How Is Fertility Behavior in Africa Different?

Online Appendix

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A Surveys Used For Analyses

Table A.1: Surveys Used for Analysis by Region and Survey Type

Country	DHS	MICS
	East Asia and Pacific	
Cambodia	2000, 2005/06, 2010/11, 2014, 2021/22	
Fiji		2021
Indonesia	1991, 1994, 1997, 2002/03, 2007, 2007, 2012, 2017	
Kiribati		2018/19
Lao PDR		2011/12, 2017
Mongolia		2000, 2005, 2010, 2013/14, 2018
Myanmar	2015/16	
Philippines	1993, 1998, 2003, 2008, 2013, 2017, 2022	
Samoa		2019/20
Thailand		2005/06, 2012/13, 2015/16, 2019
Timor-Leste	2009/10, 2016	
Tonga		2019
Tuvalu		2019/20
Vanuatu		2007/08
Vietnam	1997, 2002	2000, 2006, 2010/11, 2013/14, 2020/21
	Latin America and Caribbean	
Argentina		2019/20
Belize		2011, 2015/16
Bolivia	1993/94, 1998, 2003/04, 2008	2000
Brazil	1991/92, 1996	
Colombia	1990, 1995, 2000, 2004/05, 2009/10, 2015/16	
Costa Rica		2018
Cuba		2010/11, 2014, 2019
Dominican Republic	1991, 1996, 1999, 2002, 2007, 2013	2000, 2014, 2019
El Salvador		2014
Guatemala	1995, 1998/99, 2014/15	
Guyana	2009	2000, 2006, 2014
Haiti	1994/95, 2000, 2005/06, 2012, 2016/17	
Honduras	2005/06, 2011/12	2019/20
Jamaica		2005
Mexico		2015
Nicaragua	1997/98, 2001	
Paraguay	1990	2016
Peru	1991/92, 1996, 2000, 2003/06, 2007/08, 2009, 2010, 2011, 2012	
Suriname		1999/2000, 2006, 2018
Trinidad and Tobago		2011
Turks and Caicos Islands		2019/20
	South Asia	
Afghanistan	2015/16, 2015/16	2010/11
Bangladesh	1993/94, 1996/97, 1999/2000, 2004, 2007, 2011, 2014, 2017/18	2012/13, 2019
Bhutan		2010
India	1992/93, 1998/2000, 2005/06, 2015/16, 2019/21	
Maldives	2009, 2016	
Nepal	1995/96, 2000/01, 2005/06, 2010/11, 2016, 2021/22	2013/14, 2019
Pakistan	1990/91, 2006/07, 2006/07, 2012/13, 2017/18	
	Sub-Saharan Africa	
Angola	2015/16	2001
Benin	1996, 2001, 2006, 2011/12, 2017/18	2014
Burkina Faso	1992/93, 1998/99, 2003, 2010	2006
Burundi	2010/11, 2016/17	2005
Cameroon	1991, 1998, 2004, 2011, 2018/19	2000, 2014
Central African Republic	1994/95	2000, 2006, 2010, 2018/19
Chad	1996/97, 2004, 2014/15	2000, 2010, 2019
Comoros	1996, 2012	2000
Congo, Dem. Rep.	2007, 2013/14	2001, 2010, 2017/18
Congo, Rep.	2005, 2011/12	2014/15
Cote d'Ivoire	1994, 1998/99, 2011/12	2016
Equatorial Guinea		2000
Eswatini	2006/07	2000, 2010, 2014
Ethiopia	2000, 2005, 2011, 2016, 2019	
Gabon	2000/01, 2012, 2019/21	
Gambia, The	2013, 2019/20	2000, 2006, 2010, 2018
Ghana	1993/94, 1998/99, 2003, 2008, 2014	2006, 2011, 2017/18
Guinea	1999, 2005, 2012, 2018	2016
Guinea-Bissau		2000, 2006, 2014, 2018/19
Kenya	1993, 1998, 2003, 2008/09, 2014, 2022	
Lesotho	2004/05, 2009/10, 2014	2000, 2018
Liberia	2006/07, 2013, 2019/20	
Madagascar	1992, 1997, 2003/04, 2008/09, 2021	2018
Malawi	1992, 2000, 2004/05, 2010, 2015/16	2006, 2013/14, 2019/20
Mali	1995/96, 2001, 2006, 2012/13, 2018	2015
Mauritania	2019/21	2007, 2011, 2015
Mozambique	1997, 2003/04, 2011	2008
Namibia	1992, 2000, 2006/07, 2013	
Niger	1992, 1998, 2006, 2012	2000
Nigeria	1990, 2003, 2008, 2013, 2018	2007, 2011, 2016/17, 2021
Rwanda	1992, 2000, 2005, 2007/08, 2010/11, 2014/15, 2019/20	
Sao Tome and Principe	2008/09	2000, 2014, 2019
Senegal	1992/93, 1997, 2005, 2010/11, 2012/13, 2014, 2015, 2016, 2017, 2018	
Sierra Leone	2008, 2013	2000, 2005/06, 2010, 2017
Somalia		2006
South Africa	1998, 2016	
South Sudan		2010
Sudan	1990	
Tanzania	1991/92, 1996, 1999, 2004/05, 2009/10, 2015/16	
Togo	1998, 2013/14	2006, 2010, 2017
Uganda	1995, 2000/01, 2006, 2011, 2016	
Zambia	1992, 1996, 2001/02, 2007, 2013/14, 2018/19	
Zimbabwe	1994, 1999, 2005/06, 2010/11, 2015	2009, 2014, 2019

Note. A total of 353 surveys are used for the analysis. More information on the 235 DHS surveys is available at dhsprogram.com. More information on the 118 MICS surveys is available at mics.unicef.org. For both types, survey years are based on the survey collection rather than the official years.

Table A.2: Surveys Used for Analysis by Region and Whether Survey Includes Non-married Women

Country	Only Ever-married/partnered Women	All Women
	East Asia and Pacific	
Cambodia		2000, 2005/06, 2010/11, 2014, 2021/22
Fiji		2021
Indonesia	1991, 1994, 1997, 2007	2002/03, 2007, 2012, 2017
Kiribati		2018/19
Lao PDR		2011/12, 2017
Mongolia		2000, 2005, 2010, 2013/14, 2018
Myanmar		2015/16
Philippines		1993, 1998, 2003, 2008, 2013, 2017, 2022
Samoa		2019/20
Thailand		2005/06, 2012/13, 2015/16, 2019
Timor-Leste		2009/10, 2016
Tonga		2019
Tuvalu		2019/20
Vanuatu		2007/08
Vietnam		1997, 2000, 2002, 2006, 2010/11, 2013/14, 2020/21
	Latin America and Caribbean	
Argentina		2019/20
Belize		2011, 2015/16
Bolivia		1993/94, 1998, 2000, 2003/04, 2008
Brazil		1991/92, 1996
Colombia		1990, 1995, 2000, 2004/05, 2009/10, 2015/16
Costa Rica		2018
Cuba		2010/11, 2014, 2019
Dominican Republic		1991, 1996, 1999, 2000, 2002, 2007, 2013, 2014, 2019
El Salvador		2014
Guatemala		1995, 1998/99, 2014/15
Guyana		2000, 2006, 2009, 2014
Haiti		1994/95, 2000, 2005/06, 2012, 2016/17
Honduras		2005/06, 2011/12, 2019/20
Jamaica		2005
Mexico		2015
Nicaragua		1997/98, 2001
Paraguay		1990, 2016
Peru		1991/92, 1996, 2000, 2003/06, 2007/08, 2009, 2010, 2011, 2012
Suriname		1999/2000, 2006, 2018
Trinidad and Tobago		2011
Turks and Caicos Islands		2019/20
	South Asia	
Afghanistan	2015/16	2010/11, 2015/16
Bangladesh	1996/97, 2012/13, 2019	1993/94, 1999/2000, 2004, 2007, 2011, 2014, 2017/18
Bhutan		2010
India		1992/93, 1998/2000, 2005/06, 2015/16, 2019/21
Maldives		2009, 2016
Nepal	1995/96, 2000/01, 2019	2005/06, 2010/11, 2013/14, 2016, 2021/22
Pakistan	2006/07	1990/91, 2006/07, 2012/13, 2017/18
	Sub-Saharan Africa	
Angola		2001, 2015/16
Benin		1996, 2001, 2006, 2011/12, 2014, 2017/18
Burkina Faso		1992/93, 1998/99, 2003, 2006, 2010
Burundi		2005, 2010/11, 2016/17
Cameroon		1991, 1998, 2000, 2004, 2011, 2014, 2018/19
Central African Republic		1994/95, 2000, 2006, 2010, 2018/19
Chad		1996/97, 2000, 2004, 2010, 2014/15, 2019
Comoros		1996, 2000, 2012
Congo, Dem. Rep.		2001, 2007, 2010, 2013/14, 2017/18
Congo, Rep.		2005, 2011/12, 2014/15
Cote d'Ivoire		1994, 1998/99, 2011/12, 2016
Equatorial Guinea		2000
Eswatini		2000, 2006/07, 2010, 2014
Ethiopia		2000, 2005, 2011, 2016, 2019
Gabon		2000/01, 2012, 2019/21
Gambia, The		2000, 2006, 2010, 2013, 2018, 2019/20
Ghana		1993/94, 1998/99, 2003, 2006, 2008, 2011, 2014, 2017/18
Guinea		1999, 2005, 2012, 2016, 2018
Guinea-Bissau		2000, 2006, 2014, 2018/19
Kenya		1993, 1998, 2003, 2008/09, 2014, 2022
Lesotho		2000, 2004/05, 2009/10, 2014, 2018
Liberia		2006/07, 2013, 2019/20
Madagascar		1992, 1997, 2003/04, 2008/09, 2018, 2021
Malawi		1992, 2000, 2004/05, 2006, 2010, 2013/14, 2015/16, 2019/20
Mali		1995/96, 2001, 2006, 2012/13, 2015, 2018
Mauritania	2011	2007, 2015, 2019/21
Mozambique		1997, 2003/04, 2008, 2011
Namibia		1992, 2000, 2006/07, 2013
Niger		1992, 1998, 2000, 2006, 2012
Nigeria		1990, 2003, 2007, 2008, 2011, 2013, 2016/17, 2018, 2021
Rwanda		1992, 2000, 2005, 2007/08, 2010/11, 2014/15, 2019/20
Sao Tome and Principe		2000, 2008/09, 2014, 2019
Senegal		1992/93, 1997, 2005, 2010/11, 2012/13, 2014, 2015, 2016, 2017, 2018
Sierra Leone		2000, 2005/06, 2008, 2010, 2013, 2017
Somalia	2006	
South Africa		1998, 2016
South Sudan	2010	
Sudan	1990	
Tanzania		1991/92, 1996, 1999, 2004/05, 2009/10, 2015/16
Togo		1998, 2006, 2010, 2013/14, 2017
Uganda		1995, 2000/01, 2006, 2011, 2016
Zambia		1992, 1996, 2001/02, 2007, 2013/14, 2018/19
Zimbabwe		1994, 1999, 2005/06, 2009, 2010/11, 2014, 2015, 2019

Note. A total of 353 surveys are used for the analysis. More information on the 235 DHS surveys is available at dhsprogram.com. More information on the 118 MICS surveys is available at mics.unicef.org. For both types, survey years are based on the survey collection rather than the official years.

B What is Urban?

There is no generally agreed upon definition of what constitutes an urban area. The DHS and MICS, therefore, relies on the individual country's definition of urban. These definitions vary widely. A substantial number of countries use a simple population cut-off to define urban, with some cut-offs as low as 2,000 people (United Nations, 2019).[1]

If there are systematic differences in what is counted as urban, observed differences in fertility across regions may be because of differences in definition rather than behavior.[2] Within countries there may also be urban areas of different types, for example larger and smaller urban areas, and fertility likely also differs across these areas (Corker, 2017).

A particular concern is that some places counted as urban may be heavily agricultural with relatively easy access to land. Hence, families in these areas likely have a higher return to having children than those in more built-up urban areas.

Because the main concern arising from the lack of a uniform definition of urban is potential differences in the return to children, I attempt to capture the importance of agriculture based on DHS data. The only agricultural-related variable that exists across all phases and countries is the respondent's partner's occupation.[3] I calculate the proportion of observed partners who work in agriculture, whether self-employed or an employee, within each cluster.

