000 0.95 [0.55 , 1.64]
Azerbaijan 2006 0.77 [0.43 , 1.39]
Iraq 2000 1.07 [0.91 , 1.27]
Jordan 2002 1.13 [0.77 , 1.66]
Jordan 2007 1.13 [0.86 , 1.48]
Jordan 2012 1.02 [0.81 , 1.28]
Turkey 2003 1.29 [1.06 , 1.59]
RE Model 1.09 [0.97 , 1.21]
0.14 0.37 1.00 2.72
Odds Ratio (log scale)
mother_age
Western Asia
Armenia 2005 0.63 [0.26 , 1.49]
Armenia 2010 0.37 [0.17 , 0.78]
Azerbaijan 2006 0.80 [0.42 , 1.53]
Jordan 2002 1.31 [0.88 , 1.95]
Jordan 2007 0.92 [0.69 , 1.22]
Jordan 2012 1.18 [0.93 , 1.50]
Turkey 2003 0.91 [0.73 , 1.12]
RE Model 0.94 [0.76 , 1.16]
0.14 0.37 1.00 2.72
Odds Ratio (log scale)
urban_rural
Western Asia
Armenia 2005 0.72 [0.26 , 1.98]
Armenia 2010 0.93 [0.37 , 2.38]
Azerbaijan 2000 1.39 [0.65 , 2.99]
Azerbaijan 2006 0.84 [0.44 , 1.60]
Iraq 2000 1.01 [0.83 , 1.23]
Jordan 2002 1.00 [0.63 , 1.60]
Jordan 2007 0.79 [0.57 , 1.09]
Jordan 2012 0.44 [0.33 , 0.60]
Turkey 2003 2.02 [1.57 , 2.60]
RE Model 0.94 [0.65 , 1.37]
0.22 0.61 1.65 4.48
Odds Ratio (log scale)

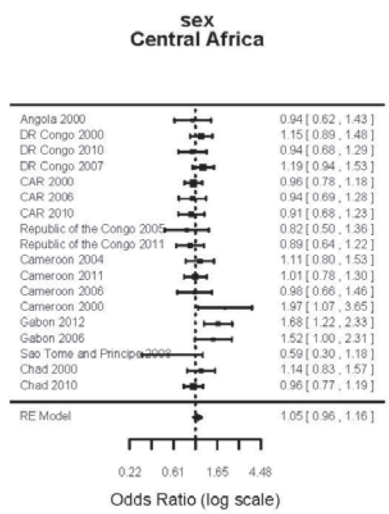
Appendix G: Results of subregional and global meta-analyses of predictors of treatment seeking for symptoms of ARI

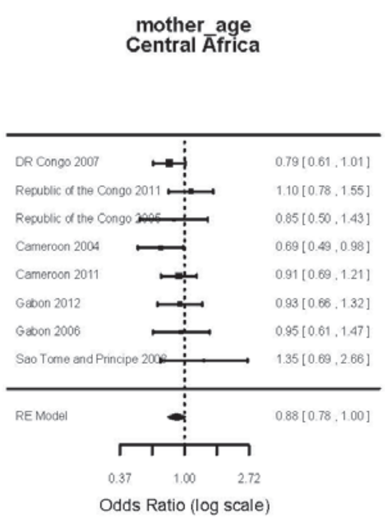


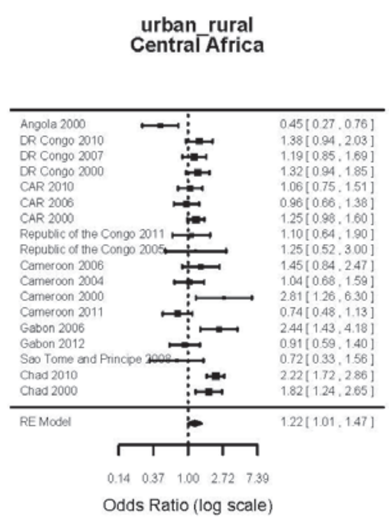

child_age
Central Africa
Angola 2000 1.00 [0.66 , 1.52]
DR Congo 2010 1.37 [0.99 , 1.89]
DR Congo 2000 1.11 [0.86 , 1.44]
DR Congo 2007 1.28 [1.00 , 1.64]
CAR 2010 1.23 [0.91 , 1.67]
CAR 2006 1.17 [0.86 , 1.60]
CAR 2000 0.99 [0.81 , 1.22]
Republic of the Congo 2011 1.24 [0.90 , 1.72]
Republic of the Congo 2005 1.84 [1.10 , 3.08]
Cameroon 2004 1.50 [1.08 , 2.09]
Cameroon 2006 1.16 [0.78 , 1.73]
Cameroon 2011 1.52 [1.17 , 1.98]
Cameroon 2000 0.98 [0.54 , 1.79]
Gabon 2012 1.41 [1.02 , 1.94]
Gabon 2006 1.40 [0.92 , 2.12]
Sao Tome and Principe 2008 1.53 [0.76 , 3.06]
Chad 2000 1.39 [1.01 , 1.92]
Chad 2010 0.90 [0.72 , 1.13]
RE Model 1.22 [1.12 , 1.33]
0.37 1.00 2.72
Odds Ratio (log scale)

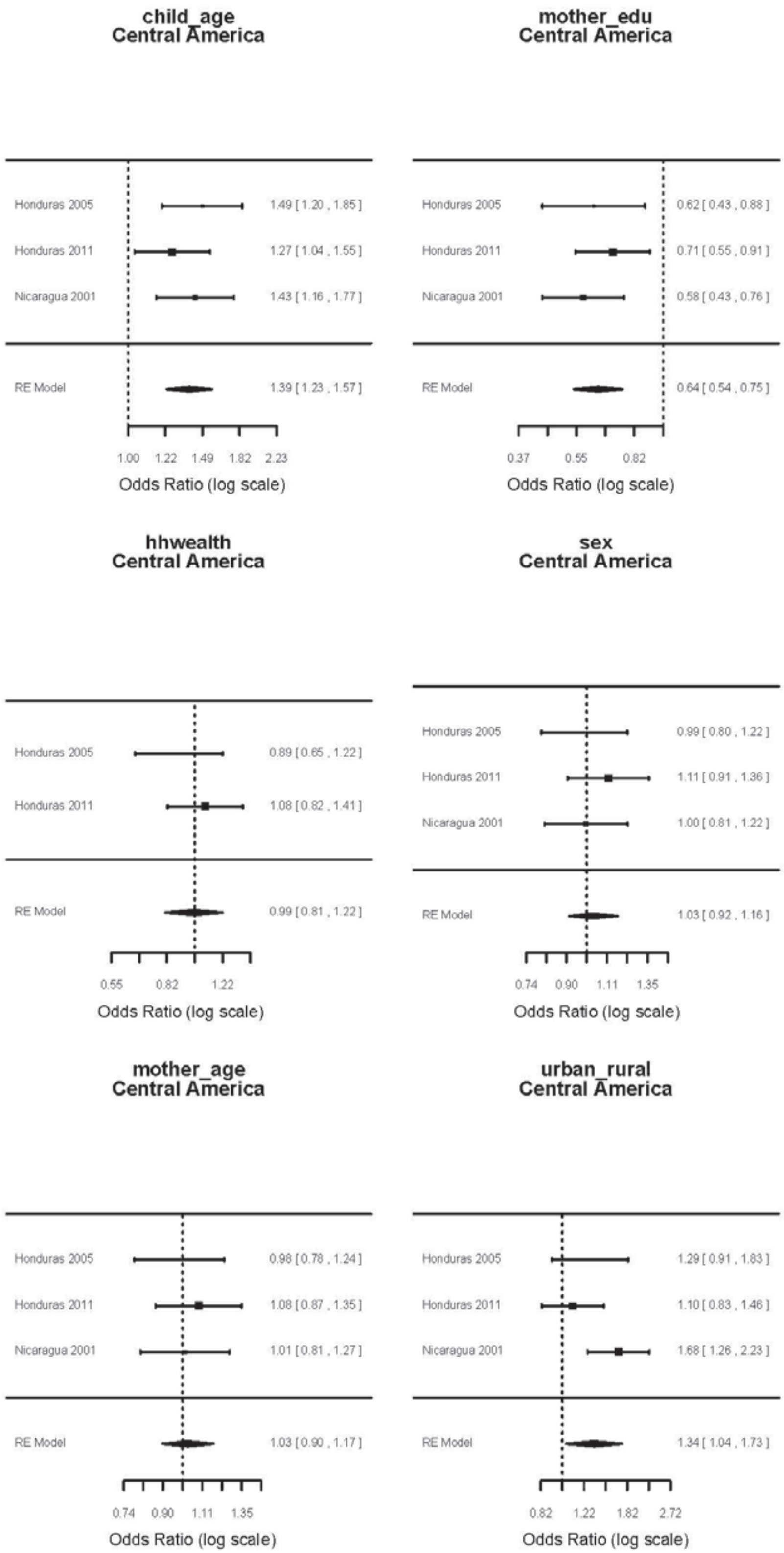

mother_edu
Central Africa
Angola 2000 0.88 [0.57 , 1.36]
DR Congo 2010 0.89 [0.61 , 1.30]
DR Congo 2000 0.90 [0.68 , 1.17]
DR Congo 2007 0.60 [0.44 , 0.82]
CAR 2000 0.59 [0.47 , 0.73]
CAR 2010 0.69 [0.50 , 0.95]
CAR 2006 0.79 [0.57 , 1.11]
Republic of the Congo 2011 0.63 [0.45 , 0.89]
Republic of the Congo 2005 0.72 [0.43 , 1.22]
Cameroon 2006 0.56 [0.36 , 0.86]
Cameroon 2004 0.83 [0.57 , 1.20]
Cameroon 2000 1.02 [0.54 , 1.92]
Cameroon 2011 0.65 [0.48 , 0.89]
Gabon 2006 0.49 [0.31 , 0.76]
Gabon 2012 1.21 [0.83 , 1.76]
Sao Tome and Principe 2008 0.69 [0.28 , 1.74]
Chad 2010 0.54 [0.41 , 0.71]
Chad 2000 0.80 [0.58 , 1.11]
RE Model 0.72 [0.64 , 0.80]
0.22 0.61 1.65
Odds Ratio (log scale)

