

**Fertility Preferences and Contraceptive Change  
in Low- and Middle-Income Countries**

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## **ABSTRACT**

The past four decades have witnessed enormous increase in modern contraception in most low- and middle-income countries. We examine the extent to which this change can be attributed to changes in fertility preferences versus fuller implementation of fertility preferences, a distinction at the heart of intense debates about the returns to investments in family planning services. We analyze national survey data from five major survey programs: WFS, DHS, RHS, PAP (Pan-Arab), and MICS. We perform regression decomposition of change between successive surveys in 58 countries (169 decompositions in total). Overwhelmingly the contraceptive change can be attributed to improved implementation of preferences: more than 90% on average, powerful empirical refutation of the view that contraceptive change has been driven principally by reductions in demand for children. We show that this outcome is not surprising given that the distribution of women according to fertility preferences has changed surprisingly little.

## **Fertility Preferences and Contraceptive Change in Low- and Middle-Income Countries**

### **Background**

Increased prevalence of modern contraception in low- and middle-income countries (LMIC) during the past fifty years ranks among the most important changes in the demography of these societies. The increase is relatively precisely measured because of the ubiquity of regular national demographic surveys, beginning with the World Fertility Surveys (WFS) and continuing through the Demographic Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS), as well as other survey programs. Few demographic changes have been so well documented (*Family Planning Indicators*, n.d.).

While increase in contraceptive prevalence *per se* is well documented, the source of this change is a matter of dispute. By “source”, we refer to the fundamental question of whether increased contraceptive prevalence is due to

- Increased desire to avoid pregnancy (i.e., delay births or terminate childbearing)
- Increased implementation of existing desires to avoid pregnancy

The relative weighting of these two sources of contraceptive change has been hotly debated, in both scientific and policy forums, because it speaks directly to the major policy question of the potential contribution of expanding family planning services. The debate emerged in full force in the 1960s (Davis, 1967) and was the focus of the influential mid-1990s article by Lant Pritchett (Pritchett, 1994). Davis and Pritchett took the stance that dominates in the social science literature, namely that fertility decline is driven mainly by the decline in desired fertility, itself due to improvements in child survival and a changing balance of childbearing costs and benefits (Galor, 2012). However, accumulating empirical evidence casts doubt on the sufficiency of this explanation. Most notably, there have been sharp declines in rates of unwanted fertility (Bearak et al., 2018; Casterline & El-Zeini, n.d.; Sedgh et al., 2014), and these have made a substantial contribution (on the order of one-half) to contemporary fertility declines (Günther & Harttgen, 2016). This empirical evidence

suggests that implementation of fertility preferences is a further important driver of reproductive change.

We contribute further evidence that speaks to this key debate through analysis of five decades of national demographic survey data (1970s through 2010s). These surveys contain measurement of both contraceptive practice (modern contraception prevalence rate [mCPR]) and fertility preferences (want soon, want later, no more) at the time of the survey. Employing regression decomposition, we attribute change in mCPR between successive surveys in the same country to two components: change in fertility preferences and change in rates of use within categories of fertility preferences.

A predecessor for this research is work conducted by Feyisetan and Casterline (Feyisetan & Casterline, 2000). This article, published two decades ago, presented decompositions of contraceptive change in 26 countries (one decomposition per country) in the period from the mid-1970s to the late 1990s. The decomposition results indicated that most of the increase in prevalence could be attributed to more complete implementation of fertility preferences – at least 70% of the increase in 24 of the 26 countries. The present research extends the observation period by two decades – through the 2010s – and encompasses about twice as many countries. Also, Feyisetan and Casterline (2000) analyzed change in prevalence of any method of contraception (CPR), whereas the present research is confined to modern methods (mCPR).

## **Methods**

### **Data**

We analyze data from five major survey programs: WFS, DHS, Reproductive Health Surveys (RHS), MICS, and PAP (Pan-Arab Project for Child Development or Family Health, a survey program conducted by the Arab League). A few surveys conducted outside these international programs are also included. All the surveys offer moderate or large nationally representative probability samples of women of reproductive age (ages 15-49).

Because this is an analysis of within-country change, a country must offer at least two surveys. We also impose a rule that the number of years between surveys must be at least

eight years and the amount of change in mCPR at least eight percentage points. With this rule, in most countries each decomposition is not based on successive surveys, but instead skips one or more surveys. We allow for more than one decomposition per country, provided the historical difference and amount of mCPR change between each pair of surveys satisfies the rule.

As explained below, fertility preference has two variants: the first a simple dichotomy wanting versus not wanting another child, and the second distinguishing also women who want to delay the next birth. We label the decompositions based on these two variants of the preference variable “without spacing” and “with spacing”, respectively. Some surveys only support “without spacing”, whereas others support both “without spacing” and “with spacing”.