There are two potential issues with using partner's occupation to capture differences in the return to children. First, the agricultural occupation category includes fishermen, foresters, and hunters. Second, because the modal number of households surveyed per cluster is twenty the occupation measure may be noisy. Unfortunately it is not possible to use a large base for the measure because there is no reliable way to identify which clusters

[1]See also https://blogs.worldbank.org/sustainablecities/what-does-urban-mean, https://population.un.org/wup/, and Uchida and Nelson (2010).

[2]For a discussion of differences between urban areas across high and low income countries see Jedwab, Loungani, Yezer, and Papageorgiou (2019).

[3]The respondent's occupation is not available in phase 1 of DHS surveys and not available in any MICS surveys.

are located close to each other or even whether two clusters are in the same urban area. Furthermore, because GPS data is only available for a limited number of survey and most of those recent, using the same approach as in Corker (2017) would severely limit the number of observations.

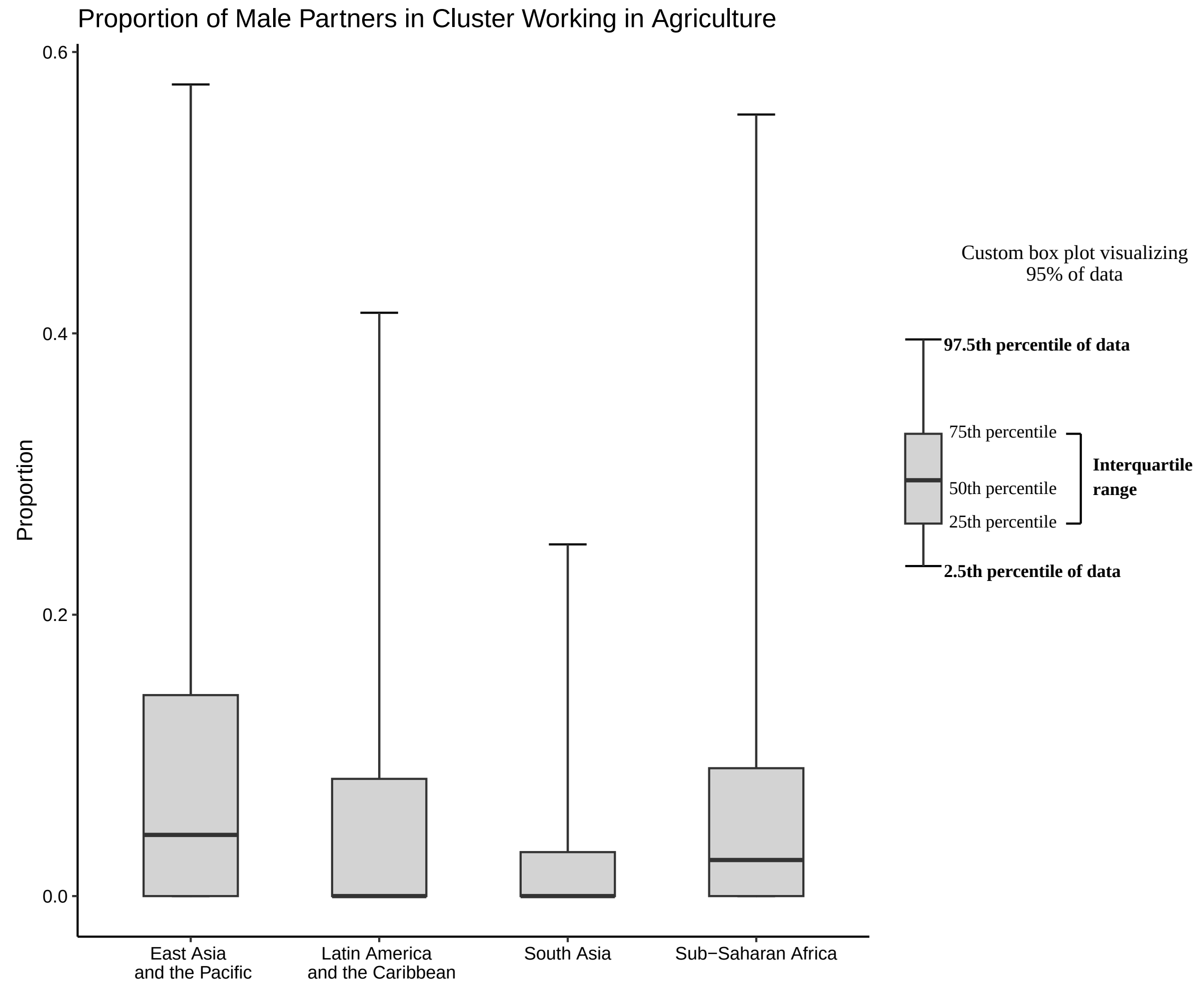


Figure B.1: Proportion of Male Partners working in Agriculture by PSU Across Regions

Figure B.1 show the distribution of respondents by the proportions of partners who work in a agricultural related job in the cluster by region. Furthermore, a respondent is the least likely to live in a cluster with agricultural work in South Asia, where 75% lived in clusters with no reported agricultural work. The highest proportion of agricultural work is in East Asia and Pacific where only 45% are in an cluster with no agricultural work. For

Sub-Saharan Africa and Latin America and Caribbean, 52% and 65% are in clusters with no agricultural work.

Finally, in many places city limits are not clearly demarcated, with peri-urban areas in between the urban and rural areas. With the rapid population growth of cities, these peri-urban areas are mostly classified as rural rather than urban (Corker, 2017). There are, however, no clear evidence on differences in the existence of these peri-urban areas across regions.

C Mortality Risk and Fertility

As discussed briefly in the paper, there are four critical challenges when trying to understand the role that mortality plays in the differences in fertility behavior across regions.

The first challenge is the actual measure to use. A common option is to use under-five mortality, which was and is higher in Sub-Saharan Africa than the other regions (Hill and Pebley, 1989; Roser, Ritchie, and Dadonaite, 2013; Wang et al., 2017). But, parents likely care about the number of children who survive to adulthood rather than the first five years of life (Canning, Günther, Linnemayr, and Bloom, 2013). As Sub-Saharan Africa countries generally have a higher over-five mortality than the other regions, ignoring over-five mortality may bias the results and inflate fertility differences (Ward et al., 2021). Life expectancy at birth is likely better but is heavily influence by very early deaths and does not indicate the likelihood of surviving to adulthood. Furthermore, using current life expectancy might be impacted by the spread of HIV/AIDS, which was likely unanticipated by households.

The second challenge is which period and population to base the mortality measure on. Presumably parents care about their offspring's expected mortality, but no direct information is available on individuals' assessment of that risk (Montgomery, 2000). Calculating mortality risk at the time fertility decisions are made are complicated by three factors. First, mortality declines over time, possibly at different rates within and across countries and regions (Hill and Pebley, 1989; Roser, Ritchie, and Dadonaite, 2013). Second, children of better-educated mother have lower mortality than children of less-educated mothers and urban mothers face lower child mortality rates than rural mothers (Strauss and Thomas, 1995; Pörtner and Su, 2018; Balaj, York, Sripada, Besnier, Vonen, Aravkin, Friedman, Griswold, Jensen, Mohammad, Mullany, Solhaug, Sorensen, Stonkute, Tallaksen, Whisnant, Zheng, Gakidou, and Eikemo, 2021).[4] Finally, fertility may increase in

[4]More schooling is also associated with better health outcomes for both women and children, which may lead to lower child mortality and, in turn, further decreases fertility, because fewer births are required to reach a desired number of surviving children (Ainsworth, Beegle, and Nyamete, 1996). However, it is not

response to other women's offspring mortality, even if the underlying mortality risk does appear to have changed (Nobles, Frankenberg, and Thomas, 2015).

The third challenge is isolating the exogenous part of any observed mortality risk. The effect of mortality on fertility can arise from three, possibly reinforcing pathways, hoarding—having more children in response to expected mortality—physiological effects, and the deliberate replacement of deceased children Ben-Porath (1976); Rosenzweig and Schultz (1983); Palloni and Rafalimanana (1999). While an exogenous increase in mortality can increase fertility, higher fertility may also lead to higher mortality, for example, through resource dilution or closer spacing of births, although the literature provides conflicting answers to how large this effect is (Chowdhury, 1988; Birdsall, 1988; Benefo and Schultz, 1996; Conley, McCord, and Sachs, 2007). The upshot is that any observed mortality measure will be a combination of both the exogenous component of mortality and the endogenous component, driven by households' response to exogenous mortality.

The final challenge is the empirical specification of the relationship between mortality and fertility. Theoretical models suggest an inverse-U relationship between offspring mortality risk and fertility (Sah, 1991; Pörtner, 2001; Doepke, 2005). A simple intuition for this is that at 100% mortality there are only costs and no benefits associated with having children and fertility is, therefore, zero. As mortality risk decreases, the benefits eventually outweigh the cost and people will begin having children. At very low levels of mortality risk an increase will lead to higher fertility as a hoarding/insurance response.

Another way to look at whether there is a non-linear relationship between mortality and fertility is the literature that attempts to determine whether a reduction in offspring mortality lead to a decline in net fertility, that is, the number of surviving children Olsen (1980); Olsen and Wolpin (1983); Brown and Guinnane (2007); Angeles (2010); Cervellati and Sunde (2015); Bousmah (2017). Although the results generally support a positive re-

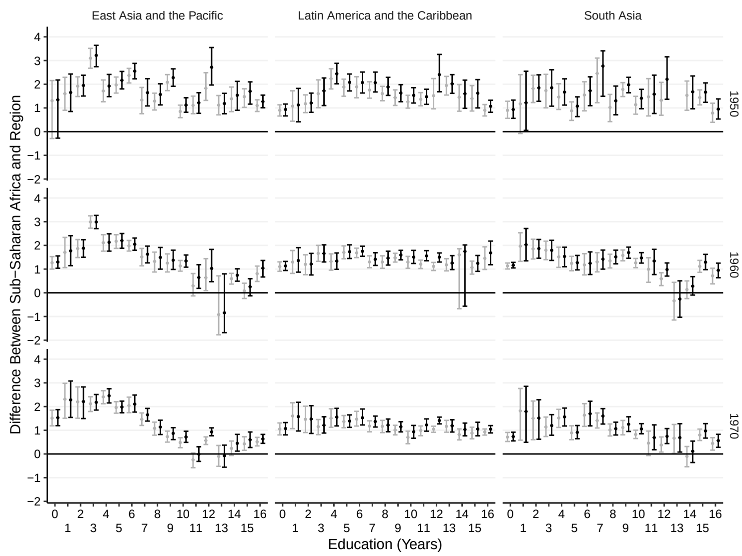
clear exactly why there is such a strong effect of education on child health. Thomas, Strauss, and Henriques (1991), Glewwe (1999), and Kovsted, Pörtner, and Tarp (2002) all suggests that it is better health knowledge rather than higher income, changes in norms, or something inherent in education that drives the positive relationship between mothers' education and child health.

lationship between fertility and mortality, there is no consensus on the effect of mortality decline on net fertility. For example, projections suggest that the world's population size in 2000 would have been very close to the observed population size if fertility and mortality rates would have remained at 1950–55 levels, suggesting no net effect (Heuveline, 1999). Correspondingly, most of the literature assume that empirically the relationship is linear (See, for example Shapiro and Gebreselassie, 2008; Chisadza and Bittencourt, 2016; Shapiro and Tenikue, 2017). The exception is a non-linear effects of mortality on completed fertility in an area of rural Senegal (Bousmah, 2017). While a linear approximation may work well for individual country analyses, especially if only a shorter period is covered, it is likely to bias the estimated differences in fertility when comparing regions with large differences in mortality.