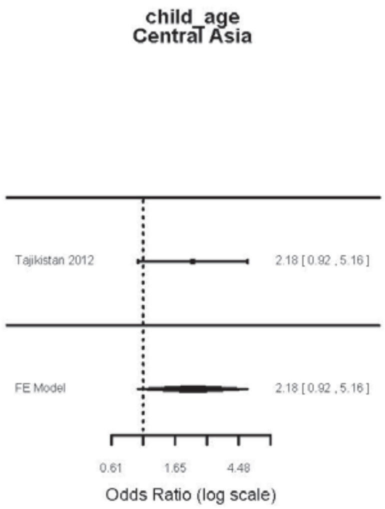

hhwealth
Central Africa
Angola 2000 0.40 [0.24 , 0.67]
DR Congo 2010 1.13 [0.80 , 1.61]
DR Congo 2000 1.21 [0.91 , 1.60]
DR Congo 2007 0.92 [0.69 , 1.24]
CAR 2010 0.68 [0.49 , 0.94]
CAR 2000 0.88 [0.70 , 1.10]
CAR 2006 0.58 [0.41 , 0.84]
Republic of the Congo 2011 0.78 [0.47 , 1.28]
Republic of the Congo 2005 0.72 [0.31 , 1.68]
Cameroon 2006 0.52 [0.31 , 0.88]
Cameroon 2004 0.45 [0.30 , 0.69]
Cameroon 2011 0.43 [0.28 , 0.65]
Cameroon 2000 0.78 [0.40 , 1.54]
Gabon 2012 0.65 [0.43 , 0.99]
Sao Tome and Principe 2008 1.81 [0.87 , 3.80]
Chad 2010 0.68 [0.53 , 0.89]
Chad 2000 1.56 [1.03 , 2.38]
RE Model 0.76 [0.63 , 0.91]
0.22 0.61 1.65 4.48
Odds Ratio (log scale)

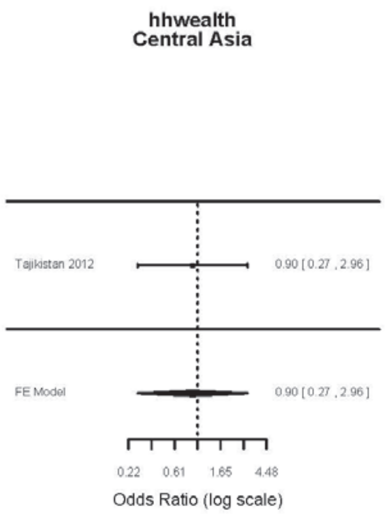

sex
Central Africa
Angola 2000 0.94 [0.62 , 1.43]
DR Congo 2000 1.15 [0.89 , 1.48]
DR Congo 2010 0.94 [0.68 , 1.29]
DR Congo 2007 1.19 [0.94 , 1.53]
CAR 2000 0.96 [0.78 , 1.18]
CAR 2006 0.94 [0.69 , 1.28]
CAR 2010 0.91 [0.68 , 1.23]
Republic of the Congo 2005 0.82 [0.50 , 1.36]
Republic of the Congo 2011 0.89 [0.64 , 1.22]
Cameroon 2004 1.11 [0.80 , 1.53]
Cameroon 2011 1.01 [0.78 , 1.30]
Cameroon 2006 0.98 [0.66 , 1.46]
Cameroon 2000 1.97 [1.07 , 3.65]
Gabon 2012 1.68 [1.22 , 2.33]
Gabon 2006 1.52 [1.00 , 2.31]
Sao Tome and Principe 2008 0.59 [0.30 , 1.18]
Chad 2000 1.14 [0.83 , 1.57]
Chad 2010 0.96 [0.77 , 1.19]
RE Model 1.05 [0.96 , 1.16]
0.22 0.61 1.65 4.48
Odds Ratio (log scale)

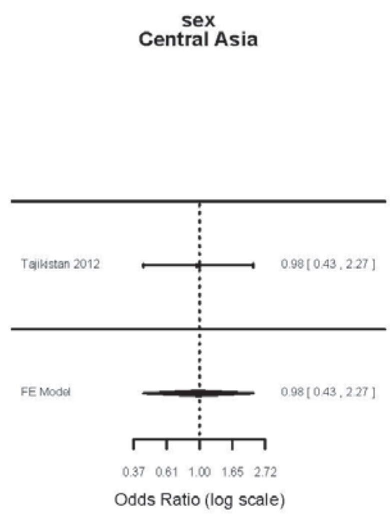

mother_age
Central Africa
DR Congo 2007 0.79 [0.61 , 1.01]
Republic of the Congo 2011 1.10 [0.78 , 1.55]
Republic of the Congo 2005 0.85 [0.50 , 1.43]
Cameroon 2004 0.69 [0.49 , 0.98]
Cameroon 2011 0.91 [0.69 , 1.21]
Gabon 2012 0.93 [0.66 , 1.32]
Gabon 2006 0.95 [0.61 , 1.47]
Sao Tome and Principe 2008 1.35 [0.69 , 2.66]
RE Model 0.88 [0.78 , 1.00]
0.37 1.00 2.72
Odds Ratio (log scale)

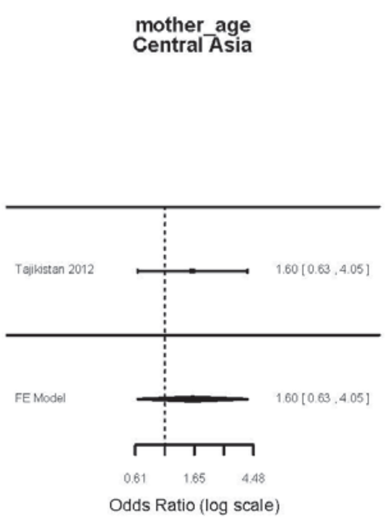

urban_rural
Central Africa
Angola 2000 0.45 [0.27 , 0.76]
DR Congo 2010 1.38 [0.94 , 2.03]
DR Congo 2007 1.19 [0.85 , 1.69]
DR Congo 2000 1.32 [0.94 , 1.85]
CAR 2010 1.06 [0.75 , 1.51]
CAR 2006 0.96 [0.66 , 1.38]
CAR 2000 1.25 [0.98 , 1.60]
Republic of the Congo 2011 1.10 [0.64 , 1.90]
Republic of the Congo 2005 1.25 [0.52 , 3.00]
Cameroon 2006 1.45 [0.84 , 2.47]
Cameroon 2004 1.04 [0.68 , 1.59]
Cameroon 2000 2.81 [1.26 , 6.30]
Cameroon 2011 0.74 [0.48 , 1.13]
Gabon 2006 2.44 [1.43 , 4.18]
Gabon 2012 0.91 [0.59 , 1.40]
Sao Tome and Principe 2008 0.72 [0.33 , 1.56]
Chad 2010 2.22 [1.72 , 2.86]
Chad 2000 1.82 [1.24 , 2.65]
RE Model 1.22 [1.01 , 1.47]
0.14 0.37 1.00 2.72 7.39
Odds Ratio (log scale)

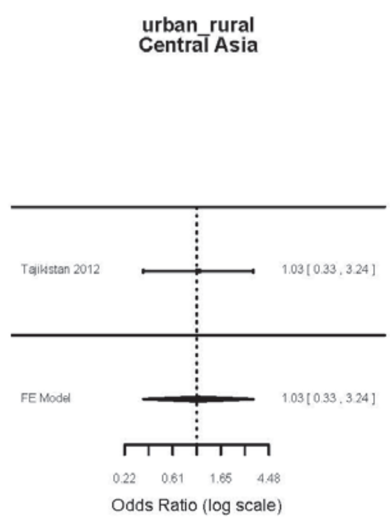

child_age
Central America
Honduras 2005
1.49 [1.20 , 1.85]
Honduras 2011
1.27 [1.04 , 1.55]
Nicaragua 2001
1.43 [1.16 , 1.77]
RE Model
1.39 [1.23 , 1.57]
1.00 1.22 1.49 1.82 2.23
Odds Ratio (log scale)
mother_edu
Central America
Honduras 2005
0.62 [0.43 , 0.88]
Honduras 2011
0.71 [0.55 , 0.91]
Nicaragua 2001
0.58 [0.43 , 0.76]
RE Model
0.64 [0.54 , 0.75]
0.37 0.55 0.82
Odds Ratio (log scale)
hhwealth
Central America
Honduras 2005
0.89 [0.65 , 1.22]
Honduras 2011
1.08 [0.82 , 1.41]
RE Model
0.99 [0.81 , 1.22]
0.55 0.82 1.22
Odds Ratio (log scale)
sex
Central America
Honduras 2005
0.99 [0.80 , 1.22]
Honduras 2011
1.11 [0.91 , 1.36]
Nicaragua 2001
1.00 [0.81 , 1.22]
RE Model
1.03 [0.92 , 1.16]
0.74 0.90 1.11 1.35
Odds Ratio (log scale)
mother_age
Central America
Honduras 2005
0.98 [0.78 , 1.24]
Honduras 2011
1.08 [0.87 , 1.35]
Nicaragua 2001
1.01 [0.81 , 1.27]
RE Model
1.03 [0.90 , 1.17]
0.74 0.90 1.11 1.35
Odds Ratio (log scale)
urban_rural
Central America
Honduras 2005
1.29 [0.91 , 1.83]
Honduras 2011
1.10 [0.83 , 1.46]
Nicaragua 2001
1.68 [1.26 , 2.23]
RE Model
1.34 [1.04 , 1.73]
0.82 1.22 1.82 2.72
Odds Ratio (log scale)

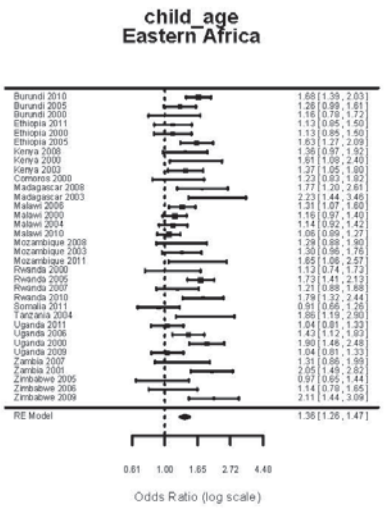

child_age
Central Asia
Tajikistan 2012
2.18 [0.92 , 5.16]
FE Model
2.18 [0.92 , 5.16]
0.61
1.65
4.48
Odds Ratio (log scale)