The resulting sample of countries, surveys, and decompositions is as follows:

	<u>Without Spacing</u>	<u>With Spacing</u>
Number of countries	58	53
Number of surveys	153	127
Number of decompositions	95	74

Regional breakdowns of number of countries, surveys and decompositions are shown in Table 1. A full listing of surveys, by country and survey program, is shown in the Appendix table.

The analysis depends on merely two variables: contraceptive use and fertility preferences. Contraceptive use refers to the method, if any, that a woman is using at the time of the survey. As noted, this is analysis of change in the use of modern methods; we adhere to the established designation of “modern methods” (*Indicator Metadata Registry List*, n.d.) except that lactational amenorrhea method (LAM) is excluded.<sup>1</sup> There is some variation across surveys in the questionnaire strategy for ascertaining current use but there is no evidence this variation produces non-comparability in the measurement of contraceptive behavior.

**TABLE 1** Number of Countries, Surveys and Decompositions in the Analyses, by Region

<b><u>Panel A: Analysis without spacing</u></b>			
<b>Region</b>	<b>Number of countries</b>	<b>Number of surveys</b>	<b>Number of decompositions</b>
East & Southern Africa	13	37	24
Middle & West Africa	14	29	15
Latin America & Caribbean	15	45	30
South & Southeast Asia	9	22	13
West Asia & North Africa	7	20	13
Total	58	153	95

<b><u>Panel B: Analysis with spacing</u></b>			
<b>Region</b>	<b>Number of countries</b>	<b>Number of surveys</b>	<b>Number of decompositions</b>
East & Southern Africa	13	34	21
Middle & West Africa	14	29	15
Latin America & Caribbean	13	35	22
South & Southeast Asia	7	16	9
West Asia & North Africa	6	13	7
Total	53	127	74

The woman’s fertility preference is obtained via two items. The first asks “Would you like to have (a/another) child, or would you prefer not to have any (more) children?” On this basis, women are classified as wanting or not wanting an additional child. (Women who are uncertain are grouped with the women who want another child, as uncertainty indicates an openness to having another child.) Most, but not all, surveys ask a follow up to women who want another child: “How long would you like to wait from now before the birth of another child?” Women who express a wish to wait two years or longer are classified as wanting to delay the next child, yielding a three-category preference variable: want soon, want later, do not want. Note that the well-established global indicators “demand for family planning”, “unmet need for contraception”, and “demand satisfied” are constructed using the same fertility preference indicator as used in this analysis (*Indicator Metadata Registry List*, n.d.).

Pregnant women and infecund women, both small fractions of women of reproductive age, require special treatment. Pregnant women are assigned a fertility preference category based on the reported wanted status of the pregnancy (wanted then, wanted later, not wanted). In those few surveys where currently pregnant women were not asked about the wanted status

of the pregnancy, we infer whether it was wanted or not by comparing the woman's number of living children with her stated ideal number of children (but we are unable to determine whether wanted pregnancies were mistimed, i.e., occurred sooner than wanted). Note that pregnant women are not excluded, as is the case in some analyses of contraception.

Excluding pregnant women is a form of selection on the dependent variable: currently pregnant women are selective of non-users.

Women who self-report as being infecund present a measurement problem. In some surveys (most notably WFS) infecund women are not asked about their fertility preferences. In many other surveys (e.g., DHS) "cannot get pregnant" is a category in the fertility preference item; it is not explicitly offered to women, but the interviewer checks this box if women volunteer that they do not believe they can conceive. For these women, it is not known whether they wanted another child or not. In short, in most surveys available for this research, fertility preferences are missing for women who self-report as infecund. Our solution is to exclude these women entirely from the analysis; this is tantamount to an assumption that infecundity is random with respect to fertility preferences. In the surveys selected for this analysis, the fraction of women self-reported infecund ranges from 0% to 9%, with a median of less than 2%.

In all surveys, the analysis is restricted to women currently in-union. This restriction is applied in the interest of comparability; in a sub-set of surveys, contraception and/or fertility preferences was only measured for women currently in-union. And by usual convention this is the sub-population for mCPR (*Indicator Metadata Registry List*, n.d.).

We also exclude women ages 45 and above. A large fraction of these women self-report as being infecund and, in any case, the risk of conceiving is low and hence contraception is of little relevance for most of these women.

The sample for this analysis, therefore, is in-union women ages 15-44 who do not self-report as infecund.