D Sensitivity Analyses Figures

D.1 HIV/AIDS

(a) Urban



(b) Rural

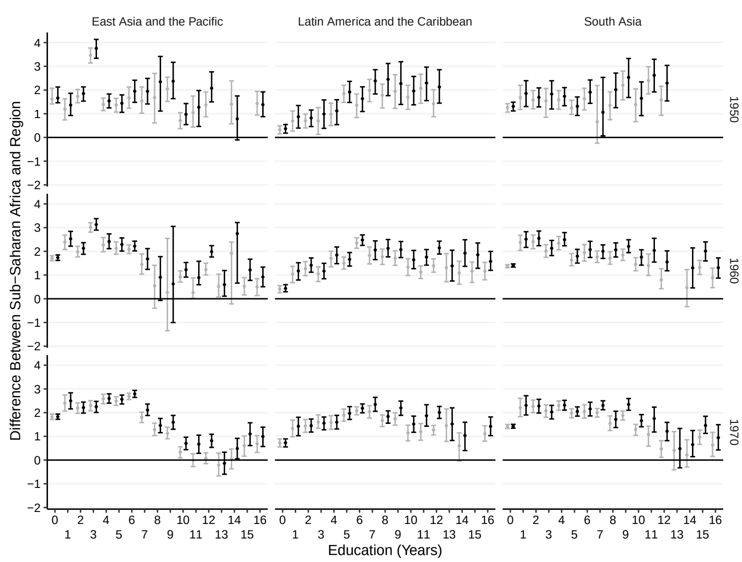
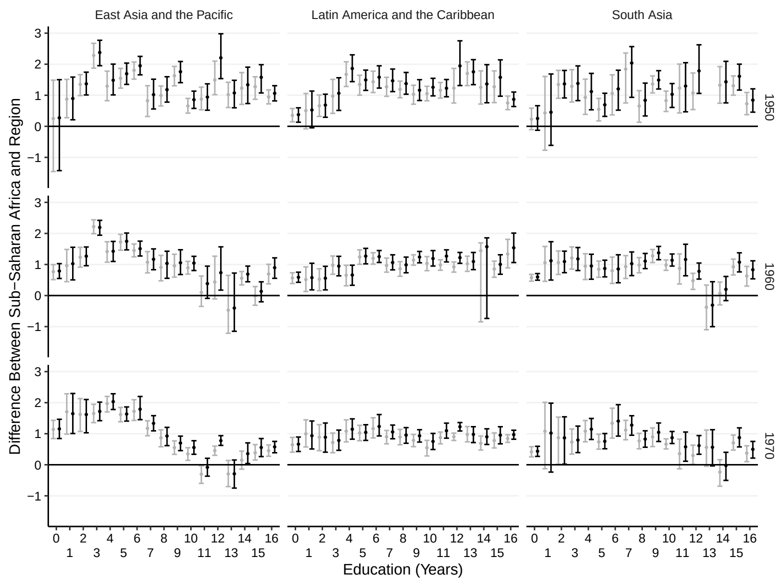


Figure D.1: Differences in Children Ever Born Between Sub-Saharan Africa and Regions Excluding 10 High HIV Countries for Women Age 40–49 by Cohort with 95% Bootstrapped Confidence Intervals in Solid and All Countries in Grey

(a) Urban



(b) Rural

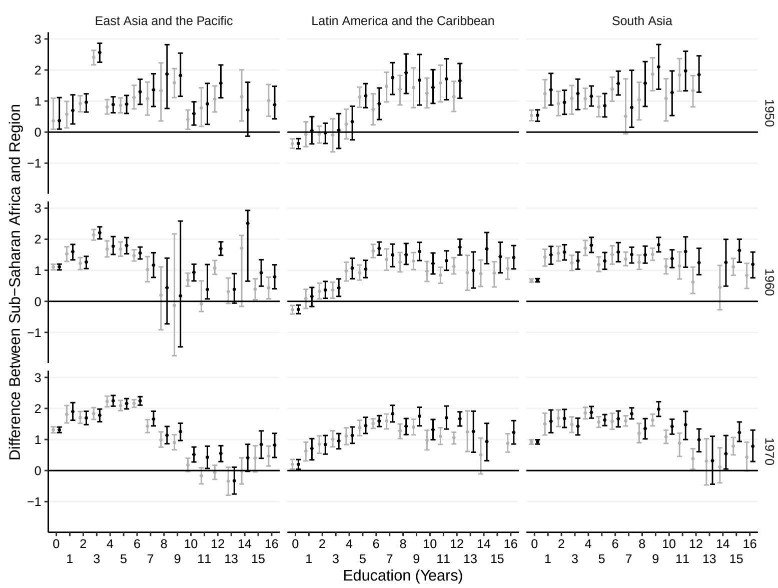
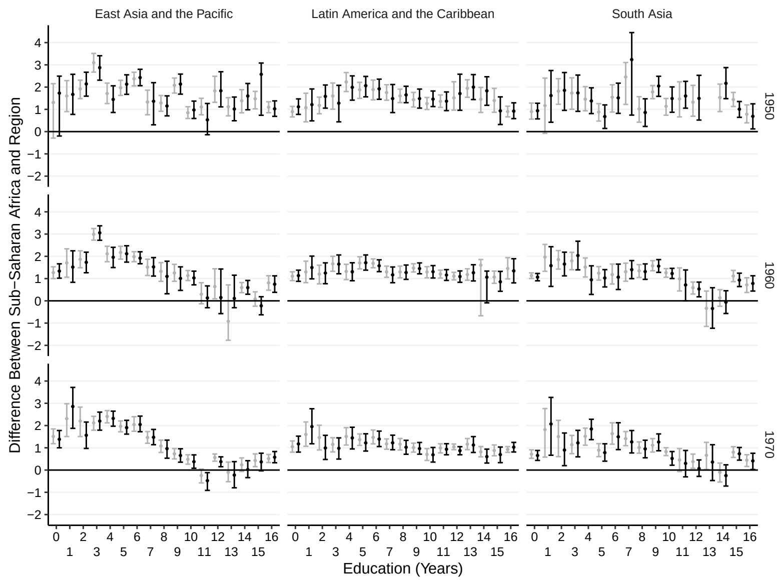


Figure D.2: Differences in Number of Surviving Children Between Sub-Saharan Africa and Regions Excluding 10 High HIV Countries for Women Age 40–49 by Cohort with 95% Bootstrapped Confidence Intervals in Solid and All Countries in Grey

D.2 Son Preferences and Sex Ratios

(a) Urban



(b) Rural

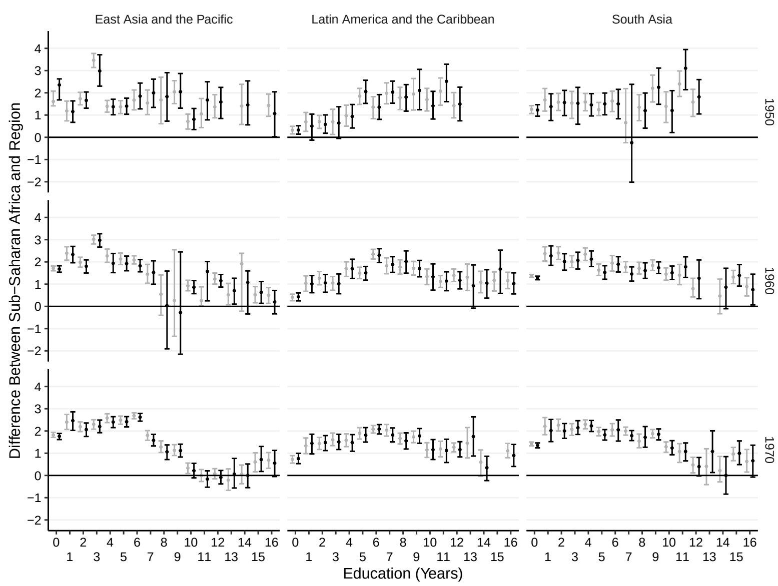
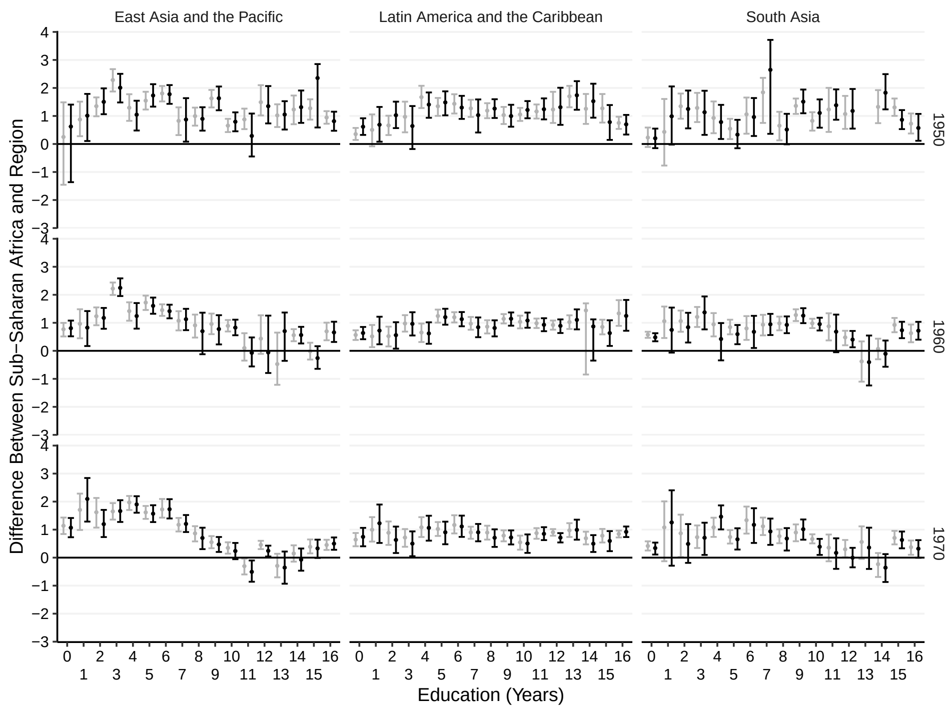


Figure D.3: Differences in Predicted Number of Children Ever Born Based on Number of Sons Born Between Sub-Saharan Africa and Regions by Cohort With 95% Bootstrapped Confidence Intervals in Solid and Number of Children Ever Born in Grey

(a) Urban



(b) Rural

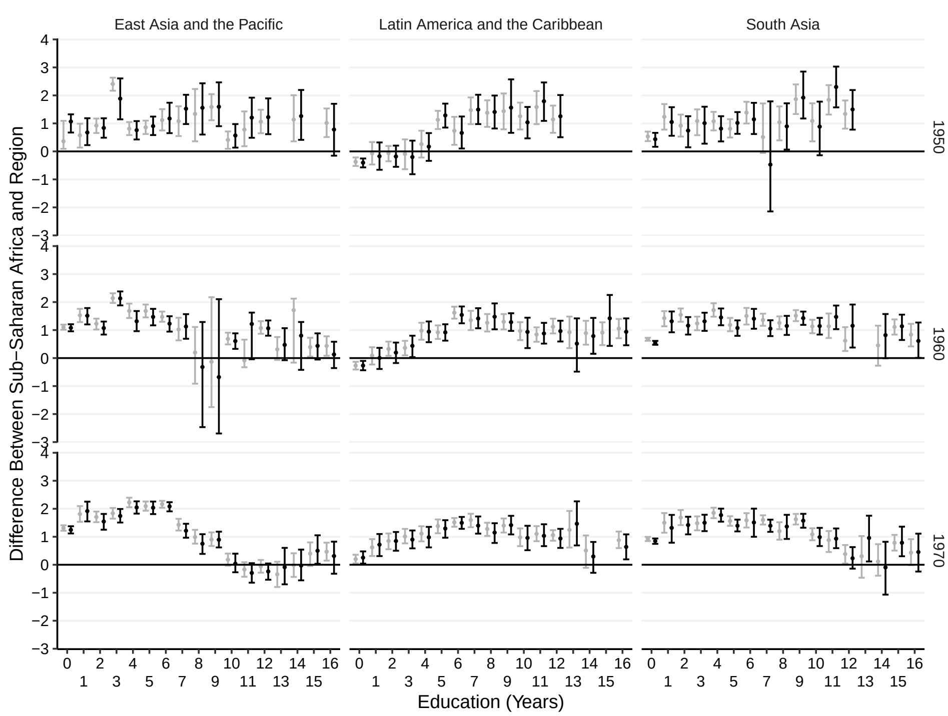


Figure D.4: Differences in Predicted Number of Surviving Children Based on Number of Surviving Sons Between Sub-Saharan Africa and Other Regions by Cohort With 95% Bootstrapped Confidence Intervals in Solid and Number of Children Ever Born in Grey

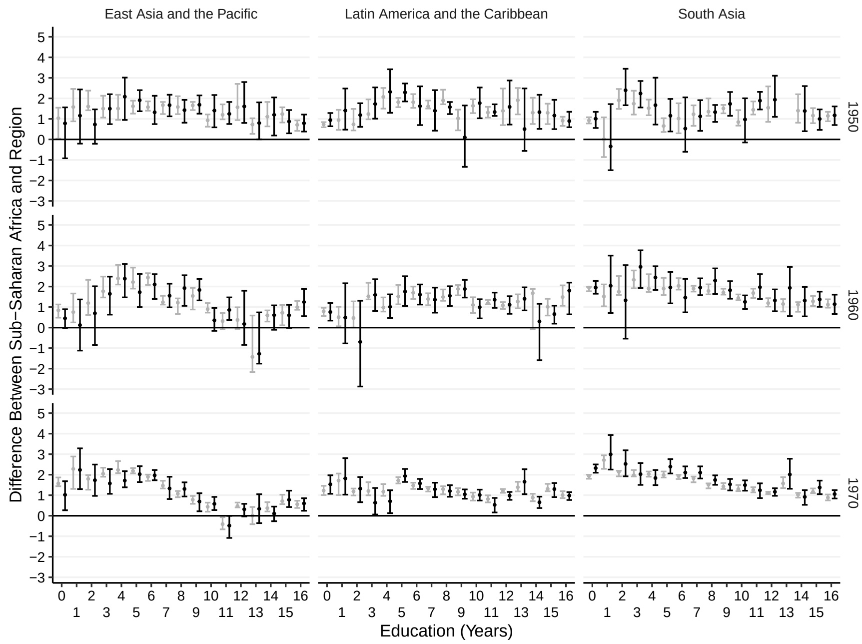
D.3 Migration

To investigate migration's influence, I create a sample using the set of surveys that have information on prior residence(s).[5] The sample includes women born in the surveyed area and women whose last previous area of residence was the same as their current type.[6] For comparison, I use all women from surveys that collected location information, whether they have moved or not or have missing location information. There are 693,668 urban women and 1,163,733 rural women in surveys that collected location information. Of those, 295,442 urban women and 480,398 rural women were either born in the area they were surveyed in or were living in the same type of area as they lived in previously.