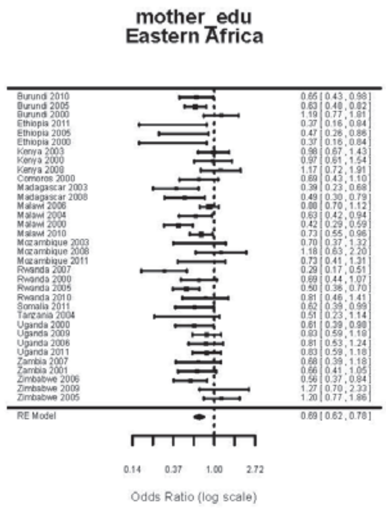

hhwealth
Central Asia
Tajikistan 2012
0.90 [0.27 , 2.96]
FE Model
0.90 [0.27 , 2.96]
0.22
0.61
1.65
4.48
Odds Ratio (log scale)

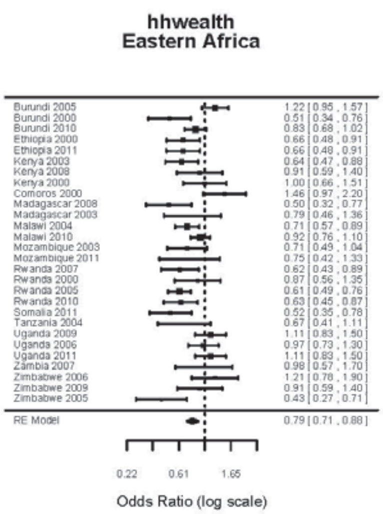

sex
Central Asia
Tajikistan 2012
0.98 [0.43 , 2.27]
FE Model
0.98 [0.43 , 2.27]
0.37
0.61
1.00
1.65
2.72
Odds Ratio (log scale)

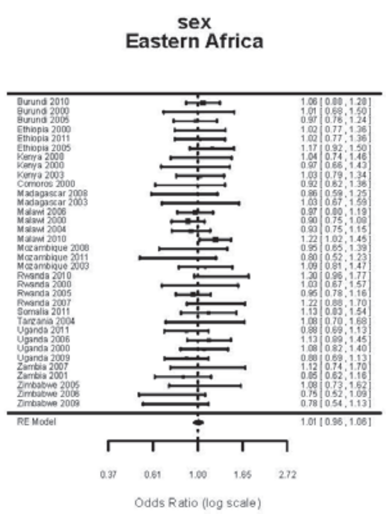

mother_age
Central Asia
Tajikistan 2012
1.60 [0.63 , 4.05]
FE Model
1.60 [0.63 , 4.05]
0.61
1.65
4.48
Odds Ratio (log scale)

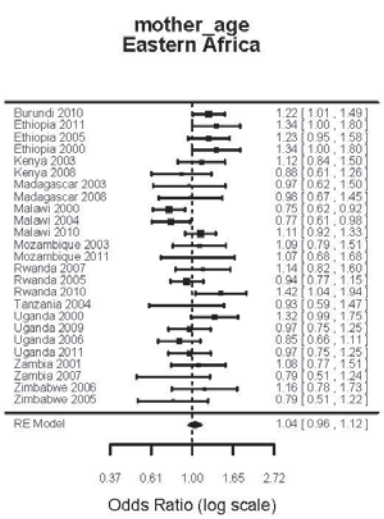

urban_rural
Central Asia
Tajikistan 2012
1.03 [0.33 , 3.24]
FE Model
1.03 [0.33 , 3.24]
0.22
0.61
1.65
4.48
Odds Ratio (log scale)

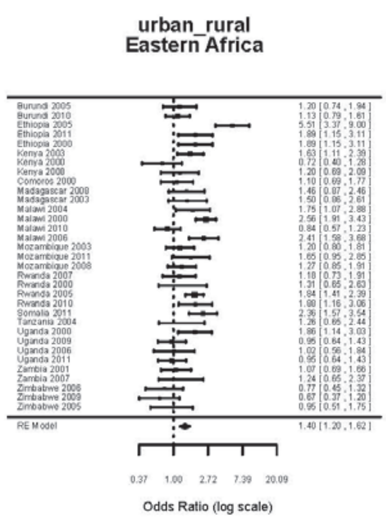

child_age
Eastern Africa
RE Model
0.61 1.00 1.65 2.72 4.48
Odds Ratio (log scale)

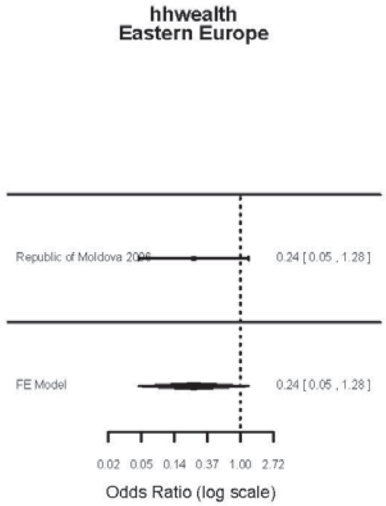

mother_edu
Eastern Africa
RE Model
0.14 0.37 1.00 2.72
Odds Ratio (log scale)

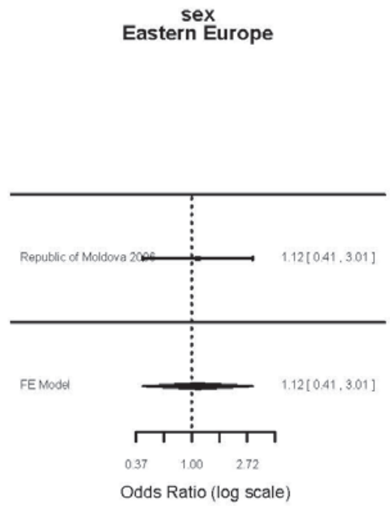

hhwealth
Eastern Africa
RE Model
0.22 0.61 1.65
Odds Ratio (log scale)

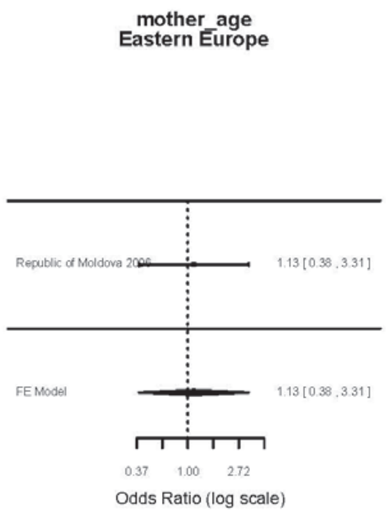

sex
Eastern Africa
RE Model
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

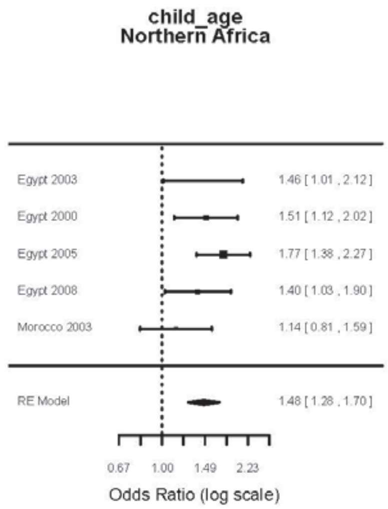

mother_age
Eastern Africa
RE Model
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

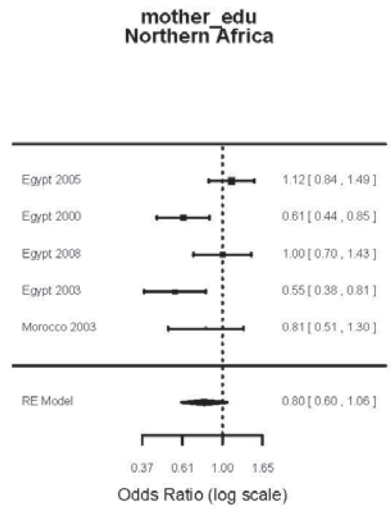

urban_rural
Eastern Africa
RE Model
0.37 1.00 2.72 7.39 20.09
Odds Ratio (log scale)

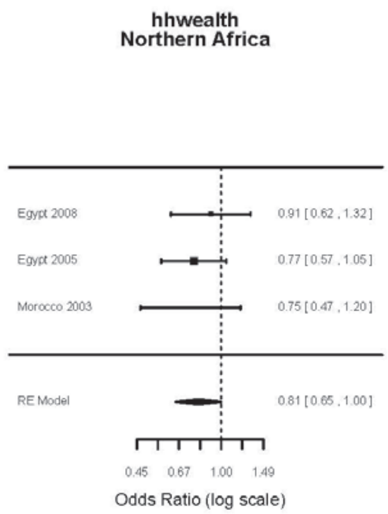

hhwealth
Eastern Europe
Republic of Moldova 2006
0.24 [0.05 , 1.28]
FE Model
0.24 [0.05 , 1.28]
0.02 0.05 0.14 0.37 1.00 2.72
Odds Ratio (log scale)

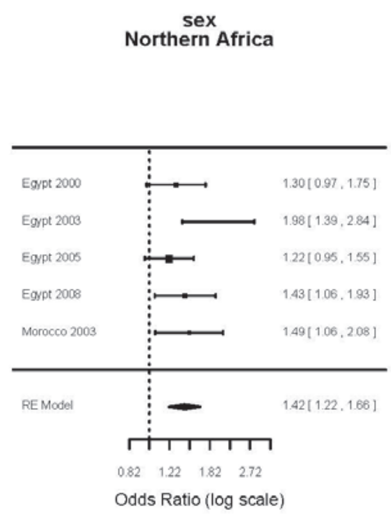

sex
Eastern Europe
Republic of Moldova 2006
1.12 [0.41 , 3.01]
FE Model
1.12 [0.41 , 3.01]
0.37 1.00 2.72
Odds Ratio (log scale)

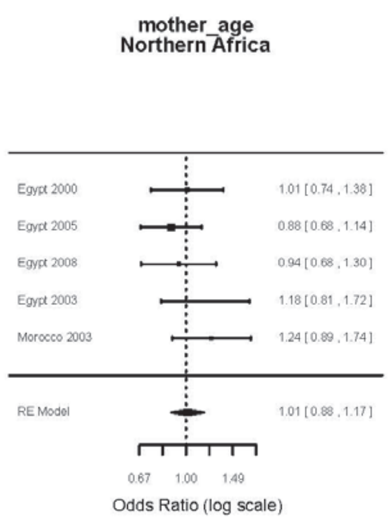

mother_age
Eastern Europe
Republic of Moldova 2006
1.13 [0.38 , 3.31]
FE Model
1.13 [0.38 , 3.31]
0.37 1.00 2.72
Odds Ratio (log scale)