### **Decomposition Approach**

We perform regression decomposition, applying conventional and well-established formulae (Fortin et al., 2011). At the individual level, use of modern contraception (dichotomy) is

regressed on fertility preferences (two-category or three-category variable, for without spacing and with spacing variants, respectively). For each pair of surveys in the decomposition, logistic regressions are estimated. On the basis of the proportions of women in each preference category and the estimated regression coefficients for each category, change in modern contraceptive use is attributed to (i) a change in preference composition and (ii) a change in the effects of each preference category (i.e., the regression coefficients). For the purposes of this research, the latter component is described as “implementation of preferences”; it is effectively the rates of contraceptive use within fertility preference categories.

The decompositions are performed using the Stata procedure “oaxaca” (Jann, 2008). The decomposition outcome is expressed as three percentage contributions to change in contraception, summing to 100%: a “composition” component (distribution according to fertility preferences); a “rates” component (rates of use within preference categories, as represented by the regression coefficients); and an “interaction” component, which is a residual. As shown in Results (Table 3), the interaction component is very small on average (2%) and is larger than 10% in absolute value (i.e., negative or positive) in 7% of the decompositions.

The procedure “oaxaca” applies the adaptation of the Oaxaca-Blinder decomposition to non-linear models, such as logit, developed by Yun (Yun, 2004). When regression decomposition employs categorical predictor variables, such as fertility preferences, an “identification problem” presents itself. To resolve this, “oaxaca” adopts the “normalization” approach proposed by Yun (Yun, 2005, 2008).

## **Results**

### **Change in modern contraception**

The average mCPR at each survey are presented by region in Table 2. Overall, modern contraception increased by an average of 17 percentage points between surveys (in both analyses, without and with spacing). Middle and West Africa had the lowest mCPR at each survey and experienced the least amount of change between surveys.



**TABLE 2** Mean Percentage of Currently Married Women Aged 15-44 Using Modern Contraception by Survey and Percentage-point Change in Contraception Use between Surveys, by Region

<b>Panel A: Without Spacing</b>				
<b>Region</b>	<b>Average % modern contraception</b>			
	<b>Survey 1</b>	<b>Survey 2</b>	<b>Inter-survey change</b>	<b>Per annum change</b>
East & Southern Africa	20.2	40.1	19.9	1.52
Middle & West Africa	4.6	18.3	13.7	0.60
Latin America & Caribbean	41.1	56.8	15.7	1.17
South & Southeast Asia	27.6	46.8	19.2	1.17
West Asia & North Africa	25.1	40.3	15.2	1.03
Total	26.0	42.9	16.9	1.15

<b>Panel B: With Spacing</b>				
<b>Region</b>	<b>Average % modern contraception</b>			
	<b>Survey 1</b>	<b>Survey 2</b>	<b>Inter-survey change</b>	<b>Per annum change</b>
East & Southern Africa	22.2	42.5	20.3	1.60
Middle & West Africa	5.3	18.3	13.0	0.63
Latin America & Caribbean	40.7	56.5	15.8	1.21
South & Southeast Asia	30.2	45.7	15.5	0.91
West Asia & North Africa	30.3	46.5	16.3	1.06
Total	26.0	42.5	16.5	1.15

### **Decomposition of change in modern contraception**

The decomposition of the change in mCPR indicates that change in the rates of contraceptive use within fertility preference categories (i.e., implementation of fertility preferences) accounts for over 90% of the change in mCPR on average. In contrast, change in fertility preferences (“composition”) accounts for less than 10% of the change in mCPR on average (Table 3). The average percent contribution of composition versus rates for each region differs slightly based on whether spacing preferences are considered (Table 3, Panel A vs. Panel B).

Examination of the decomposition-by-decomposition results underscores the dominance of preference implementation as the source of mCPR change. The values of this component for each decomposition are displayed in Figures 1A and 1B. Without spacing or with spacing, in more than three-quarters of the decompositions, implementation of preferences accounts for between 80%-110% of change in mCPR. Notable exceptions to this

overall pattern include India, for which implementation of fertility preferences accounts for about 40% of mCPR change, and Turkey for which it accounts for 130%. The analysis with spacing yields similar patterns (Figure 1B). Values over 100% must be accompanied by a negative value for the preference composition component; these are instances in which fertility preferences changed in a direction which in itself would have produced a decline in mCPR. Such shifts in preference composition are moderately common, as evident in the analysis in the next section.