[5] DHS phases 6 and 7 did not include prior location question in the core questionnaires and location questions were not added to MICS until phase 6.

[6] I also tried a sample consisting of only women born in their surveyed area, but the sample was too small to provide useful results.

(a) Born or Prior Residence in an Urban Area



(b) Born or Prior Residence in a Rural Area

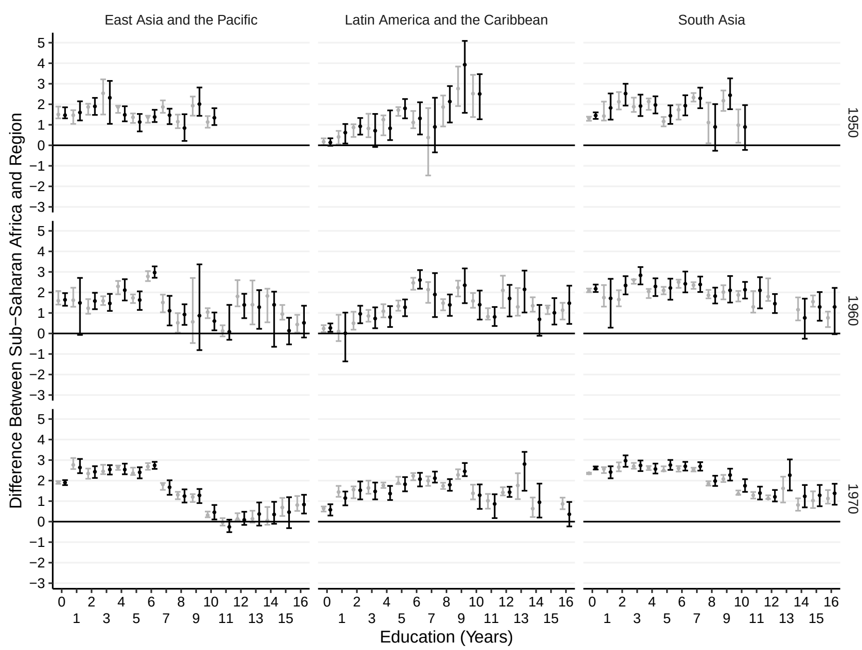
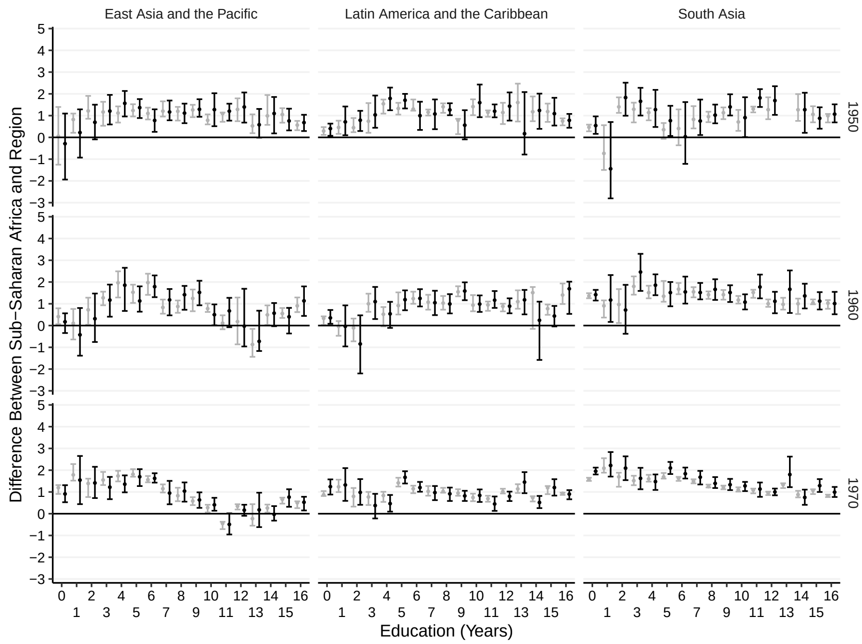


Figure D.5: Differences in Children Ever Born Between Sub-Saharan Africa and Regions for Women Age 40–49, Who are Either Born Where Surveyed or Always Lived in the Same Type of Area, by Cohort with 95% Bootstrapped Confidence Intervals

(a) Born or Prior Residence in an Urban Area



(b) Born or Prior Residence in a Rural Area

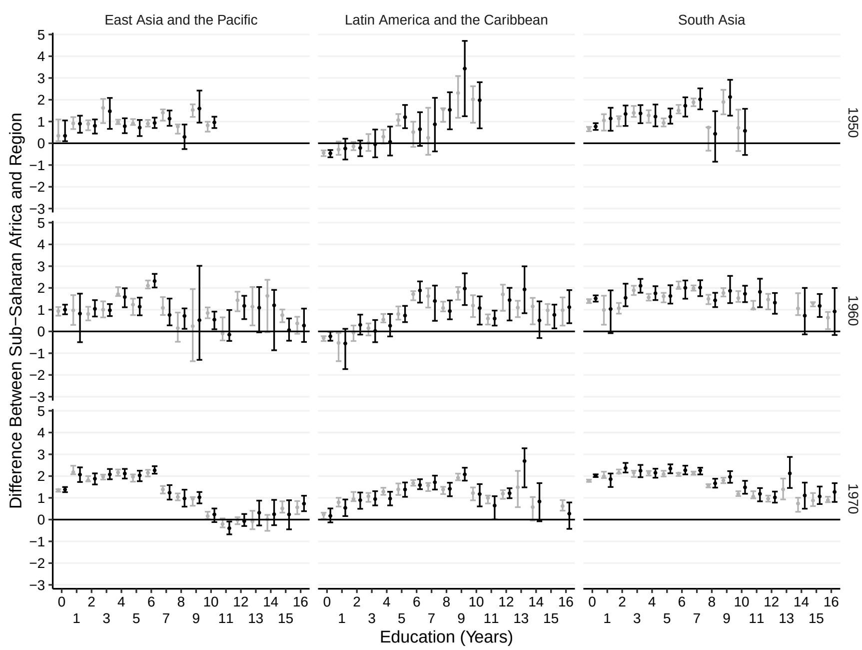


Figure D.6: Differences in Number of Surviving Children Between Sub-Saharan Africa and Regions for Women Age 40–49, Who are Either Born Where Surveyed or Always Lived in the Same Type of Area, by Cohort with 95% Bootstrapped Confidence Intervals

E Almost Complete Fertility: 30–39 Year Olds

There are two problems with focusing on completed fertility. First, it tells us little about the recent developments in fertility behavior across regions, and those developments are mainly behind the argument that Sub-Saharan Africa is different. Second, the sample size decreases with increasing age leading to noisier estimate and makes it more difficult to understand if there are significant differences across regions.

However, using younger age groups does have three important limitations. First, differences across regions for non-complete fertility may reflect differences in the distribution of births across ages rather than differences in the final number of children born. Imagine two regions where the only difference in fertility behavior is when childbearing begins. Say that in one region, women begin childbearing at age 20 and have two children before age 25 after which they stop childbearing. In another region, women begin childbearing at age 25, and have two children by age 30, after which they stop childbearing. If we regress children ever born on a set of explanatory variables, it would appear that fertility is higher in the first region than the second region among the younger age group (it is identical from age 30 across regions).

Second, as I discussed above, changes in the timing of fertility over time can lead to significant overestimates of how fast fertility declines, which, in turn, would make us substantially overestimate the differences for anything but completed fertility (Pörtner, 2022).

Finally, the risk of a downward bias in fertility increases the more recent data is used, especially for lower quality surveys (Schoumaker, 2014; Gerland, Biddlecom, and Kantorová, 2017). Fertility estimates based on retrospective birth histories covering the last three years before a survey can be underestimated by 10 percent or more. One possible explanation is that by failing to record recent births, enumerators can lower their workload because they no longer have to go through the health module. The result is that fertility estimates for non-complete fertility for a given period tend to be revised upwards as new surveys become available.

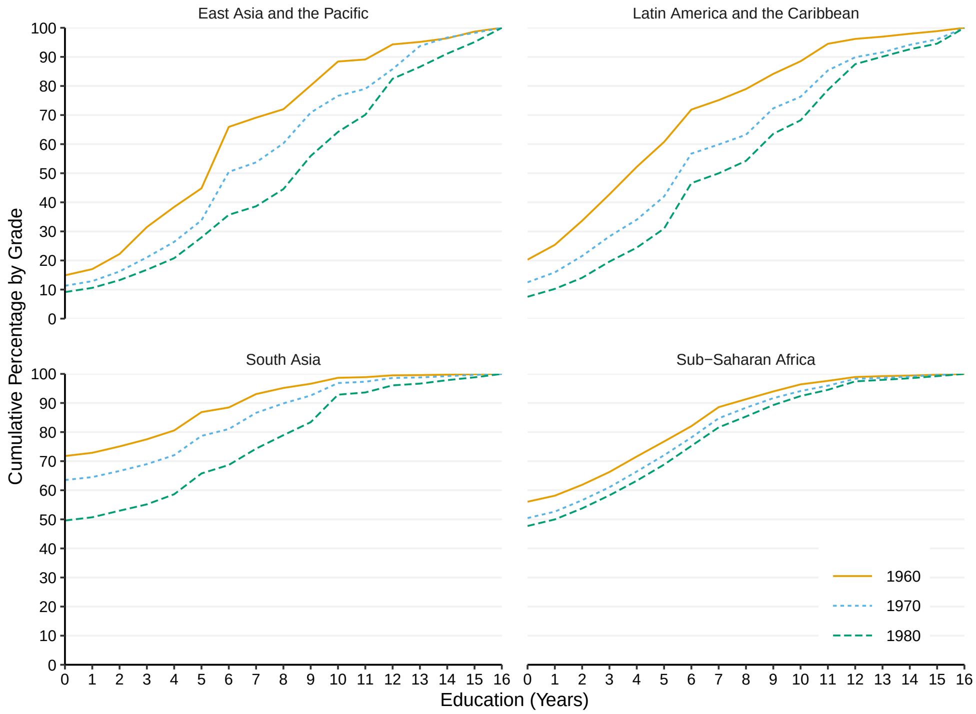
Below are the same tables and graphs presented in the paper and above but using the sample of women aged 30 to 39 born in the thee cohorts 1960-1969, 1970-1979, and 1980-1989. The predicted fertility for women aged 30 to 39 closely follow the same pattern as for the predicted completed fertility above. Except for women with some primary or completed primary, there is little evidence that Sub-Saharan Africa is fundamentally different from the other regions. Fertility for women with two to seven years of education is, however, still substantially higher for Sub-Saharan Africa than the other regions.