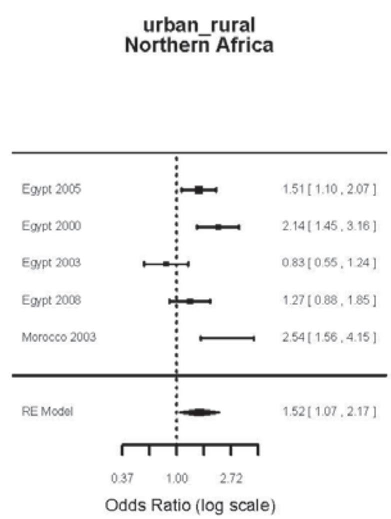

child_age
Northern Africa
Egypt 2003 1.46 [1.01 , 2.12]
Egypt 2000 1.51 [1.12 , 2.02]
Egypt 2005 1.77 [1.38 , 2.27]
Egypt 2008 1.40 [1.03 , 1.90]
Morocco 2003 1.14 [0.81 , 1.59]
RE Model 1.48 [1.28 , 1.70]
0.67 1.00 1.49 2.23
Odds Ratio (log scale)

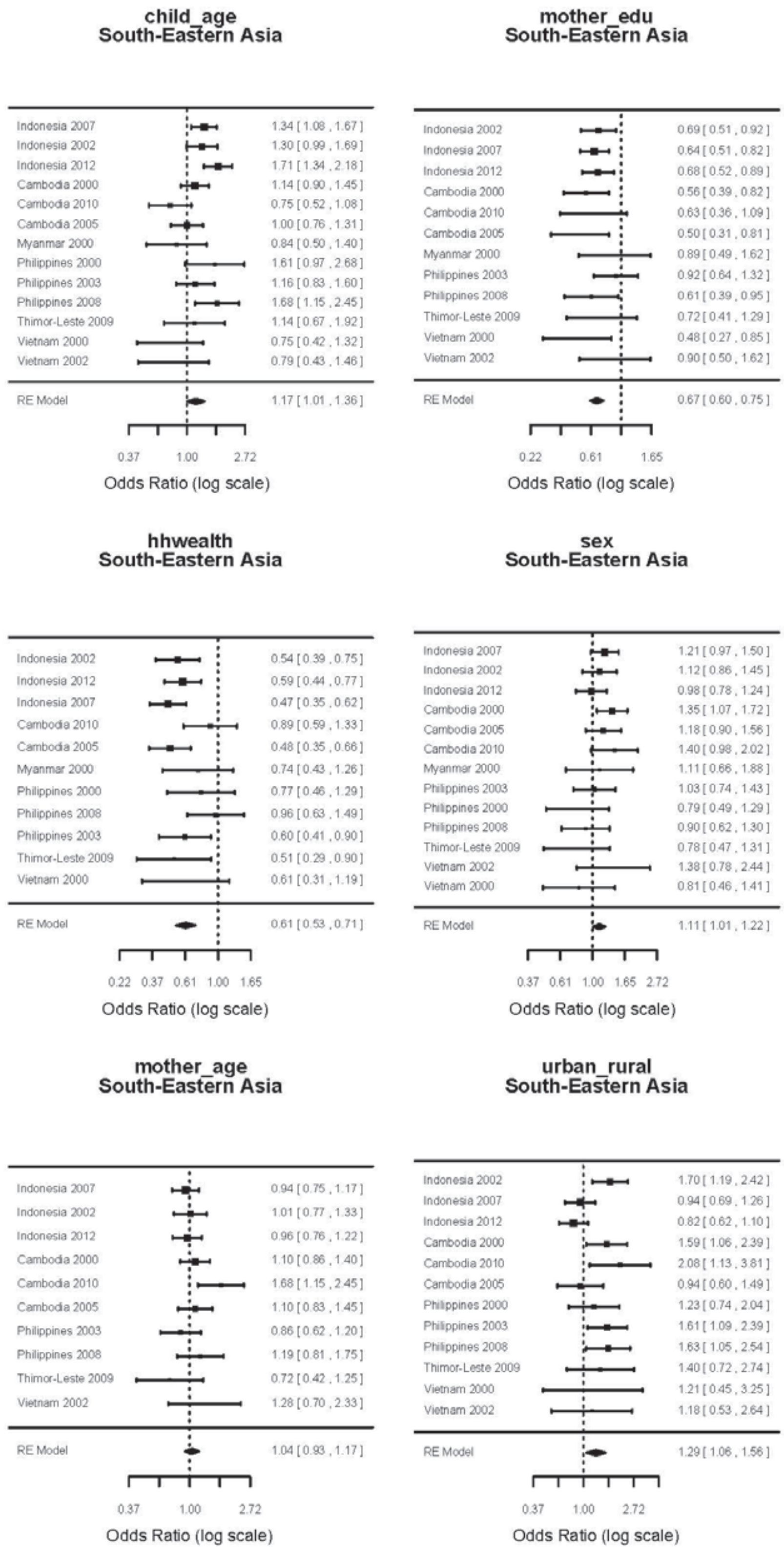

mother_edu
Northern Africa
Egypt 2005 1.12 [0.84 , 1.49]
Egypt 2000 0.61 [0.44 , 0.85]
Egypt 2008 1.00 [0.70 , 1.43]
Egypt 2003 0.55 [0.38 , 0.81]
Morocco 2003 0.81 [0.51 , 1.30]
RE Model 0.80 [0.60 , 1.06]
0.37 0.61 1.00 1.65
Odds Ratio (log scale)


hhwealth
Northern Africa
Egypt 2008 0.91 [0.62 , 1.32]
Egypt 2005 0.77 [0.57 , 1.05]
Morocco 2003 0.75 [0.47 , 1.20]
RE Model 0.81 [0.65 , 1.00]
0.45 0.67 1.00 1.49
Odds Ratio (log scale)

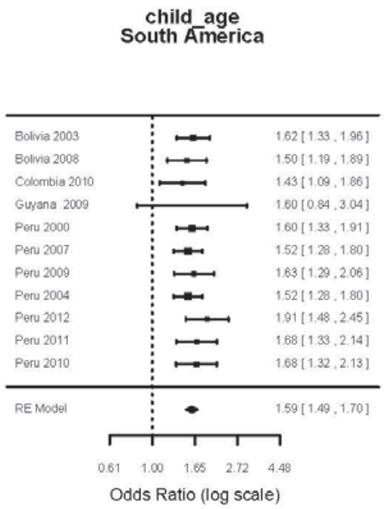

sex
Northern Africa
Egypt 2000 1.30 [0.97 , 1.75]
Egypt 2003 1.98 [1.39 , 2.84]
Egypt 2005 1.22 [0.95 , 1.55]
Egypt 2008 1.43 [1.06 , 1.93]
Morocco 2003 1.49 [1.06 , 2.08]
RE Model 1.42 [1.22 , 1.66]
0.82 1.22 1.82 2.72
Odds Ratio (log scale)

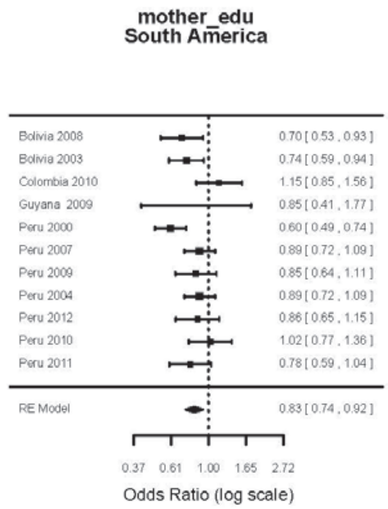

mother_age
Northern Africa
Egypt 2000 1.01 [0.74 , 1.38]
Egypt 2005 0.88 [0.68 , 1.14]
Egypt 2008 0.94 [0.68 , 1.30]
Egypt 2003 1.18 [0.81 , 1.72]
Morocco 2003 1.24 [0.89 , 1.74]
RE Model 1.01 [0.88 , 1.17]
0.67 1.00 1.49
Odds Ratio (log scale)

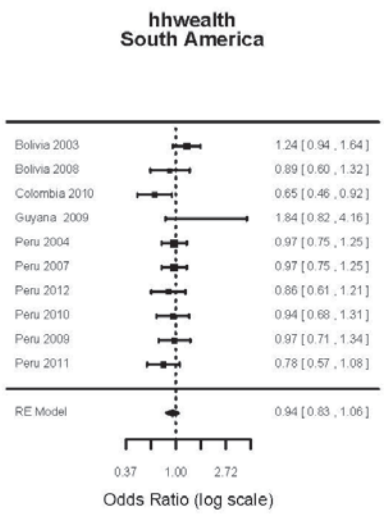

urban_rural
Northern Africa
Egypt 2005 1.51 [1.10 , 2.07]
Egypt 2000 2.14 [1.45 , 3.16]
Egypt 2003 0.83 [0.55 , 1.24]
Egypt 2008 1.27 [0.88 , 1.85]
Morocco 2003 2.54 [1.56 , 4.15]
RE Model 1.52 [1.07 , 2.17]
0.37 1.00 2.72
Odds Ratio (log scale)