**TABLE 3** Decomposition of Change in mCPR: Mean Percentage Distribution of Change in mCPR, by Region

<b>Panel A: Without spacing</b>			
<b>Region</b>	<b>Composition</b>	<b>Rates</b>	<b>Interaction</b>
East & Southern Africa	4.4	94.1	1.5
Middle & West Africa	2.9	94.8	2.2
Latin America & Caribbean	2.9	95.5	1.6
South & Southeast Asia	9.2	87.5	3.3
West Asia & North Africa	6.8	91.0	2.3
Total	4.7	93.3	2.0

<b>Panel B: With Spacing</b>			
<b>Region</b>	<b>Composition</b>	<b>Rates</b>	<b>Interaction</b>
East & Southern Africa	6.3	91.4	2.3
Middle & West Africa	4.5	90.0	5.5
Latin America & Caribbean	6.7	91.2	2.1
South & Southeast Asia	8.7	93.2	-1.9
West Asia & North Africa	0.9	101.2	-2.1
Total	5.8	92.2	2.0

### **Change in fertility preferences**

The small contribution of change in fertility preferences to mCPR change follows directly from the empirical fact that changes in preference composition have been surprisingly small in these societies undergoing fertility decline. The percent of women wanting to stop childbearing increased by five percentage points between surveys on average (Table 4). Latin America and the Caribbean experienced the least amount of change. The rate of change is 0.31 percentage points per annum.<sup>2</sup> This contrasts with the far more rapid change in mCPR of 1.15 percentage points per annum (Table 2).

**TABLE 4** Mean Percentage of Currently Married Women Aged 15-44 Wanting to Stop or Delay Childbearing, and Change by Survey and by Region

<b>Region</b>	<b>% wanting to stop childbearing</b>			
	<b>Survey 1</b>	<b>Survey 2</b>	<b>Inter-survey change</b>	<b>Per annum change</b>
East & Southern Africa	31.1	38.3	7.2	0.47
Middle & West Africa	14.7	20.9	6.1	0.19
Latin America & Caribbean	54.7	57.2	2.5	0.18
South & Southeast Asia	48.7	55.7	7.0	0.42
West Asia & North Africa	44.5	49.9	5.4	0.37
Total	40.2	45.5	5.3	0.31

The fact that the per annum rate of change in mCPR generally far outpaces that of fertility preferences is plainly evident in the decomposition-by-decomposition displays in Figure 2. When both rates are plotted against each other, almost all decompositions lie above the line of equality, i.e., the rate of change in mCPR exceeds the rate of change in the desire to stop childbearing. Notable exceptions to this are Kenya (1978-1989) and Namibia (1992-2000), both of which experienced a 3% per annum rate of change in the desire to stop childbearing in the noted time periods. Fertility preferences changed at a slower rate in both countries in subsequent inter-survey periods.

Figure 1A. Decomposition of Change in Contraception - Without Spacing  
 Percent Contribution of Increased Implementation of Preferences

