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## Family Planning: The Anchor behind the Sub-Saharan African Fertility Progression

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### **Abstract:**

*Rapid population growth strain countries' developmental progress. It is confirmed among scholars that fertility have decelerated in most of the countries in the recent past. Scholars have concentrated on wide range of factors associated with fertility majorly at the national scale with some opining that analysis of trends and differentials in the various fertility parameters have been discussed expansively. However, others believe that considerably limited attention has been paid to the fertility preference- a pathway through which various variables act on fertility. The Sub-Saharan African countries' discrepancies amid almost similarities in policies is a cause of concern to demographers. One would also point at the insufficient synergies that have been focused on the fertility preference as well, especially at the macro scale. Exploiting Bongaarts reformulation of Easterlin and Crimmins (1985) conceptual structure, the understanding of the current transition based on the fertility preference in general would help to provide explanations to the observed latest dynamics. This study therefore is an attempt to explain the current fertility transition through women's fertility preference. Results reveal that indeed fertility transition is on course in most of the sub-Saharan countries with huge disparities in fertility preferences and its implementation indices.*

**Keywords:** Fertility preference, sub-Saharan Africa, fertility implementation index, fertility transition

### **1. Introduction**

Fertility change across societies is a complex process that involves changes in the demand for children, the diffusion of new attitudes about family planning and greater accessibility to contraception provided by family planning programmes (Cleland and Wilson, 1987; Freedman and Freedman, 1991). Debates about Sub Saharan Africa transition have almost reached a consensus about its uniqueness (Casterline, 2017) since in begun in the mid 1990s. The trajectory of African fertility transitions occurred earlier than they would have if Africa had followed the non-African relationship between fertility and development (Bongaarts, 2016). However, the pace of fertility decline at the time of the onsets was slower than the comparable pace at the onsets of non-African transitions. The key features of Africa fertility regimes indicate that at a given level of development, Africa's fertility is higher, contraceptive use is lower, and desired family size is higher than in non-African least developing countries (Bongaarts, 2016; Bongaarts and Casterline 2013). In this study we seek to add to our understanding of the fertility transition by examining how countries differ in their patterns of reproductive behavior. We specifically examine trends in the extent to which fertility desires and the ability to implement fertility desires contributes to fertility change.

### **2. Analytical Model**

We apply Bongaarts (1993) reformulation of Easterlin's (1978) conceptual scheme in which fertility outcome measured by the total fertility rate is a function of: supply of births (natural fertility), demand for births (wanted fertility) and degree of preference implementation. The latter in turn is dependent on cost of fertility regulation and cost of unwanted childbearing. The degree of preference implementation is the net result of a decision-making process in which couples weigh the cost of fertility regulation and the cost of unwanted pregnancy. Figure 1 below shows the diagrammatic presentation

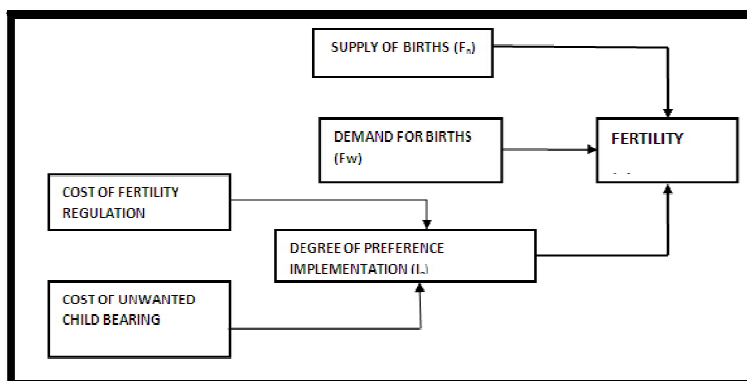


Figure 1: Analytical Model  
Source: Bongaarts, J. (1993)

The supply of births designated as ( $F_n$ ) is the natural total fertility rate of childbearing that would prevail in the absence of any deliberate efforts by couples to limit family size. The demand for births ( $F_w$ ) is taken as total wanted fertility rate of that would be achieved if all women were able to eliminate unwanted births. In theory it is what the level of fertility would have been if all unwanted births are eliminated. The degree of preference implementation ( $I_p$ ) is the net result of decision-making process in which couples weigh the cost of fertility regulation and the cost of unwanted child bearing. In general, the index rises as cost of regulation declines and that of unwanted children increases. If couples fully implement their fertility preferences, the index is equal to unity. This signifies that no unwanted births occur and actual fertility equals wanted fertility. Conversely, if the index is equal to zero, the observed fertility equals natural fertility, that is, fertility in the absence of deliberate fertility control. The value of the index chosen by couples determines where actual fertility falls within the range set by wanted and natural fertility. The total fertility rate,  $F$ , is thus the sum total of the outcomes of the three components and is the estimate of the number of children a woman would have by the end of childbearing if she were to pass through her reproduction period at the current age specific birth rates. While detail the model can obtained from the original article the simply relationships can be shown as follows:

$$F = F_w + F_u \dots\dots\dots (1)$$

Where  $F$  is total fertility (births per woman),  $F_w$  is wanted fertility and  $F_u$  is unwanted fertility (which can simply be expressed as  $F - F_w$ ).