Table E.1: Number of Observations by Region, Cohort, and Highest Grade Level Completed for Women in the 30–39 Age Group

	East Asia and Pacific			Latin America and the Caribbean			South Asia			Sub-Saharan Africa		
Grade	1960	1970	1980	1960	1970	1980	1960	1970	1980	1960	1970	1980
						Urban						
0	943	1,208	951	2,092	1,728	682	6,723	12,585	19,211	12,595	26,507	19,346
1	256	222	192	737	801	302	142	281	456	445	806	733
2	652	470	413	1,398	1,345	460	402	717	1,204	1,030	1,901	1,450
3	1,017	788	546	1,809	2,038	613	542	906	1,524	1,249	2,620	2,155
4	769	724	626	1,835	1,759	629	733	1,319	2,501	1,760	3,225	2,586
5	845	1,162	1,152	3,342	3,793	941	1,559	2,997	6,916	2,389	5,365	4,136
6	3,434	5,468	2,445	2,964	4,932	2,311	623	1,305	2,601	2,895	7,266	5,618
7	435	871	726	1,916	2,252	1,252	1,108	2,173	5,276	3,162	5,018	3,621
8	548	1,453	1,331	2,678	3,138	1,263	1,340	3,089	8,139	2,272	4,775	4,269
9	2,104	4,793	3,536	2,354	4,055	2,380	1,363	3,135	8,007	2,500	5,878	5,106
10	1,656	2,430	2,216	2,773	2,249	1,293	2,563	5,315	13,230	2,712	4,488	3,777
11	304	763	1,300	5,240	11,814	3,526	412	778	1,646	1,657	4,108	3,769
12	4,339	8,177	5,941	2,571	5,337	5,202	1,267	3,672	10,823	2,162	7,494	8,606
13	251	519	818	1,225	2,618	2,242	129	313	829	649	1,599	2,104
14	933	1,361	2,282	1,693	5,110	2,795	479	827	1,260	339	1,392	1,999
15	180	1,585	2,413	1,323	1,316	1,604	1,495	3,470	10,391	648	2,100	2,595
16	1,299	4,242	5,400	3,583	9,172	6,025	906	2,510	8,749	807	2,885	4,228
						Rural						
0	5,485	6,271	4,958	6,114	4,786	1,868	26,894	48,103	96,750	41,110	83,670	67,565
1	1,026	967	843	1,355	1,724	754	456	888	1,870	1,514	3,573	3,214
2	2,326	1,938	1,495	2,312	2,869	998	1,022	2,185	5,196	2,691	6,179	5,007
3	3,096	2,551	1,781	2,621	3,562	1,288	1,135	2,391	6,322	2,976	6,799	5,984
4	2,445	2,510	1,809	2,040	2,797	1,088	1,481	3,424	9,454	3,257	7,162	6,561
5	2,192	3,173	3,048	2,533	3,636	1,267	2,759	7,361	23,588	3,284	7,984	7,145
6	7,029	10,256	4,717	2,413	6,075	3,377	868	2,248	7,954	3,470	11,100	10,009
7	966	1,544	1,433	857	1,352	719	1,277	4,180	14,421	5,170	9,699	6,718
8	890	2,212	1,915	1,027	1,679	803	1,294	5,001	21,347	1,899	5,813	5,517
9	3,315	5,430	5,038	843	1,925	1,405	1,113	4,370	19,495	1,412	4,292	4,131
10	1,375	1,819	2,469	773	1,187	645	1,450	5,210	22,227	1,496	3,013	2,905
11	256	678	1,635	967	3,248	1,201	222	726	2,684	962	2,441	2,396
12	2,687	4,169	4,636	543	1,285	1,841	476	2,660	14,153	704	4,053	5,237
13	113	251	840	152	405	425	46	171	797	172	500	613
14	401	632	1,651	207	771	471	125	309	1,068	104	585	822
15	80	903	1,656	175	326	274	276	1,296	7,594	194	796	860
16	475	1,694	3,429	396	1,219	1,028	113	667	5,047	162	593	1,001

Note. Unweighted raw numbers of observations for women in the 30–39 age group with complete information on children ever born, surviving children, highest grade completed, and area of residence.

(a) Urban



(b) Rural

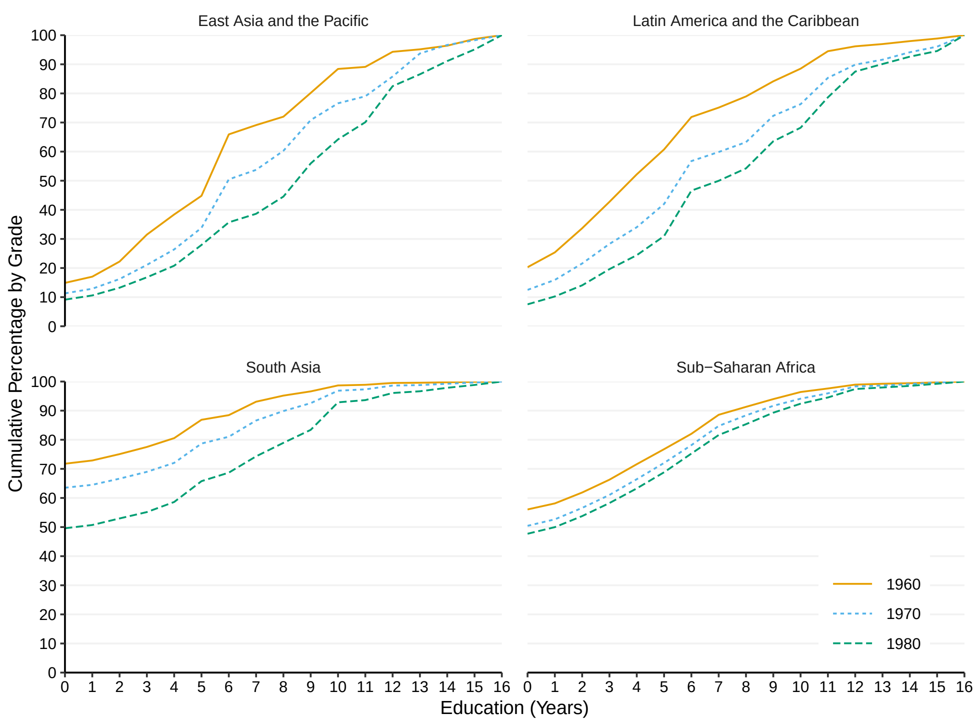
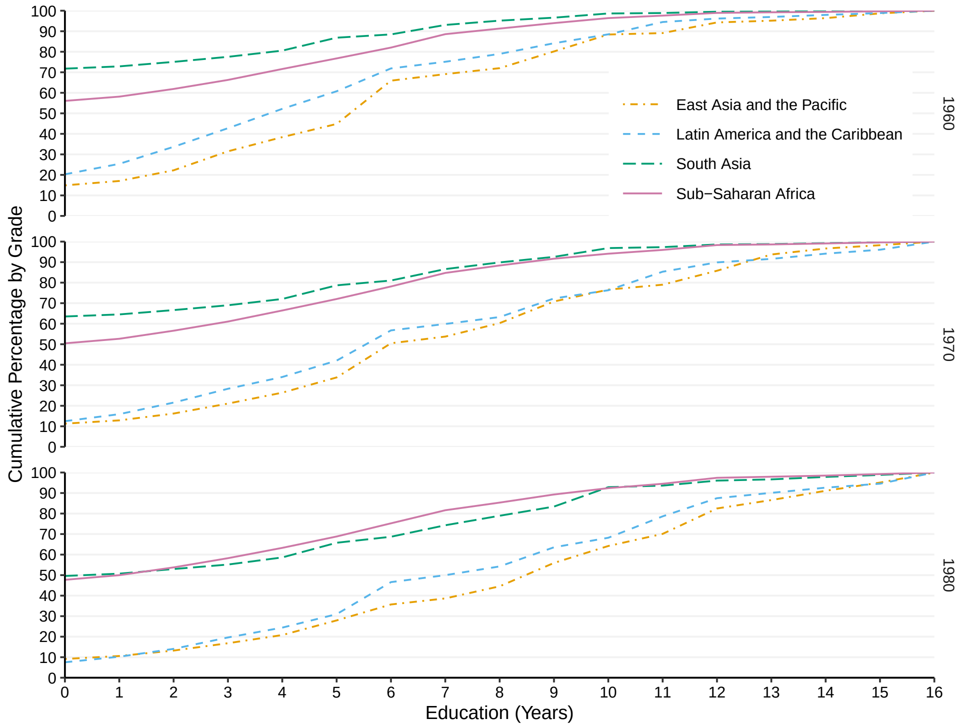


Figure E.1: Distribution of Education for Women Age 30–39 Across Cohorts by Region

(a) Urban



(b) Rural

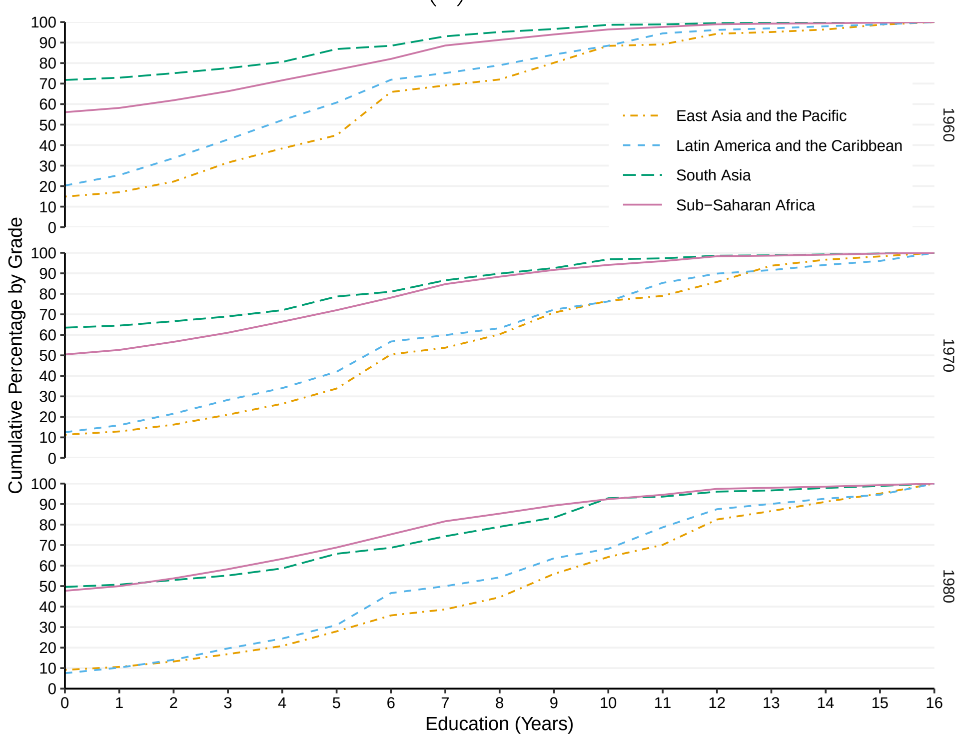
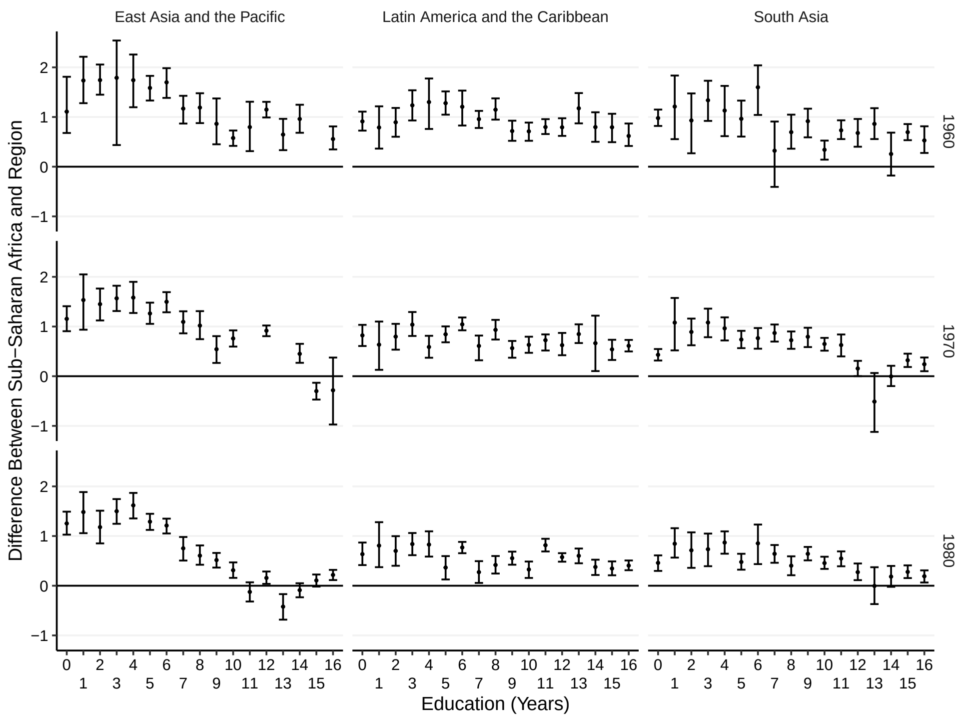