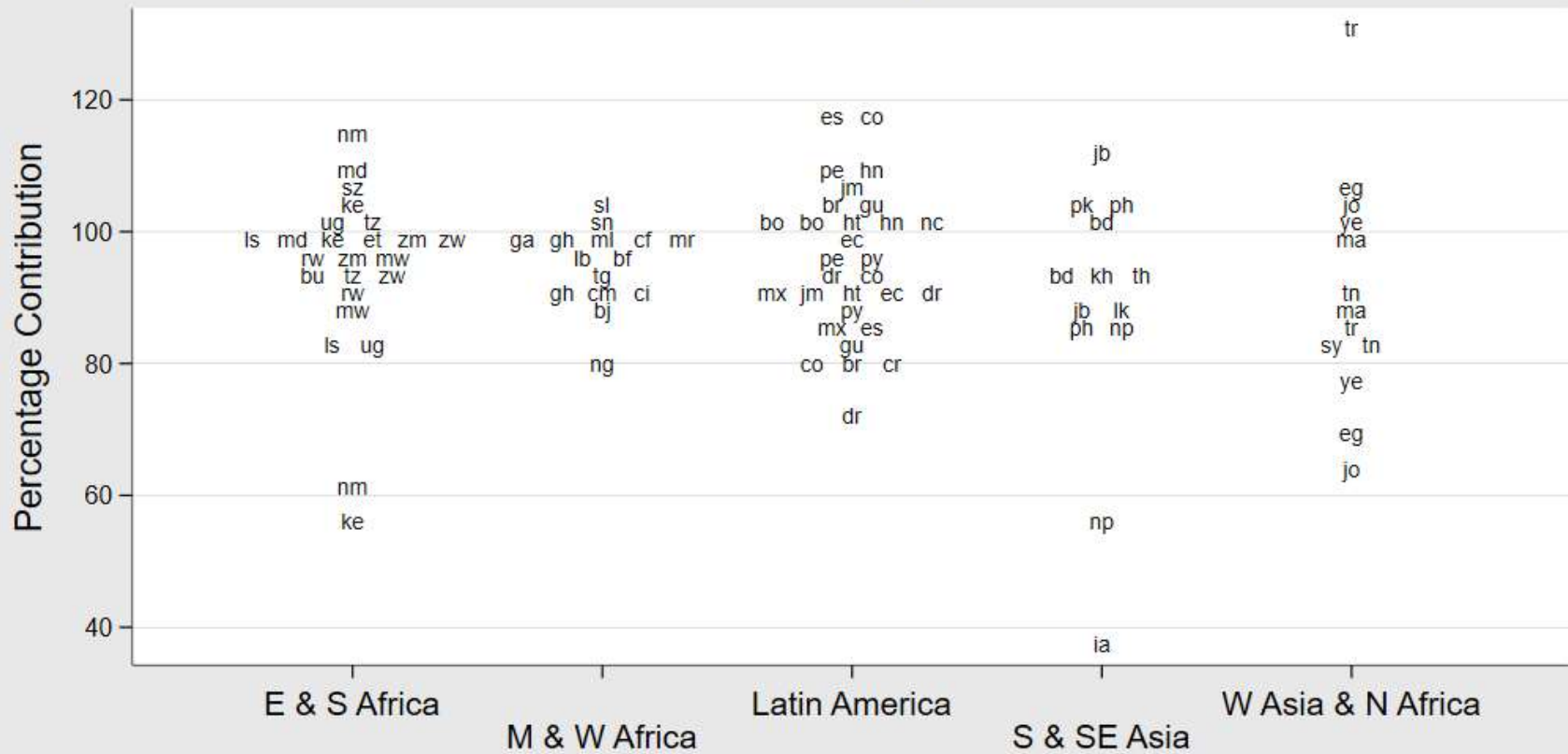


Figure 1B. Decomposition of Change in Contraception - With Spacing  
 Percent Contribution of Increased Implementation of Preferences