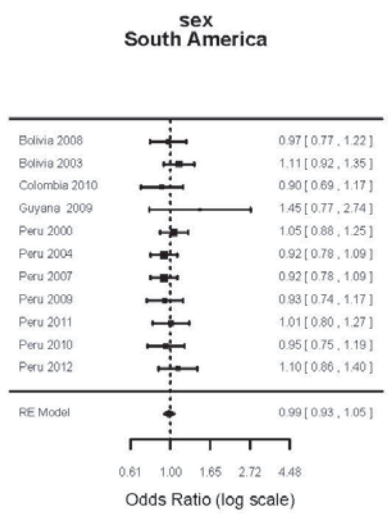


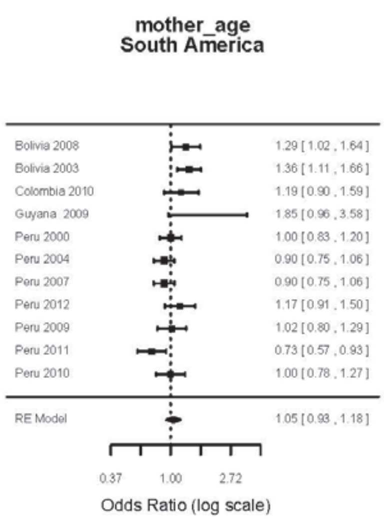
child_age
South-Eastern Asia
Indonesia 2007 1.34 [1.08 , 1.67]
Indonesia 2002 1.30 [0.99 , 1.69]
Indonesia 2012 1.71 [1.34 , 2.18]
Cambodia 2000 1.14 [0.90 , 1.45]
Cambodia 2010 0.75 [0.52 , 1.08]
Cambodia 2005 1.00 [0.76 , 1.31]
Myanmar 2000 0.84 [0.50 , 1.40]
Philippines 2000 1.61 [0.97 , 2.68]
Philippines 2003 1.16 [0.83 , 1.60]
Philippines 2008 1.68 [1.15 , 2.45]
Thimor-Leste 2009 1.14 [0.67 , 1.92]
Vietnam 2000 0.75 [0.42 , 1.32]
Vietnam 2002 0.79 [0.43 , 1.46]
RE Model 1.17 [1.01 , 1.36]
0.37 1.00 2.72
Odds Ratio (log scale)
mother_edu
South-Eastern Asia
Indonesia 2002 0.69 [0.51 , 0.92]
Indonesia 2007 0.64 [0.51 , 0.82]
Indonesia 2012 0.68 [0.52 , 0.89]
Cambodia 2000 0.56 [0.39 , 0.82]
Cambodia 2010 0.63 [0.36 , 1.09]
Cambodia 2005 0.50 [0.31 , 0.81]
Myanmar 2000 0.89 [0.49 , 1.62]
Philippines 2003 0.92 [0.64 , 1.32]
Philippines 2008 0.61 [0.39 , 0.95]
Thimor-Leste 2009 0.72 [0.41 , 1.29]
Vietnam 2000 0.48 [0.27 , 0.85]
Vietnam 2002 0.90 [0.50 , 1.62]
RE Model 0.67 [0.60 , 0.75]
0.22 0.61 1.65
Odds Ratio (log scale)
hhwealth
South-Eastern Asia
Indonesia 2002 0.54 [0.39 , 0.75]
Indonesia 2012 0.59 [0.44 , 0.77]
Indonesia 2007 0.47 [0.35 , 0.62]
Cambodia 2010 0.89 [0.59 , 1.33]
Cambodia 2005 0.48 [0.35 , 0.66]
Myanmar 2000 0.74 [0.43 , 1.26]
Philippines 2000 0.77 [0.46 , 1.29]
Philippines 2008 0.96 [0.63 , 1.49]
Philippines 2003 0.60 [0.41 , 0.90]
Thimor-Leste 2009 0.51 [0.29 , 0.90]
Vietnam 2000 0.61 [0.31 , 1.19]
RE Model 0.61 [0.53 , 0.71]
0.22 0.37 0.61 1.00 1.65
Odds Ratio (log scale)
sex
South-Eastern Asia
Indonesia 2007 1.21 [0.97 , 1.50]
Indonesia 2002 1.12 [0.86 , 1.45]
Indonesia 2012 0.98 [0.78 , 1.24]
Cambodia 2000 1.35 [1.07 , 1.72]
Cambodia 2005 1.18 [0.90 , 1.56]
Cambodia 2010 1.40 [0.98 , 2.02]
Myanmar 2000 1.11 [0.66 , 1.88]
Philippines 2003 1.03 [0.74 , 1.43]
Philippines 2000 0.79 [0.49 , 1.29]
Philippines 2008 0.90 [0.62 , 1.30]
Thimor-Leste 2009 0.78 [0.47 , 1.31]
Vietnam 2002 1.38 [0.78 , 2.44]
Vietnam 2000 0.81 [0.46 , 1.41]
RE Model 1.11 [1.01 , 1.22]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)
mother_age
South-Eastern Asia
Indonesia 2007 0.94 [0.75 , 1.17]
Indonesia 2002 1.01 [0.77 , 1.33]
Indonesia 2012 0.96 [0.76 , 1.22]
Cambodia 2000 1.10 [0.86 , 1.40]
Cambodia 2010 1.68 [1.15 , 2.45]
Cambodia 2005 1.10 [0.83 , 1.45]
Philippines 2003 0.86 [0.62 , 1.20]
Philippines 2008 1.19 [0.81 , 1.75]
Thimor-Leste 2009 0.72 [0.42 , 1.25]
Vietnam 2002 1.28 [0.70 , 2.33]
RE Model 1.04 [0.93 , 1.17]
0.37 1.00 2.72
Odds Ratio (log scale)
urban_rural
South-Eastern Asia
Indonesia 2002 1.70 [1.19 , 2.42]
Indonesia 2007 0.94 [0.69 , 1.26]
Indonesia 2012 0.82 [0.62 , 1.10]
Cambodia 2000 1.59 [1.06 , 2.39]
Cambodia 2010 2.08 [1.13 , 3.81]
Cambodia 2005 0.94 [0.60 , 1.49]
Philippines 2000 1.23 [0.74 , 2.04]
Philippines 2003 1.61 [1.09 , 2.39]
Philippines 2008 1.63 [1.05 , 2.54]
Thimor-Leste 2009 1.40 [0.72 , 2.74]
Vietnam 2000 1.21 [0.45 , 3.25]
Vietnam 2002 1.18 [0.53 , 2.64]
RE Model 1.29 [1.06 , 1.56]
0.37 1.00 2.72
Odds Ratio (log scale)

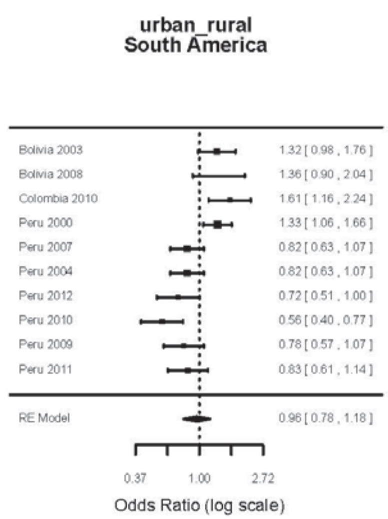

child_age
South America
Bolivia 2003 1.62 [1.33 , 1.96]
Bolivia 2008 1.50 [1.19 , 1.89]
Colombia 2010 1.43 [1.09 , 1.86]
Guyana 2009 1.60 [0.84 , 3.04]
Peru 2000 1.60 [1.33 , 1.91]
Peru 2007 1.52 [1.28 , 1.80]
Peru 2009 1.63 [1.29 , 2.06]
Peru 2004 1.52 [1.28 , 1.80]
Peru 2012 1.91 [1.48 , 2.45]
Peru 2011 1.68 [1.33 , 2.14]
Peru 2010 1.68 [1.32 , 2.13]
RE Model 1.59 [1.49 , 1.70]
0.61 1.00 1.65 2.72 4.48
Odds Ratio (log scale)

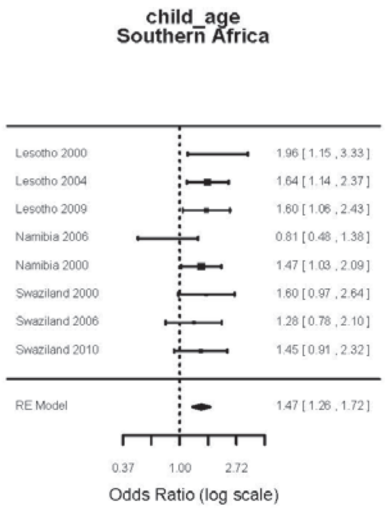

mother_edu
South America
Bolivia 2008 0.70 [0.53 , 0.93]
Bolivia 2003 0.74 [0.59 , 0.94]
Colombia 2010 1.15 [0.85 , 1.56]
Guyana 2009 0.85 [0.41 , 1.77]
Peru 2000 0.60 [0.49 , 0.74]
Peru 2007 0.89 [0.72 , 1.09]
Peru 2009 0.85 [0.64 , 1.11]
Peru 2004 0.89 [0.72 , 1.09]
Peru 2012 0.86 [0.65 , 1.15]
Peru 2010 1.02 [0.77 , 1.36]
Peru 2011 0.78 [0.59 , 1.04]
RE Model 0.83 [0.74 , 0.92]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

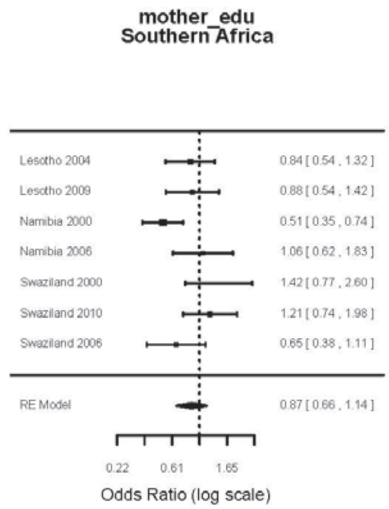

hhwealth
South America
Bolivia 2003 1.24 [0.94 , 1.64]
Bolivia 2008 0.89 [0.60 , 1.32]
Colombia 2010 0.65 [0.46 , 0.92]
Guyana 2009 1.84 [0.82 , 4.16]
Peru 2004 0.97 [0.75 , 1.25]
Peru 2007 0.97 [0.75 , 1.25]
Peru 2012 0.86 [0.61 , 1.21]
Peru 2010 0.94 [0.68 , 1.31]
Peru 2009 0.97 [0.71 , 1.34]
Peru 2011 0.78 [0.57 , 1.08]
RE Model 0.94 [0.83 , 1.06]
0.37 1.00 2.72
Odds Ratio (log scale)