Figure E.2: Distribution of Education for Women Age 30–39 Across Regions by Cohort

(a) Urban



(b) Rural

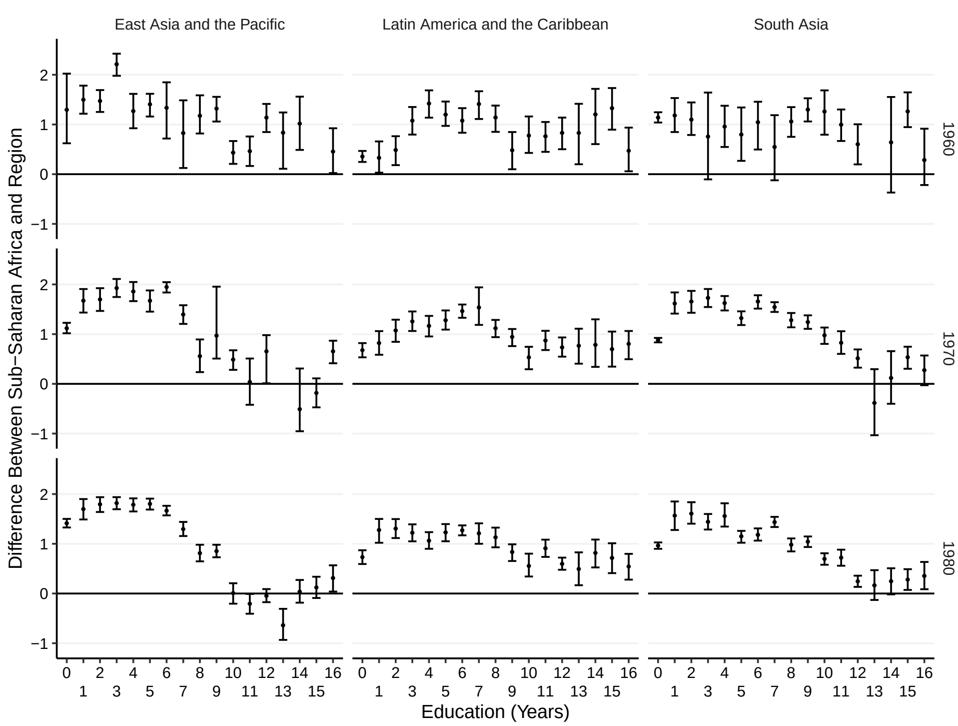
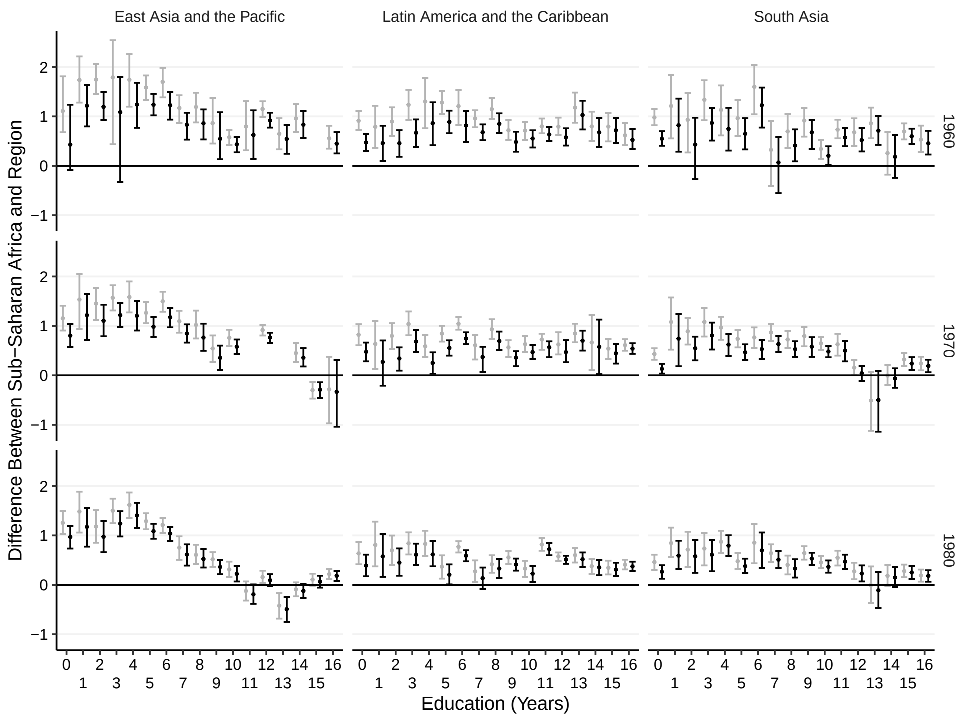


Figure E.3: Differences in Number of Children Ever Born to Sub-Saharan Africa for Women Age 30–39 by Cohort with 95% Bootstrapped Confidence Intervals

(a) Urban



(b) Rural

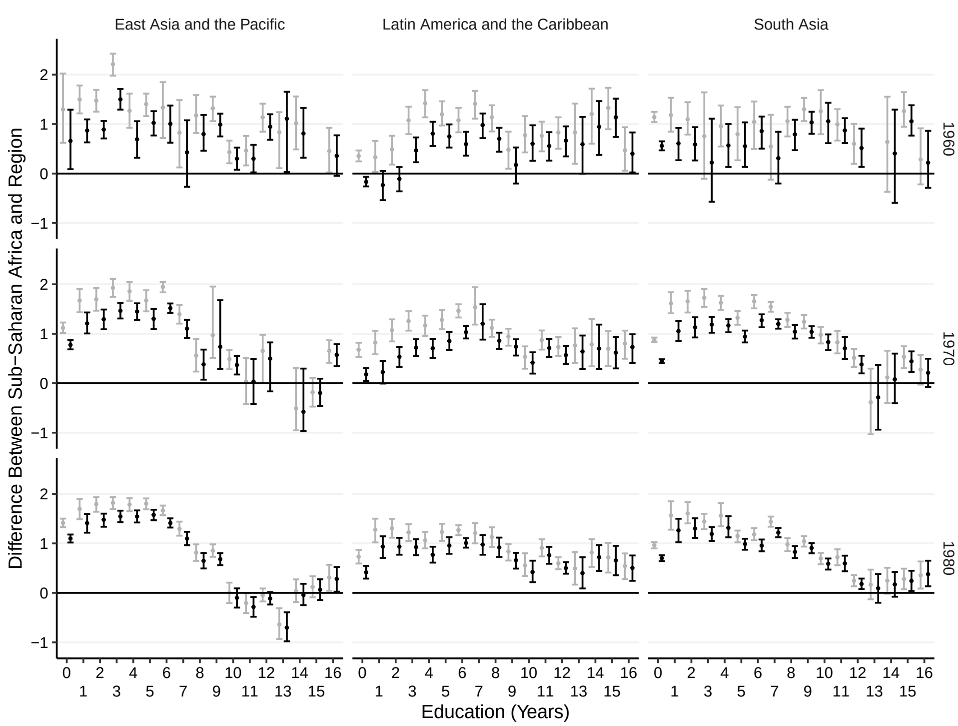
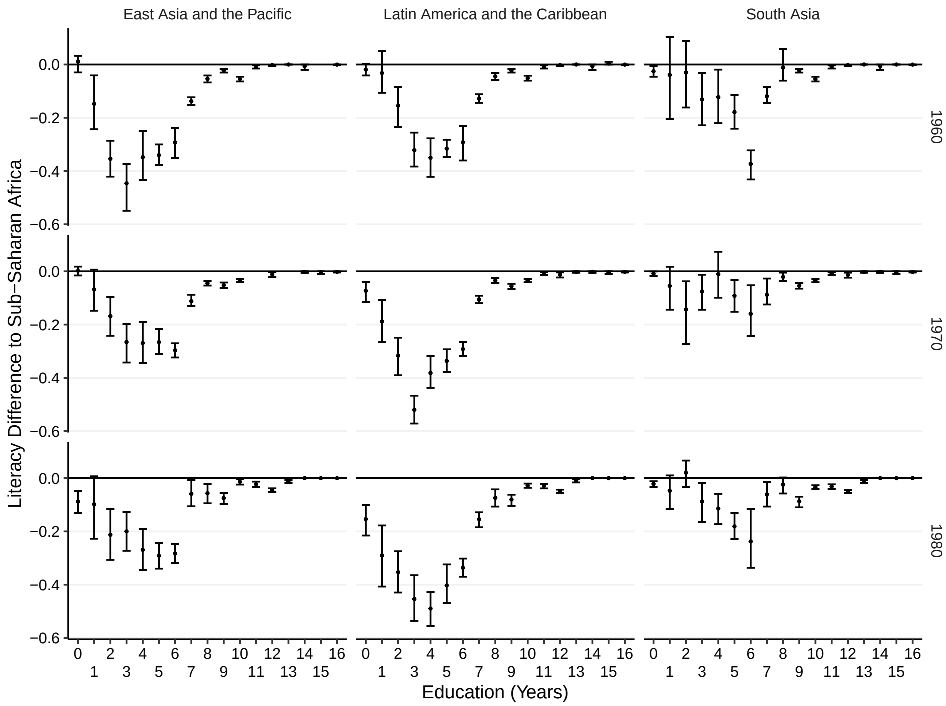


Figure E.4: Differences in Number of Surviving Children to Sub-Saharan Africa for Women Age 30–39 by Cohort with 95% Bootstrapped Confidence Intervals in Blue and Number of Children Ever Born in Grey

(a) Urban



(b) Rural

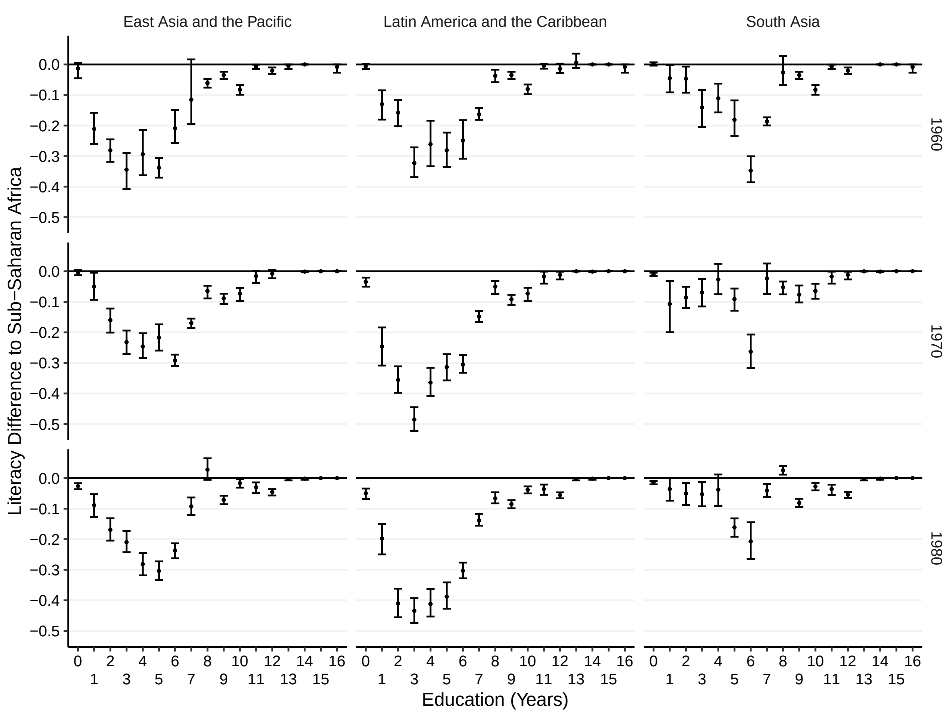
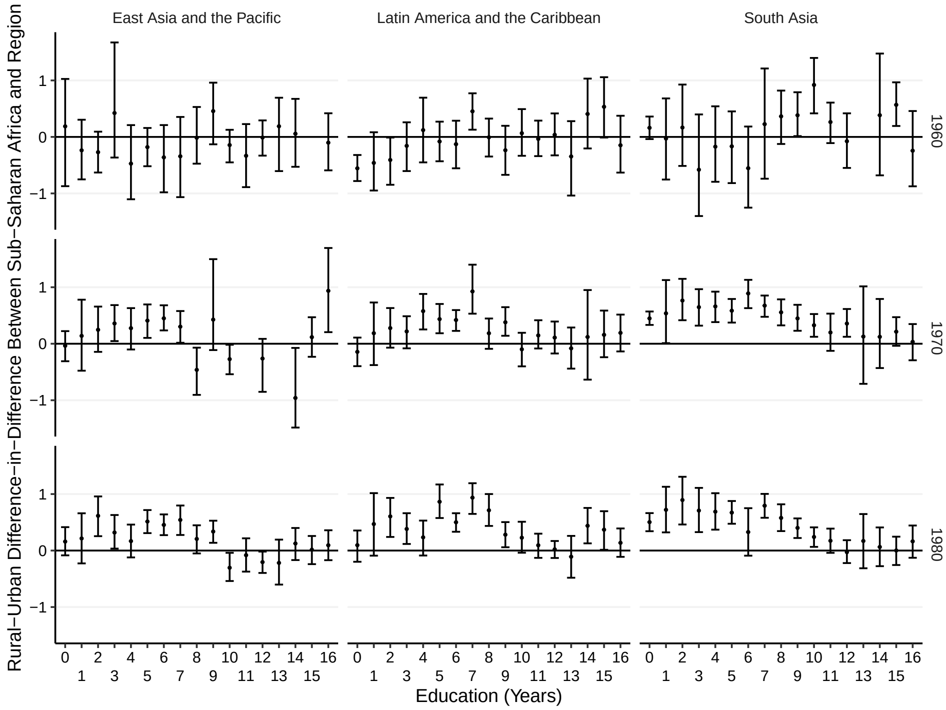