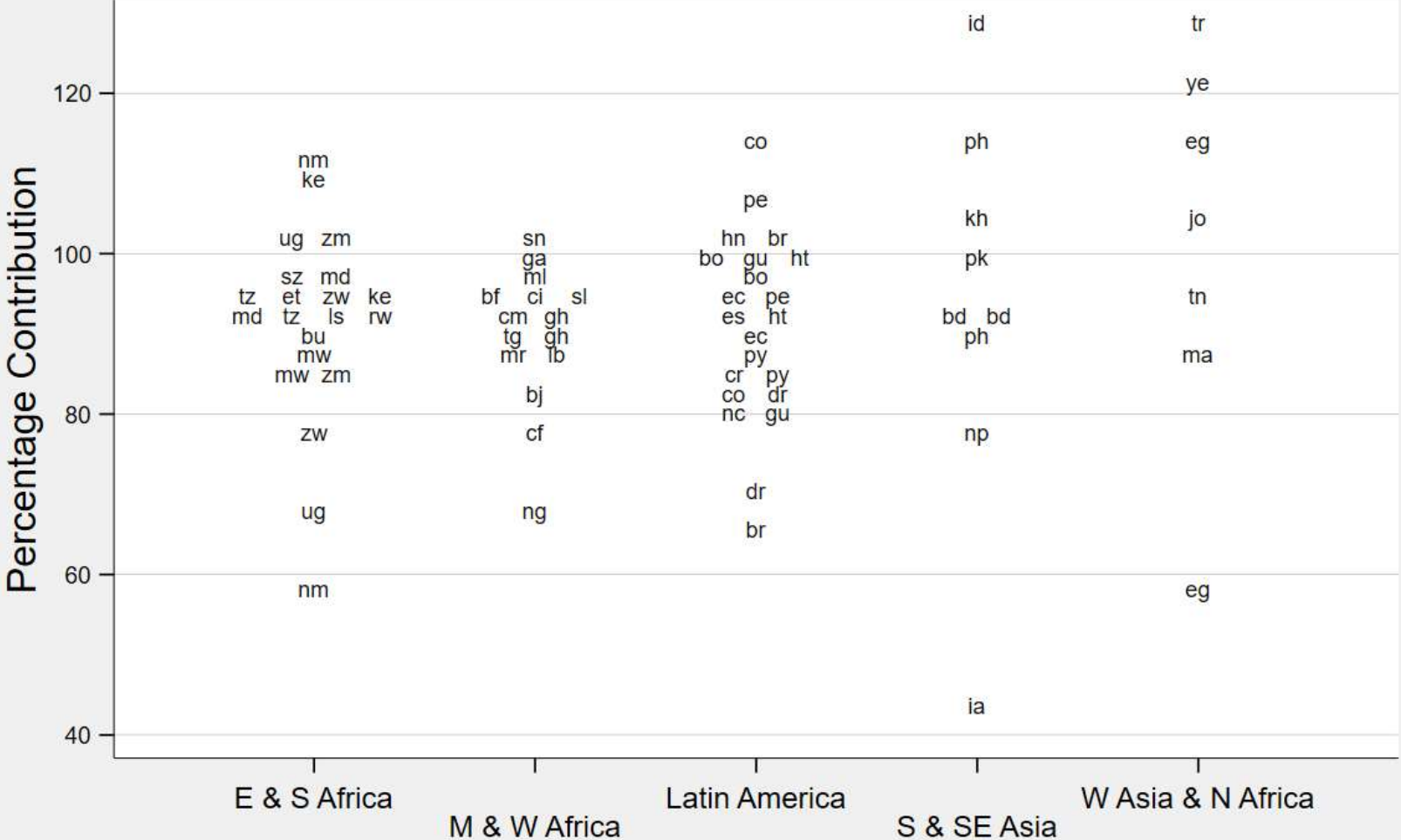
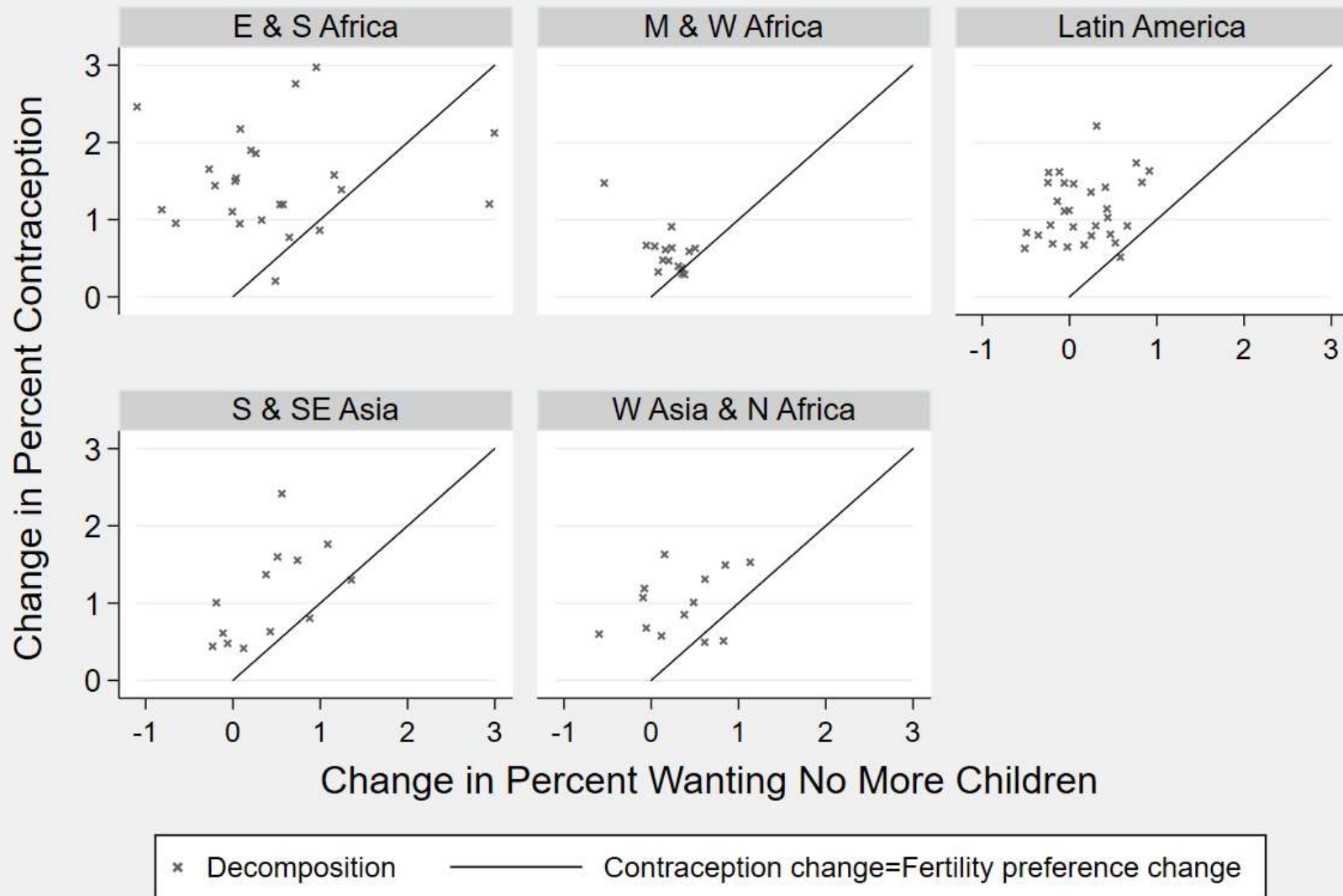


Figure 2. Per Annum Change in Contraception and Composition, by Region



## Discussion

This research addresses a large and fundamental question: to what extent can the substantial increases in contraception in recent decades in LMIC be attributed to more demand versus satisfaction of demand? Our results answer this question decisively and overwhelmingly in favor of the latter; on average more than ninety percent of the observed increase in the use of modern contraception has been due to increased rates of use among those women who want to delay the next birth or have no further births. (Use has also increased among women who want another child within two years.) By contrast, less than ten percent can be attributed to an increase in the fraction of women who want to delay or stop childbearing. This conclusion applies to all regions – we observe no “African exceptionalism”. And only a few countries depart meaningfully from this conclusion, with India the notable and, because of its demographic weight, important exception.