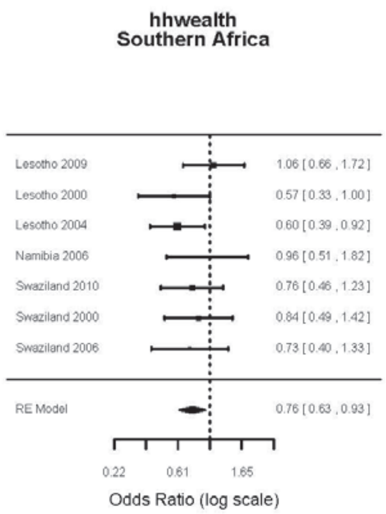

sex
South America
Bolivia 2008 0.97 [0.77 , 1.22]
Bolivia 2003 1.11 [0.92 , 1.35]
Colombia 2010 0.90 [0.69 , 1.17]
Guyana 2009 1.45 [0.77 , 2.74]
Peru 2000 1.05 [0.88 , 1.25]
Peru 2004 0.92 [0.78 , 1.09]
Peru 2007 0.92 [0.78 , 1.09]
Peru 2009 0.93 [0.74 , 1.17]
Peru 2011 1.01 [0.80 , 1.27]
Peru 2010 0.95 [0.75 , 1.19]
Peru 2012 1.10 [0.86 , 1.40]
RE Model 0.99 [0.93 , 1.05]
0.61 1.00 1.65 2.72 4.48
Odds Ratio (log scale)

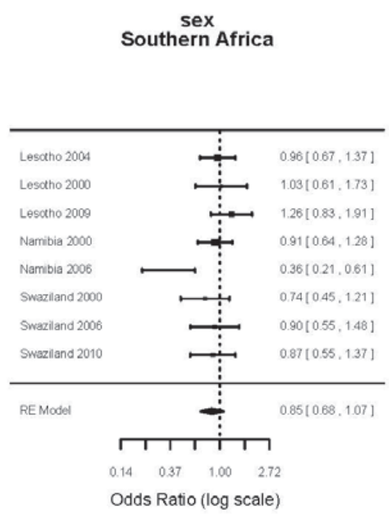

mother_age
South America
Bolivia 2008 1.29 [1.02 , 1.64]
Bolivia 2003 1.36 [1.11 , 1.66]
Colombia 2010 1.19 [0.90 , 1.59]
Guyana 2009 1.85 [0.96 , 3.58]
Peru 2000 1.00 [0.83 , 1.20]
Peru 2004 0.90 [0.75 , 1.06]
Peru 2007 0.90 [0.75 , 1.06]
Peru 2012 1.17 [0.91 , 1.50]
Peru 2009 1.02 [0.80 , 1.29]
Peru 2011 0.73 [0.57 , 0.93]
Peru 2010 1.00 [0.78 , 1.27]
RE Model 1.05 [0.93 , 1.18]
0.37 1.00 2.72
Odds Ratio (log scale)

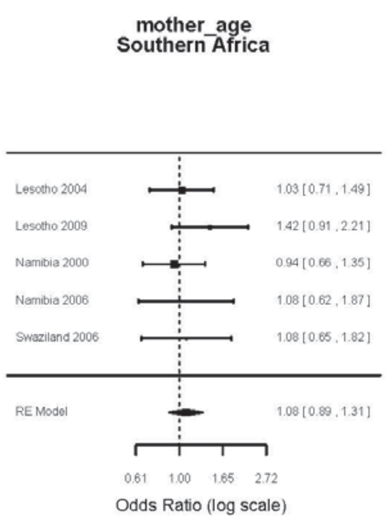

urban_rural
South America
Bolivia 2003 1.32 [0.98 , 1.76]
Bolivia 2008 1.36 [0.90 , 2.04]
Colombia 2010 1.61 [1.16 , 2.24]
Peru 2000 1.33 [1.06 , 1.66]
Peru 2007 0.82 [0.63 , 1.07]
Peru 2004 0.82 [0.63 , 1.07]
Peru 2012 0.72 [0.51 , 1.00]
Peru 2010 0.56 [0.40 , 0.77]
Peru 2009 0.78 [0.57 , 1.07]
Peru 2011 0.83 [0.61 , 1.14]
RE Model 0.96 [0.78 , 1.18]
0.37 1.00 2.72
Odds Ratio (log scale)

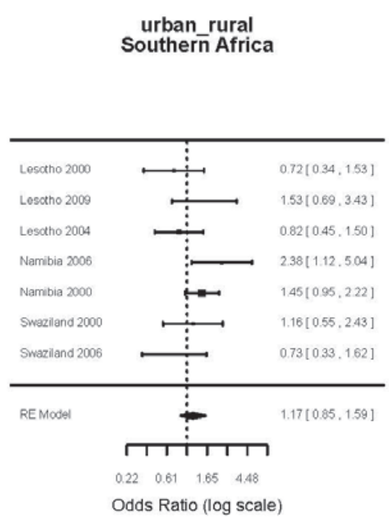

child_age
Southern Africa
Lesotho 2000 1.96 [1.15 , 3.33]
Lesotho 2004 1.64 [1.14 , 2.37]
Lesotho 2009 1.60 [1.06 , 2.43]
Namibia 2006 0.81 [0.48 , 1.38]
Namibia 2000 1.47 [1.03 , 2.09]
Swaziland 2000 1.60 [0.97 , 2.64]
Swaziland 2006 1.28 [0.78 , 2.10]
Swaziland 2010 1.45 [0.91 , 2.32]
RE Model 1.47 [1.26 , 1.72]
0.37 1.00 2.72
Odds Ratio (log scale)

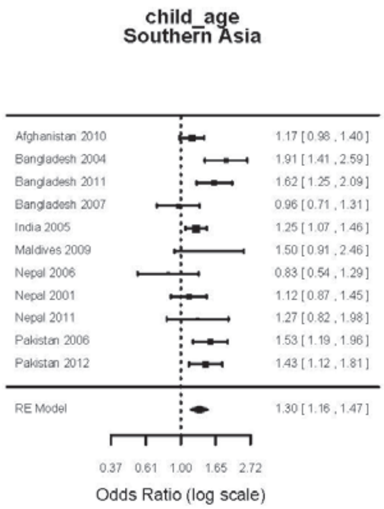

mother_edu
Southern Africa
Lesotho 2004 0.84 [0.54 , 1.32]
Lesotho 2009 0.88 [0.54 , 1.42]
Namibia 2000 0.51 [0.35 , 0.74]
Namibia 2006 1.06 [0.62 , 1.83]
Swaziland 2000 1.42 [0.77 , 2.60]
Swaziland 2010 1.21 [0.74 , 1.98]
Swaziland 2006 0.65 [0.38 , 1.11]
RE Model 0.87 [0.66 , 1.14]
0.22 0.61 1.65
Odds Ratio (log scale)

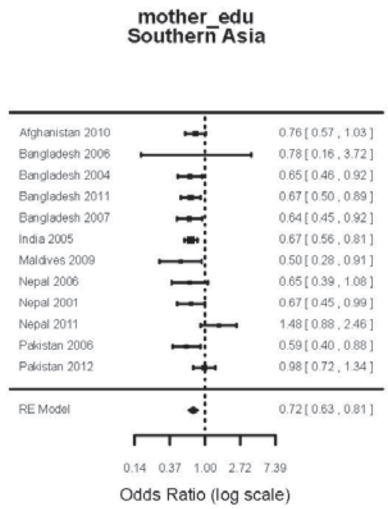

hhwealth
Southern Africa
Lesotho 2009 1.06 [0.66 , 1.72]
Lesotho 2000 0.57 [0.33 , 1.00]
Lesotho 2004 0.60 [0.39 , 0.92]
Namibia 2006 0.96 [0.51 , 1.82]
Swaziland 2010 0.76 [0.46 , 1.23]
Swaziland 2000 0.84 [0.49 , 1.42]
Swaziland 2006 0.73 [0.40 , 1.33]
RE Model 0.76 [0.63 , 0.93]
0.22 0.61 1.65
Odds Ratio (log scale)

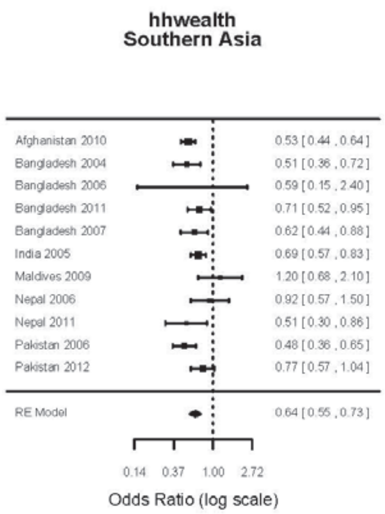

sex
Southern Africa
Lesotho 2004 0.96 [0.67 , 1.37]
Lesotho 2000 1.03 [0.61 , 1.73]
Lesotho 2009 1.26 [0.83 , 1.91]
Namibia 2000 0.91 [0.64 , 1.28]
Namibia 2006 0.36 [0.21 , 0.61]
Swaziland 2000 0.74 [0.45 , 1.21]
Swaziland 2006 0.90 [0.55 , 1.48]
Swaziland 2010 0.87 [0.55 , 1.37]
RE Model 0.85 [0.68 , 1.07]
0.14 0.37 1.00 2.72
Odds Ratio (log scale)

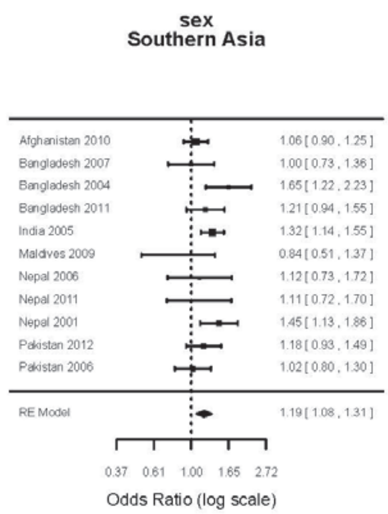

mother_age
Southern Africa
Lesotho 2004 1.03 [0.71 , 1.49]
Lesotho 2009 1.42 [0.91 , 2.21]
Namibia 2000 0.94 [0.66 , 1.35]
Namibia 2006 1.08 [0.62 , 1.87]
Swaziland 2006 1.08 [0.65 , 1.82]
RE Model 1.08 [0.89 , 1.31]
0.61 1.00 1.65 2.72
Odds Ratio (log scale)