Figure E.5: Differences in Literacy (Tested and Self-Reported) Between Sub-Saharan Africa and Regions for Women Age 30–39 by Cohort with 95% Bootstrapped Confidence Intervals

(a) Children Ever Born



(b) Surviving Children

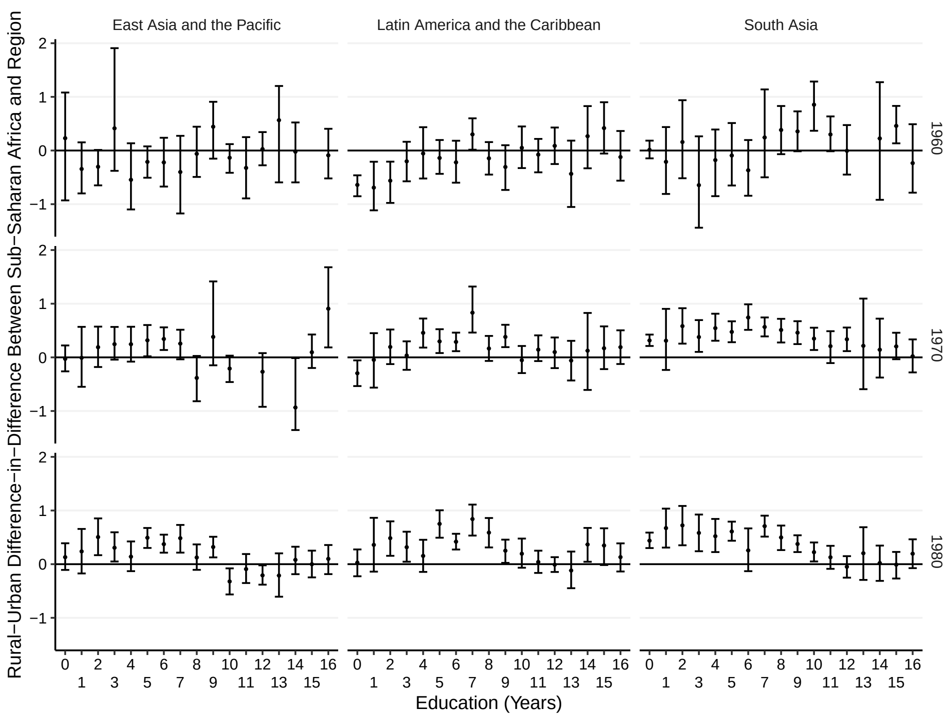
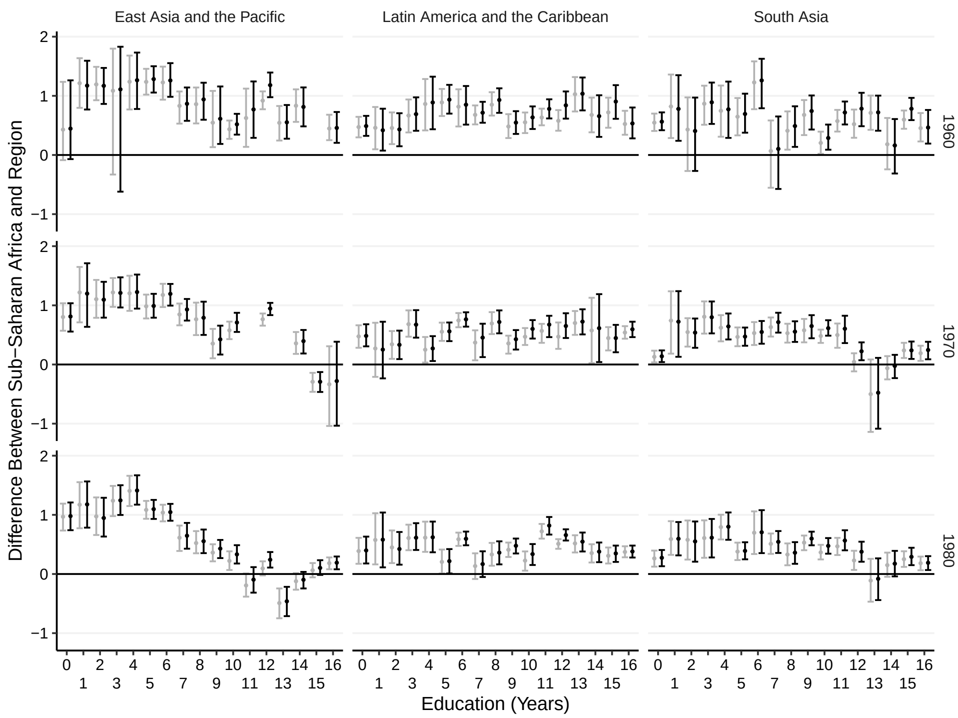


Figure E.6: Difference-in-Difference in Children Ever Born and Surviving Children Between Sub-Saharan Africa and Regions for Women Age 30–39 by Cohort with 95% Bootstrapped Confidence Intervals

(a) Urban



(b) Rural

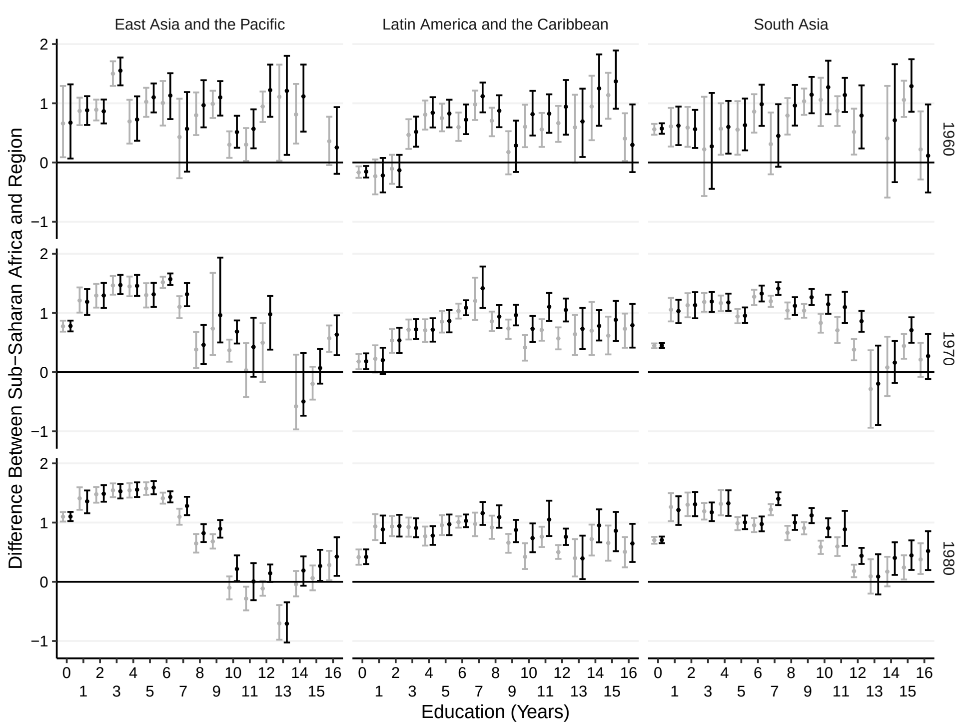
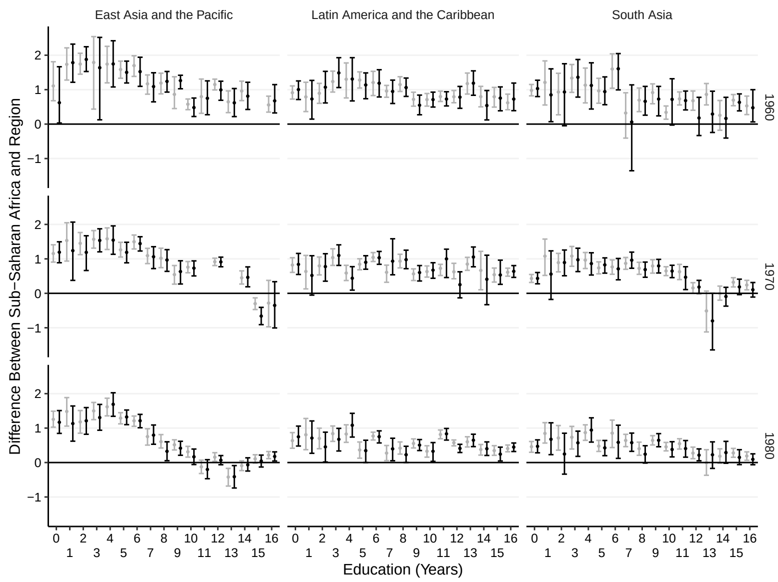


Figure E.7: Compare HIV surviving - Differences in Predicted Fertility to Sub-Saharan Africa for Rural Women Age 30–39 by Cohort with 95% Bootstrapped Confidence Intervals

(a) Urban



(b) Rural

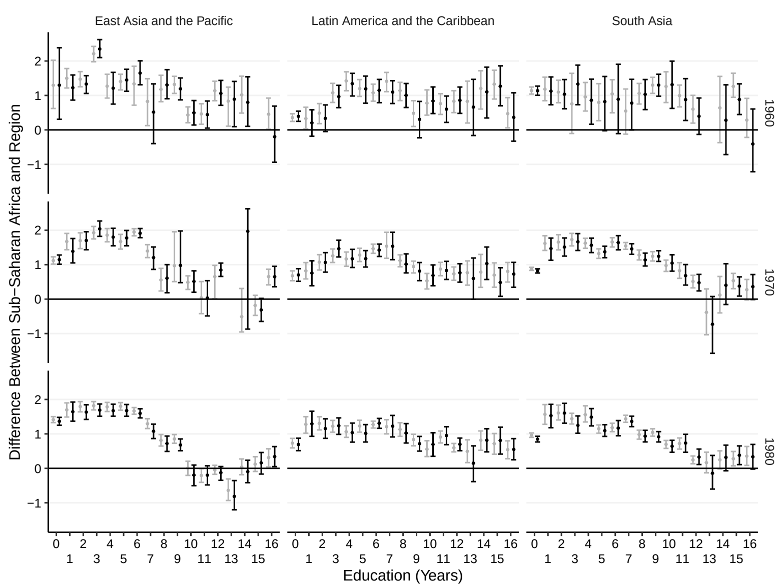
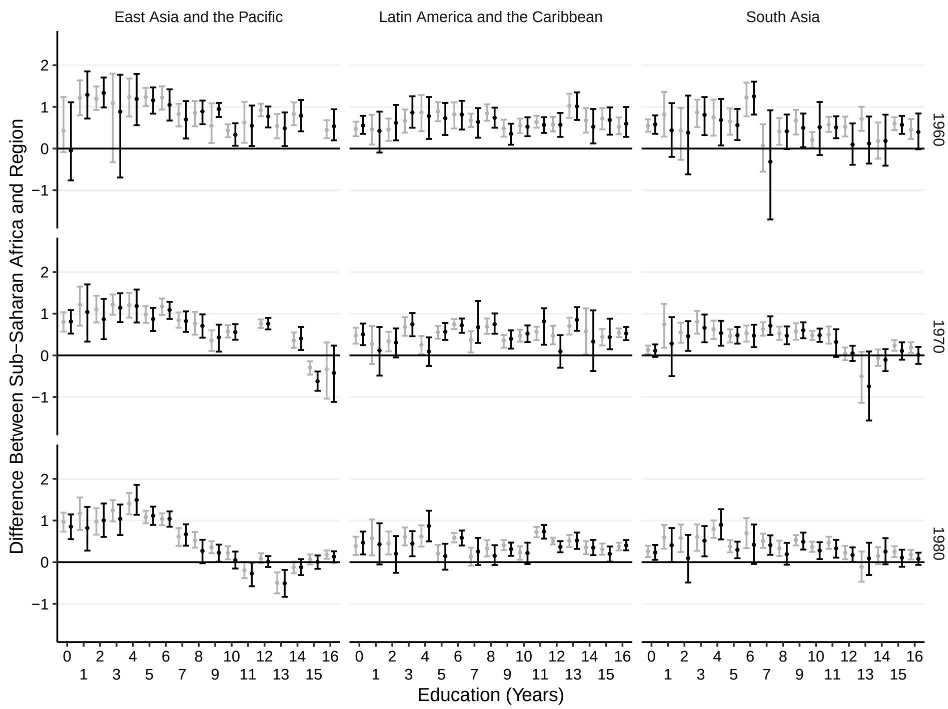