We have also demonstrated that this result should occasion no surprise once one recognizes that demand, operationalized as the distribution of reproductive-age women according to fertility preferences, has increased slowly in recent decades. The rate of increase in the percentage of women who want to avoid pregnancy (delay or stop) is about one-quarter to one-third the rate of increase in the percentage of women using modern contraception. It follows that increase in demand, as conventionally operationalized, cannot account for most of the contraceptive increase. In view of the documented declines in the desired number of children, the relative stability of fertility preference composition is a puzzle that merits its own demographic analysis. Elsewhere we have examined this phenomenon in more depth (Zhang, 2019). Declines in desired number of children mean that women reach their desired number at a lower parity and hence, *ceteris paribus*, should spend a larger fraction of their reproductive years wanting to avoid pregnancy. The explanation for the relative stability in preference composition must lie in a cluster of factors that offset declines in desired fertility, including later age at first birth, longer inter-birth spacing, and possibly shifts in the age structure toward younger women and/or the parity structure toward lower parities. Consistent with this expectation, Zhang (2019) shows that parity-specific percentages wanting to stop or space childbearing have increased rather rapidly, but the overall prevalence

of the desire to stop has changed more slowly (or not at all) due to offsetting changes in parity composition.

In asserting that change in fertility preferences has contributed minimally to contraceptive change, we must acknowledge that this is based on a simplistic measurement of preferences. Women are categorized as wanting a child soon (within two years), later, or not at all. There is no allowance for variation in motivation within these categories. But surely, within these categories, women vary in the intensity of their conviction about the stated reproductive goal, for example, their conviction that they should have no further births. It is plausible that over time, within categories, the composition shifts toward a larger fraction of women with strong attachment to delaying or avoiding another birth. This would constitute a genuine change in fertility preferences that is missed in our analysis, yielding an under-estimate of the contribution of preference change to contraceptive change. This said, we note again that the preference indicator employed in this analysis serves as the basis for the major family planning global indicators (including demand, unmet need, and demand satisfied) (*Indicator Metadata Registry List*, n.d.).

It is also important to recognize that our analysis does not speak directly to the question of to what extent increased availability of contraception, due to family planning programs and other developments, has contributed to the increased implementation of fertility preferences. Incomplete implementation can be the consequence of a host of “costs of fertility regulation” (Campbell et al., 2006; Casterline & Sinding, 2000; Easterlin, 1975). The costs go well beyond access to affordable family planning to include factors such as fear of health side effects, opposition from the husband and other influential persons, and concerns about the moral acceptability of contraception. Such non-access costs can be reduced through information and services provided by family planning programs, but no doubt many non-program factors also contribute to the strength of non-access costs.

## **Conclusion**

The main conclusion from this research – that implementation of preferences, not change in preferences, has been the main source of contraceptive change – was obtained by means of a relatively straightforward decomposition exercise. As such, the conclusion stands as an elementary description of the nature of contraceptive change in 58 Asian,



African, and Latin American countries in the decades since the 1970s. By demonstrating that considerable gains in contraceptive prevalence can be achieved simply by enabling couples to carry through on their desires to avoid pregnancy, these results clearly are more compatible with supply-side theory than with demand-side theory. We have provided empirical verification of the premise that has justified the investment in family planning services in many countries during the past five decades, namely that unsatisfied demand for fertility regulation is widespread and that satisfying this demand can yield large increases in contraceptive prevalence.

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**Appendix. National Demographic Surveys, by Region, Country, Year, and Survey Program**