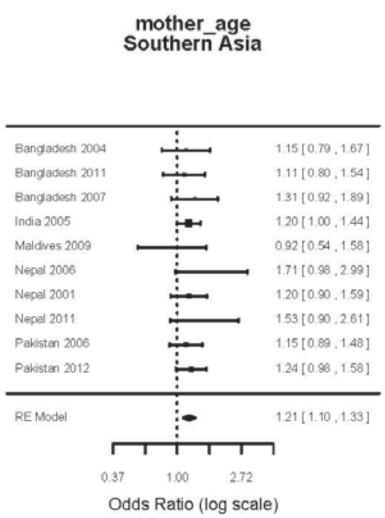

urban_rural
Southern Africa
Lesotho 2000 0.72 [0.34 , 1.53]
Lesotho 2009 1.53 [0.69 , 3.43]
Lesotho 2004 0.82 [0.45 , 1.50]
Namibia 2006 2.38 [1.12 , 5.04]
Namibia 2000 1.45 [0.95 , 2.22]
Swaziland 2000 1.16 [0.55 , 2.43]
Swaziland 2006 0.73 [0.33 , 1.62]
RE Model 1.17 [0.85 , 1.59]
0.22 0.61 1.65 4.48
Odds Ratio (log scale)

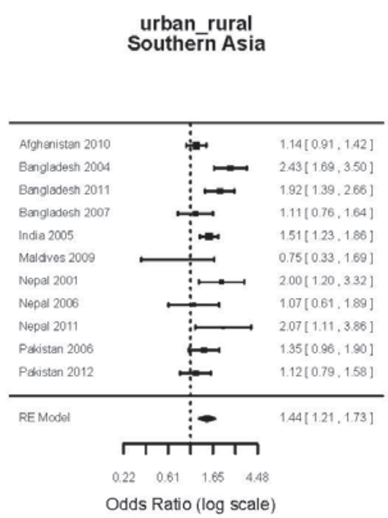

child_age
Southern Asia
Afghanistan 2010 1.17 [0.98 , 1.40]
Bangladesh 2004 1.91 [1.41 , 2.59]
Bangladesh 2011 1.62 [1.25 , 2.09]
Bangladesh 2007 0.96 [0.71 , 1.31]
India 2005 1.25 [1.07 , 1.46]
Maldives 2009 1.50 [0.91 , 2.46]
Nepal 2006 0.83 [0.54 , 1.29]
Nepal 2001 1.12 [0.87 , 1.45]
Nepal 2011 1.27 [0.82 , 1.98]
Pakistan 2006 1.53 [1.19 , 1.96]
Pakistan 2012 1.43 [1.12 , 1.81]
RE Model 1.30 [1.16 , 1.47]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

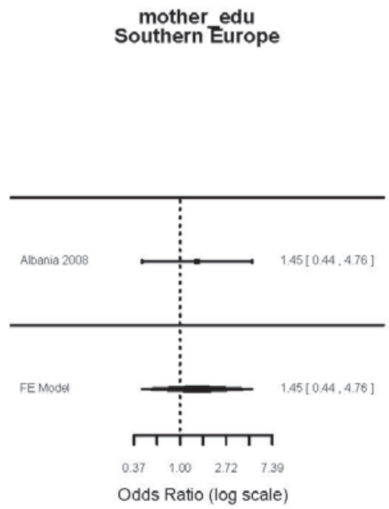

mother_edu
Southern Asia
Afghanistan 2010 0.76 [0.57 , 1.03]
Bangladesh 2006 0.78 [0.16 , 3.72]
Bangladesh 2004 0.65 [0.46 , 0.92]
Bangladesh 2011 0.67 [0.50 , 0.89]
Bangladesh 2007 0.64 [0.45 , 0.92]
India 2005 0.67 [0.56 , 0.81]
Maldives 2009 0.50 [0.28 , 0.91]
Nepal 2006 0.65 [0.39 , 1.08]
Nepal 2001 0.67 [0.45 , 0.99]
Nepal 2011 1.48 [0.88 , 2.46]
Pakistan 2006 0.59 [0.40 , 0.88]
Pakistan 2012 0.98 [0.72 , 1.34]
RE Model 0.72 [0.63 , 0.81]
0.14 0.37 1.00 2.72 7.39
Odds Ratio (log scale)

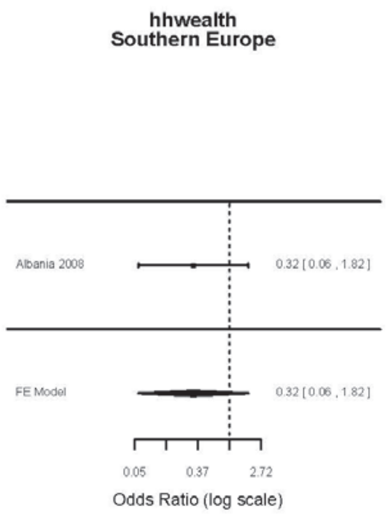

hhwealth
Southern Asia
Afghanistan 2010 0.53 [0.44 , 0.64]
Bangladesh 2004 0.51 [0.36 , 0.72]
Bangladesh 2006 0.59 [0.15 , 2.40]
Bangladesh 2011 0.71 [0.52 , 0.95]
Bangladesh 2007 0.62 [0.44 , 0.88]
India 2005 0.69 [0.57 , 0.83]
Maldives 2009 1.20 [0.68 , 2.10]
Nepal 2006 0.92 [0.57 , 1.50]
Nepal 2011 0.51 [0.30 , 0.86]
Pakistan 2006 0.48 [0.36 , 0.65]
Pakistan 2012 0.77 [0.57 , 1.04]
RE Model 0.64 [0.55 , 0.73]
0.14 0.37 1.00 2.72
Odds Ratio (log scale)

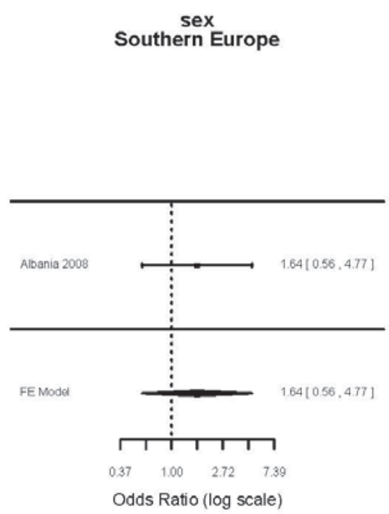

sex
Southern Asia
Afghanistan 2010 1.06 [0.90 , 1.25]
Bangladesh 2007 1.00 [0.73 , 1.36]
Bangladesh 2004 1.65 [1.22 , 2.23]
Bangladesh 2011 1.21 [0.94 , 1.55]
India 2005 1.32 [1.14 , 1.55]
Maldives 2009 0.84 [0.51 , 1.37]
Nepal 2006 1.12 [0.73 , 1.72]
Nepal 2011 1.11 [0.72 , 1.70]
Nepal 2001 1.45 [1.13 , 1.86]
Pakistan 2012 1.18 [0.93 , 1.49]
Pakistan 2006 1.02 [0.80 , 1.30]
RE Model 1.19 [1.08 , 1.31]
0.37 0.61 1.00 1.65 2.72
Odds Ratio (log scale)

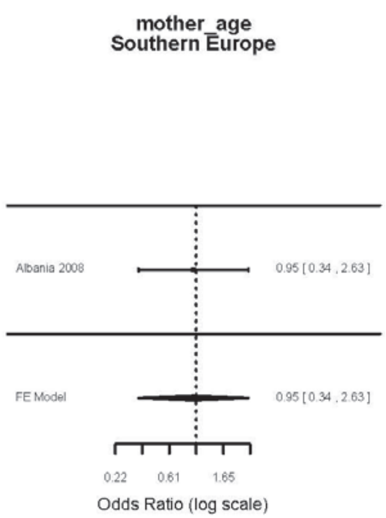

mother_age
Southern Asia
Bangladesh 2004 1.15 [0.79 , 1.67]
Bangladesh 2011 1.11 [0.80 , 1.54]
Bangladesh 2007 1.31 [0.92 , 1.89]
India 2005 1.20 [1.00 , 1.44]
Maldives 2009 0.92 [0.54 , 1.58]
Nepal 2006 1.71 [0.98 , 2.99]
Nepal 2001 1.20 [0.90 , 1.59]
Nepal 2011 1.53 [0.90 , 2.61]
Pakistan 2006 1.15 [0.89 , 1.48]
Pakistan 2012 1.24 [0.98 , 1.58]
RE Model 1.21 [1.10 , 1.33]
0.37 1.00 2.72
Odds Ratio (log scale)


urban_rural
Southern Asia
Afghanistan 2010 1.14 [0.91 , 1.42]
Bangladesh 2004 2.43 [1.69 , 3.50]
Bangladesh 2011 1.92 [1.39 , 2.66]
Bangladesh 2007 1.11 [0.76 , 1.64]
India 2005 1.51 [1.23 , 1.86]
Maldives 2009 0.75 [0.33 , 1.69]
Nepal 2001 2.00 [1.20 , 3.32]
Nepal 2006 1.07 [0.61 , 1.89]
Nepal 2011 2.07 [1.11 , 3.86]
Pakistan 2006 1.35 [0.96 , 1.90]
Pakistan 2012 1.12 [0.79 , 1.58]
RE Model 1.44 [1.21 , 1.73]
0.22 0.61 1.65 4.48
Odds Ratio (log scale)

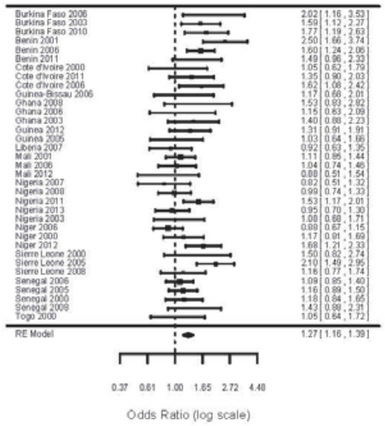

mother_edu
Southern Europe
Albania 2008
1.45 [0.44 , 4.76]
FE Model
1.45 [0.44 , 4.76]
0.37
1.00
2.72
7.39
Odds Ratio (log scale)


hhwealth
Southern Europe
Albania 2008
0.32 [0.06 , 1.82]
FE Model
0.32 [0.06 , 1.82]
0.05
0.37
2.72
Odds Ratio (log scale)