Figure E.8: Differences in Predicted Number of Children Ever Born Based on Number of Sons Born Between Sub-Saharan Africa and Regions by Cohort With 95% Bootstrapped Confidence Intervals in Solid and Number of Children Ever Born in Grey

(a) Urban



(b) Rural

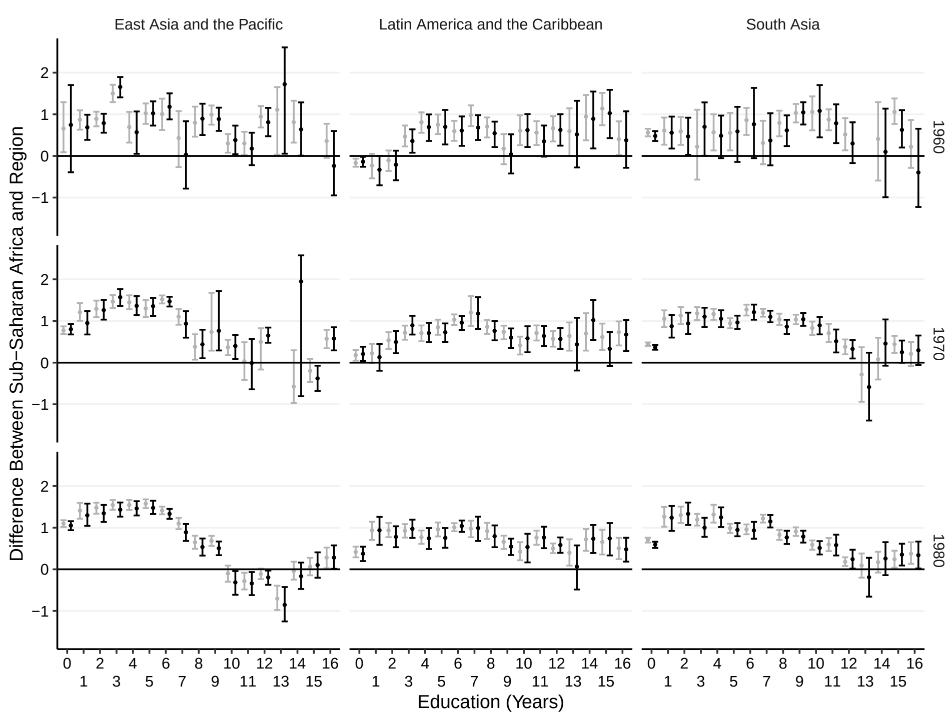
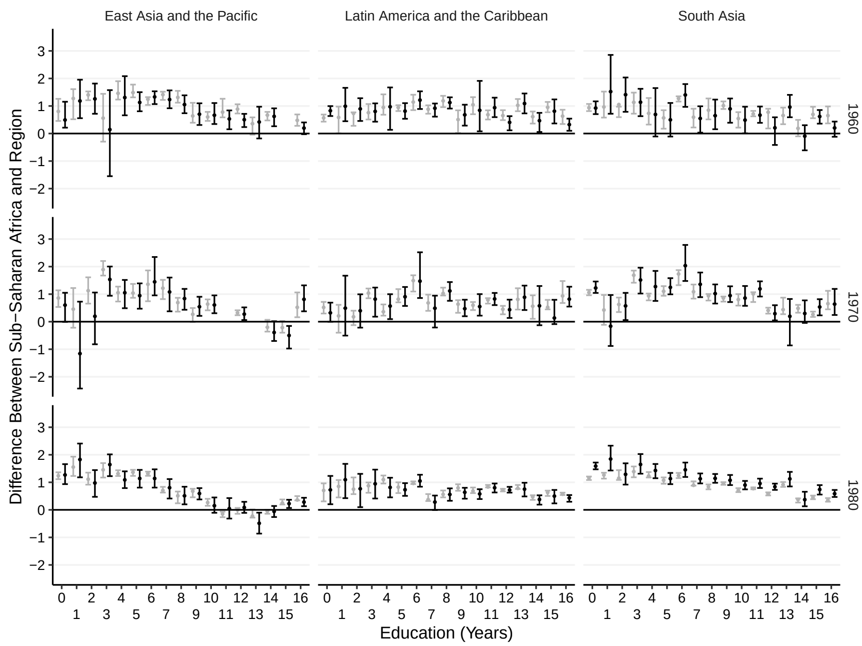


Figure E.9: Differences in Predicted Number of Surviving Children Based on Number of Surviving Sons Between Sub-Saharan Africa and Other Regions by Cohort With 95% Bootstrapped Confidence Intervals in Solid and Number of Children Ever Born in Grey

(a) Mother in Same Type of Survey Area



(b) Mother in Same Type of Survey Area

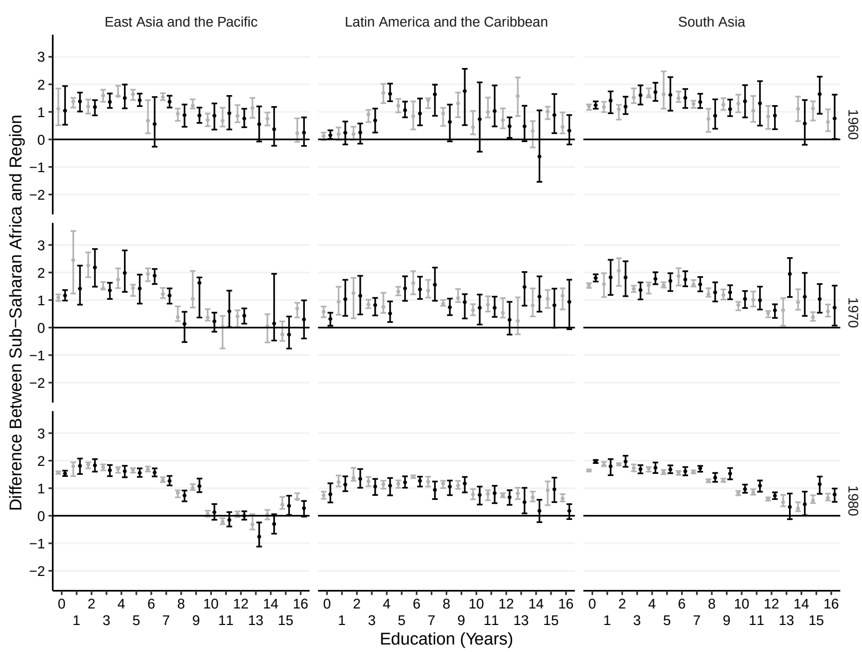
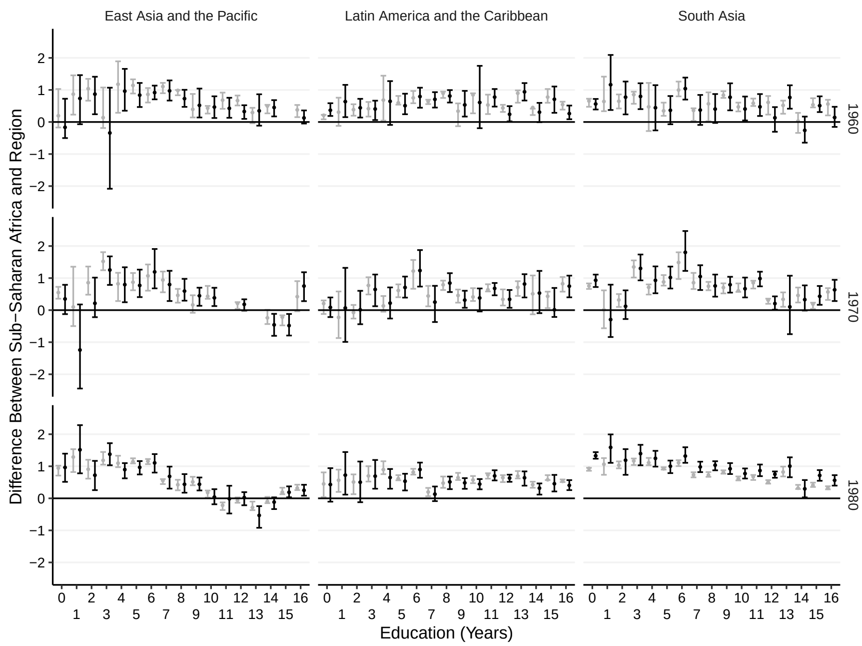


Figure E.10: Differences in Children Ever Born Between Sub-Saharan Africa and Regions for Women Age 30–39, Who are Either Born Where Surveyed or Always Lived in the Same Type of Area, by Cohort with 95% Bootstrapped Confidence Intervals

(a) Born or Last Lived in a Urban Area



(b) Born or Last Lived in a Rural Area

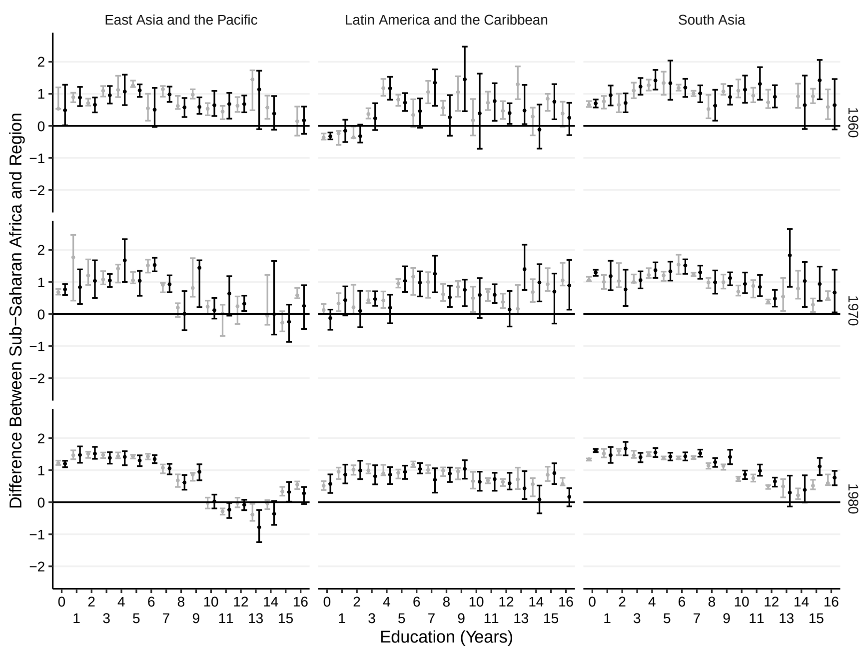


Figure E.11: Differences in Number of Surviving Children Between Sub-Saharan Africa and Regions for Women Age 30–39, Who are Either Born Where Surveyed or Always Lived in the Same Type of Area, by Cohort with 95% Bootstrapped Confidence Intervals

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