Also,

$$F_u = (F_n - F_w) \times (1 - I_p) \dots\dots\dots (2)$$

Where  $F_n$  is total natural fertility and  $I_p$  is the index of preference implementation with values ranging from 0 to 1. With full preference implementation,  $I_p = 1$  (which implies that  $F_u = 0$  and  $F = F_w$ ) and  $I_p = 0$  i.e. no preference implementation (This implies a substantial level of unwanted childbearing and  $F = F_n$ ).  $F_u$  is a function of the difference between supply and demand, and the degree of preference implementation and on substitution of equation (2) into (1) yields

$$F = F_w \times I_p + F_n \times (1 - I_p) \dots\dots\dots (3)$$

Natural fertility

$$F_n = F/C \dots\dots\dots (4)$$

- $C$  is an index between 0 and 1 that measures the proportional reduction in natural fertility attributable to deliberate birth control.

$$C = 1 - 1.02 \times U \dots\dots\dots (5)$$

- $U$  represents the proportion of married women who were practising contraception at the time of survey. It is measured as the number of married women using contraceptive method to the total number of married women.

Substitution of (5) in (4) gives an estimate of  $F_n$  while rearranging equation (3) gives

$$I_p = (F_n - F) / (F_n - F_w) \dots\dots\dots (6)$$

Equation 6 can now be used to estimate the degree of preference implementation once natural fertility, actual fertility and wanted fertility are known. The wanted fertility is estimated using the following

$$F_w = 1.488 + 0.820 \times F^* (1 - W_c) \dots\dots\dots (7)$$

$W_c$  is the proportion of women of reproductive age who want no more children. Equation 7 is derived from regression equation based on 121 demographic and health surveys conducted in Sub Saharan Africa since 1987. This equation is similar to the one used by Bongaarts (1993) based on 18 DHS.

In order to determine the contributions to fertility decline we use similar procedure as Bongaarts 1993 described below. Vincent Insert decomposition here

### 3. Results

- Trends in wanted fertility rate and index of implementation of fertility preference
- Trends in wanted fertility rate and fertility preference implementation index are provided in Table 1.

For most countries with two or more surveys except Mozambique, Chad, have witnessed an increased in  $I_p$ . Congo experienced an increase in wanted fertility while wanted fertility did not change much in DRC. Some countries like

Namibia, Mozambique and Niger show slight increase in wanted fertility rate. All other countries experienced a decline in wanted fertility rate on average.