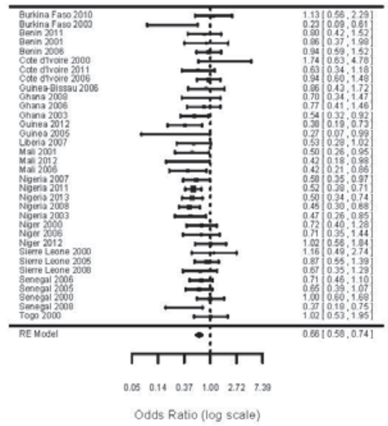

sex
Southern Europe
Albania 2008
1.64 [0.56 , 4.77]
FE Model
1.64 [0.56 , 4.77]
0.37
1.00
2.72
7.39
Odds Ratio (log scale)


mother_age
Southern Europe
Albania 2008
0.95 [0.34 , 2.63]
FE Model
0.95 [0.34 , 2.63]
0.22
0.61
1.65
Odds Ratio (log scale)

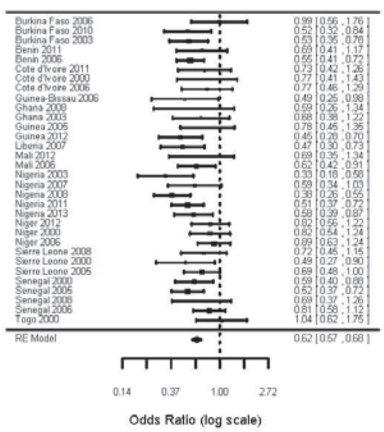
child_age
Western Africa



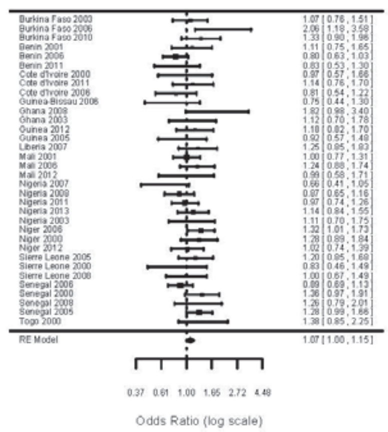
mother_edu
Western Africa



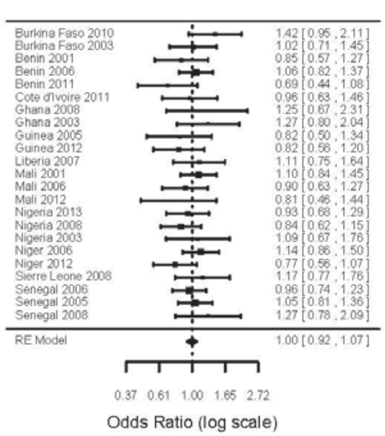
hhwealth
Western Africa



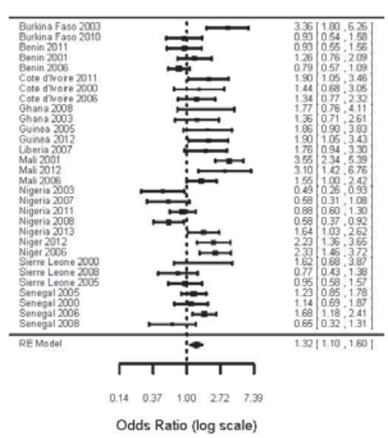
sex
Western Africa

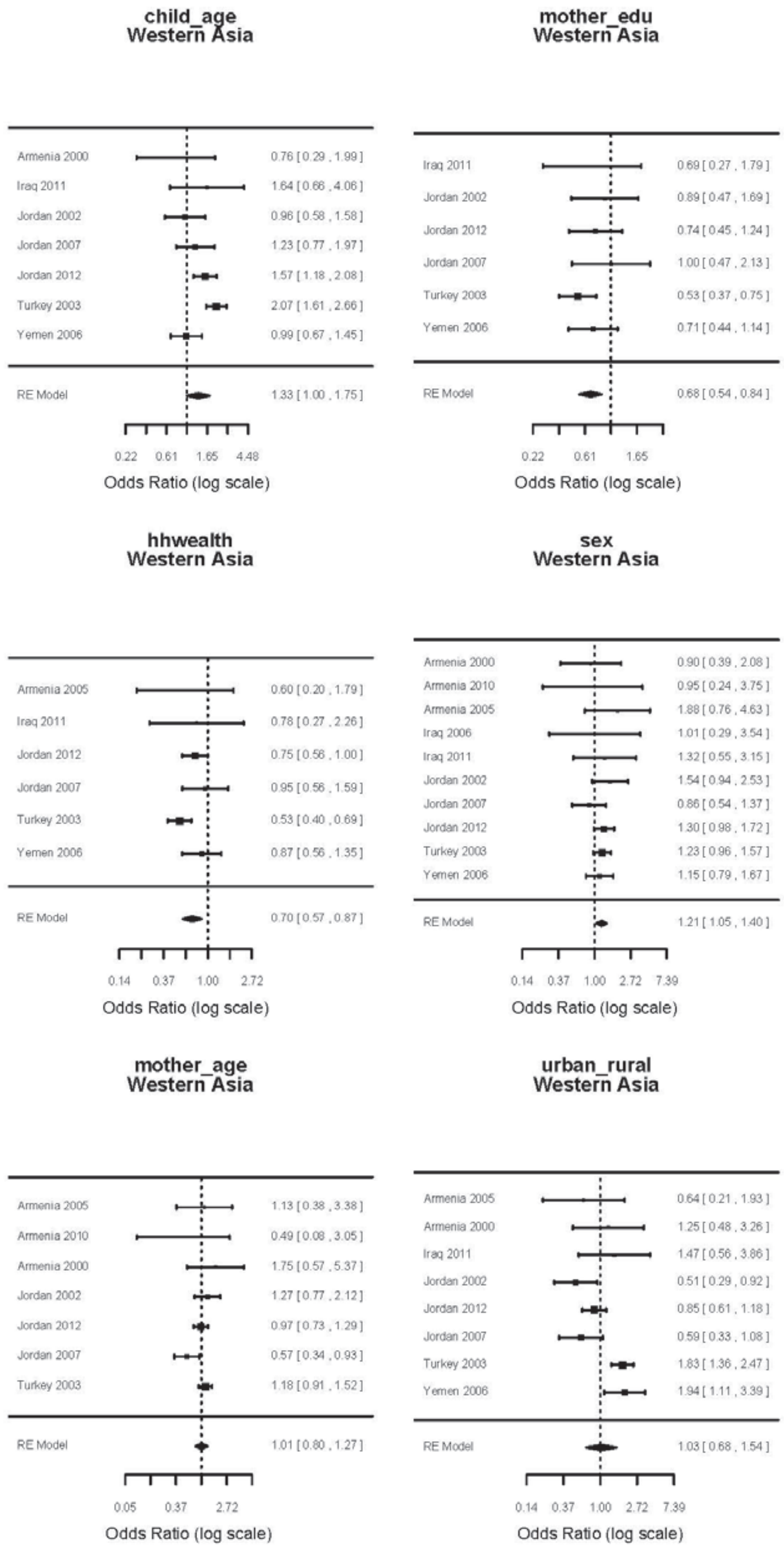


mother_age
Western Africa



urban_rural
Western Africa




child_age
Western Asia
Armenia 2000 0.76 [0.29 , 1.99]
Iraq 2011 1.64 [0.66 , 4.06]
Jordan 2002 0.96 [0.58 , 1.58]
Jordan 2007 1.23 [0.77 , 1.97]
Jordan 2012 1.57 [1.18 , 2.08]
Turkey 2003 2.07 [1.61 , 2.66]
Yemen 2006 0.99 [0.67 , 1.45]
RE Model 1.33 [1.00 , 1.75]
0.22 0.61 1.65 4.48
Odds Ratio (log scale)
mother_edu
Western Asia
Iraq 2011 0.69 [0.27 , 1.79]
Jordan 2002 0.89 [0.47 , 1.69]
Jordan 2012 0.74 [0.45 , 1.24]
Jordan 2007 1.00 [0.47 , 2.13]
Turkey 2003 0.53 [0.37 , 0.75]
Yemen 2006 0.71 [0.44 , 1.14]
RE Model 0.68 [0.54 , 0.84]
0.22 0.61 1.65
Odds Ratio (log scale)
hhwealth
Western Asia
Armenia 2005 0.60 [0.20 , 1.79]
Iraq 2011 0.78 [0.27 , 2.26]
Jordan 2012 0.75 [0.56 , 1.00]
Jordan 2007 0.95 [0.56 , 1.59]
Turkey 2003 0.53 [0.40 , 0.69]
Yemen 2006 0.87 [0.56 , 1.35]
RE Model 0.70 [0.57 , 0.87]
0.14 0.37 1.00 2.72
Odds Ratio (log scale)
sex
Western Asia
Armenia 2000 0.90 [0.39 , 2.08]
Armenia 2010 0.95 [0.24 , 3.75]
Armenia 2005 1.88 [0.76 , 4.63]
Iraq 2006 1.01 [0.29 , 3.54]
Iraq 2011 1.32 [0.55 , 3.15]
Jordan 2002 1.54 [0.94 , 2.53]
Jordan 2007 0.86 [0.54 , 1.37]
Jordan 2012 1.30 [0.98 , 1.72]
Turkey 2003 1.23 [0.96 , 1.57]
Yemen 2006 1.15 [0.79 , 1.67]
RE Model 1.21 [1.05 , 1.40]
0.14 0.37 1.00 2.72 7.39
Odds Ratio (log scale)
mother_age
Western Asia
Armenia 2005 1.13 [0.38 , 3.38]
Armenia 2010 0.49 [0.08 , 3.05]
Armenia 2000 1.75 [0.57 , 5.37]
Jordan 2002 1.27 [0.77 , 2.12]
Jordan 2012 0.97 [0.73 , 1.29]
Jordan 2007 0.57 [0.34 , 0.93]
Turkey 2003 1.18 [0.91 , 1.52]
RE Model 1.01 [0.80 , 1.27]
0.05 0.37 2.72
Odds Ratio (log scale)
urban_rural
Western Asia
Armenia 2005 0.64 [0.21 , 1.93]
Armenia 2000 1.25 [0.48 , 3.26]
Iraq 2011 1.47 [0.56 , 3.86]
Jordan 2002 0.51 [0.29 , 0.92]
Jordan 2012 0.85 [0.61 , 1.18]
Jordan 2007 0.59 [0.33 , 1.08]
Turkey 2003 1.83 [1.36 , 2.47]
Yemen 2006 1.94 [1.11 , 3.39]
RE Model 1.03 [0.68 , 1.54]
0.14 0.37 1.00 2.72 7.39
Odds Ratio (log scale)