Region	Country	Country code	Year of Survey
<b>East &amp; South Africa</b>	Burundi	bu	1987, 2016
	Ethiopia	et	2000, 2016
	Kenya	ke	1978 <sup>W</sup> , 1989, 1998, 2003, 2014
	Lesotho	ls	1977 <sup>W</sup> , 2004, 2009, 2018 <sup>M</sup>
	Madagascar	md	1992, 2008, 2018 <sup>M</sup>
	Malawi	mw	1992, 2004, 2015
	Namibia	nm	1992, 2000, 2013
	Rwanda	rw	1983 <sup>W</sup> , 2000, 2015
	Swaziland	sz	2006, 2014 <sup>M</sup>
	Tanzania	tz	1991, 2004, 2015
	Uganda	ug	1988, 2006, 2016
	Zambia	zm	1992, 2007, 2018
	Zimbabwe	zw	1988, 1999, 2015
<b>Middle &amp; West Africa</b>	Benin	bj	1981 <sup>W</sup> , 2018
	Burkina Faso	bf	1992, 2010
	Cameroon	cm	1991, 2018
	Central African Republic	cf	1994, 2019 <sup>M</sup>
	Cote d'Ivoire	ci	1980 <sup>W</sup> , 1994, 2016 <sup>M</sup>
	Gabon	ga	2000, 2012
	Ghana	gh	1988, 2008, 2017 <sup>M</sup>
	Liberia	lb	1986, 2019
	Mali	ml	1987, 2018
	Mauritania	mr	1981 <sup>W</sup> , 2000, 2015 <sup>M</sup>
	Nigeria	ng	1982 <sup>W</sup> , 2018
	Senegal	sn	1986, 1992, 2019
	Sierra Leone	sl	2008, 2019
	Togo	tg	1988, 2017 <sup>M</sup>
<b>Latin America</b>	Bolivia	bo	1989, 1998, 2008
	Brazil	br	1986, 1996, 2006 <sup>O</sup>
	Colombia	co	1976 <sup>W</sup> , 1986, 1995, 2005, 2015
	Costa Rica	cr	1976 <sup>W</sup> , 1986, 1999 <sup>O</sup>
	Dominican Republic	dr	1975 <sup>W</sup> , 1980, 1986, 1996, 2007
	Ecuador	ec	1979 <sup>W</sup> , 1994 <sup>R</sup> , 2004 <sup>R</sup>
	El Salvador	es	1985, 1998 <sup>R</sup> , 2014 <sup>M</sup>
	Guatemala	gu	1987, 1995, 2015
	Haiti	ht	1977 <sup>W</sup> , 1994, 2005, 2017
	Honduras	hn	1991 <sup>R</sup> , 2001 <sup>R</sup> , 2012
	Jamaica	jm	1975 <sup>W</sup> , 1989 <sup>R</sup> , 2008 <sup>R</sup>

	Mexico	mx	1976 <sup>W</sup> , 1987, 2014 <sup>O</sup>
	Nicaragua	nc	1992 <sup>R</sup> , 2006 <sup>R</sup>
	Paraguay	py	1979 <sup>W</sup> , 1995 <sup>R</sup> , 2008 <sup>R</sup>
	Peru	pe	1977 <sup>W</sup> , 1986, 1996, 2012
<b>South &amp; Southeast Asia</b>	Bangladesh	bd	1989 <sup>O</sup> , 2007, 2019 <sup>M</sup>
	Cambodia	kh	2000, 2014
	India	ia	1993, 2006
	Indonesia	jb, id	1976 <sup>W</sup> , 1987, 1991, 2012
	Nepal	np	1976 <sup>W</sup> , 1996, 2001, 2019 <sup>M</sup>
	Philippines	ph	1978 <sup>W</sup> , 1986 <sup>O</sup> , 1998, 2003, 2017
	Pakistan	pk	1975 <sup>W</sup> , 1991, 2018
	Sri Lanka	lk	1975 <sup>W</sup> , 1987
	Thailand	th	1975 <sup>W</sup> , 1987
<b>West Asia &amp; North Africa</b>	Egypt	eg	1980 <sup>W</sup> , 1988, 2008
	Jordan	jo	1975 <sup>W</sup> , 1990, 2012
	Morocco	ma	1980 <sup>W</sup> , 1987, 1992, 2003
	Syria	sy	1978 <sup>W</sup> , 2001 <sup>P</sup>
	Tunisia	tn	1978 <sup>W</sup> , 1988, 2011 <sup>M</sup>
	Turkey	tr	1978 <sup>W</sup> , 1993, 1998, 2013
	Yemen	ye	1979 <sup>W</sup> , 2003 <sup>P</sup> , 2013

All surveys are DHS unless otherwise indicated.

<sup>W</sup> World Fertility Surveys (WFS)

<sup>P</sup> Pan Arab Project for child development or family health (PAP)

<sup>M</sup> Multiple Indicator Cluster Surveys (MICS)

<sup>R</sup> Reproductive Health Surveys (RHS)

<sup>O</sup> Other national demographic surveys

## Notes

<sup>1</sup> Examination of within-country trends in LAM revealed marked volatility from survey-to-survey in a few countries that almost certainly reflects inconsistent measurement. This in turn led to some eccentric decomposition results. Note that LAM is a tiny fraction of mCPR in the vast majority of surveys.

<sup>2</sup> We have also examined trends in the desire to delay the next birth. This change is even slower than change in the desire to have no further births – 0.08 percentage points per annum on average.