| Country                   | Survey year | F= Total fertility rate | F <sub>w</sub> = Total wanted fertility rate | F <sub>n</sub> = natural fertility (Fertility rate in absence of any contraception) | I <sub>p</sub> = Index of preference implementation |
|---------------------------|-------------|-------------------------|--|---|---|
| Angola                    | 2015-16 DHS | 6.2                     | 4.99   | 7.21  | 0.45  |
| Benin                     | 2011-12 DHS | 4.9                     | 4.4  | 5.64  | 0.6   |
| Benin                     | 2006 DHS    | 5.7                     | 4.89   | 6.89  | 0.59  |
| Benin                     | 2001 DHS    | 5.6                     | 4.89   | 6.91  | 0.65  |
| Benin                     | 1996 DHS    | 6                       | 5.28   | 7.21  | 0.63  |
| Burkina Faso              | 2010 DHS    | 6                       | 5.24   | 7.19  | 0.61  |
| Burkina Faso              | 2003 DHS    | 5.9                     | 5.21   | 6.87  | 0.58  |
| Burkina Faso              | 1998-99 DHS | 6.4                     | 5.71   | 7.28  | 0.56  |
| Burkina Faso              | 1993 DHS    | 6.5                     | 5.8  | 8.71  | 0.76  |
| Burundi                   | 2010 DHS    | 6.4                     | 5.03   | 8.24  | 0.57  |
| Burundi                   | 1987 DHS    | 6.9                     | 5.7  | 7.57  | 0.36  |
| Cameroon                  | 2011 DHS    | 5.1                     | 4.55   | 6.7   | 0.75  |
| Cameroon                  | 2004 DHS    | 5                       | 4.72   | 6.8   | 0.86  |
| Cameroon                  | 1998 DHS    | 4.8                     | 4.65   | 5.98  | 0.89  |
| Cameroon                  | 1991 DHS    | 5.8                     | 5.6  | 6.94  | 0.85  |
| Chad                      | 2014-15 DHS | 6.4                     | 6.09   | 6.8   | 0.56  |
| Chad                      | 2004 DHS    | 6.3                     | 6.22   | 7.1   | 0.91  |
| Chad                      | 1996-97 DHS | 6.4                     | 6.21   | 6.68  | 0.6   |
| Congo                     | 2011-12 DHS | 5.1                     | 4.93   | 9.37  | 0.96  |
| Congo                     | 2005 DHS    | 4.8                     | 4.67   | 8.76  | 0.97  |
| Congo Democratic Republic | 2013-14 DHS | 6.6                     | 5.63   | 8.33  | 0.64  |
| Congo Democratic Republic | 2007 DHS    | 6.3                     | 5.64   | 7.98  | 0.72  |
| Cote d'Ivoire             | 2011-12 DHS | 5                       | 4.75   | 6.14  | 0.82  |
| Cote d'Ivoire             | 1998-99 DHS | 5.2                     | 4.87   | 6.14  | 0.74  |
| Cote d'Ivoire             | 1994 DHS    | 5.3                     | 4.9  | 6   | 0.63  |
| Ethiopia                  | 2016 DHS    | 4.6                     | 3.88   | 7.26  | 0.79  |
| Ethiopia                  | 2011 DHS    | 4.8                     | 3.97   | 6.78  | 0.7   |
| Ethiopia                  | 2005 DHS    | 5.4                     | 4.05   | 6.35  | 0.41  |
| Ethiopia                  | 2000 DHS    | 5.5                     | 4.56   | 6   | 0.34  |
| Ghana                     | 2014 DHS    | 4.2                     | 3.65   | 5.77  | 0.74  |
| Ghana                     | 2008 DHS    | 4                       | 3.57   | 5.26  | 0.75  |
| Ghana                     | 2003 DHS    | 4.4                     | 3.8  | 5.92  | 0.72  |
| Ghana                     | 1998 DHS    | 4.4                     | 3.83   | 5.67  | 0.69  |
| Ghana                     | 1993 DHS    | 5.2                     | 4.3  | 6.56  | 0.6   |
| Ghana                     | 1988 DHS    | 6.4                     | 5.36   | 7.37  | 0.48  |
| Guinea                    | 2012 DHS    | 5.1                     | 4.84   | 5.41  | 0.55  |
| Guinea                    | 2005 DHS    | 5.7                     | 5.14   | 6.28  | 0.51  |
| Guinea                    | 1999 DHS    | 5.5                     | 5.06   | 5.87  | 0.46  |
| Kenya                     | 2014 DHS    | 3.9                     | 3.08   | 9.55  | 0.87  |
| Kenya                     | 2008-09 DHS | 4.6                     | 3.24   | 8.58  | 0.75  |

| Country    | Survey year | F= Total fertility rate | F <sub>w</sub> = Total wanted fertility rate | F <sub>n</sub> = natural fertility (Fertility rate in absence of any contraception) | I <sub>p</sub> = Index of preference implementation |
|------------|-------------|-------------------------|--|---|---|
| Kenya      | 2003 DHS    | 4.9                     | 3.55   | 8.18  | 0.71  |
| Kenya      | 1998 DHS    | 4.7                     | 3.29   | 7.8   | 0.69  |
| Kenya      | 1993 DHS    | 5.4                     | 3.62   | 8.1   | 0.6   |
| Kenya      | 1989 DHS    | 6.7                     | 4.13   | 9.23  | 0.5   |
| Lesotho    | 2014 DHS    | 3.3                     | 2.63   | 8.55  | 0.89  |
| Lesotho    | 2009 DHS    | 3.3                     | 2.61   | 6.34  | 0.81  |
| Lesotho    | 2004 DHS    | 3.5                     | 2.81   | 5.65  | 0.76  |
| Liberia    | 2013 DHS    | 4.7                     | 4.19   | 5.92  | 0.71  |
| Liberia    | 2007 DHS    | 5.2                     | 4.44   | 5.88  | 0.47  |
| Liberia    | 1986 DHS    | 6.7                     | 6.04   | 7.17  | 0.42  |
| Madagascar | 2008-09 DHS | 4.8                     | 3.75   | 8.09  | 0.76  |
| Madagascar | 2003-04 DHS | 5.2                     | 4  | 7.19  | 0.62  |
| Madagascar | 1997 DHS    | 6                       | 4.53   | 7.48  | 0.5   |
| Madagascar | 1992 DHS    | 6.1                     | 4.46   | 7.35  | 0.43  |
| Malawi     | 2015-16 DHS | 4.4                     | 3.32   | 11.11   | 0.86  |
| Malawi     | 2010 DHS    | 5.7                     | 3.97   | 10.76   | 0.75  |
| Malawi     | 2004 DHS    | 6                       | 4.4  | 8.98  | 0.65  |
| Malawi     | 2000 DHS    | 6.3                     | 4.47   | 9.16  | 0.61  |
| Malawi     | 1992 DHS    | 6.7                     | 5.61   | 7.72  | 0.48  |
| Mali       | 2012-13 DHS | 6.1                     | 5.42   | 6.82  | 0.51  |
| Mali       | 2006 DHS    | 6.6                     | 5.85   | 7.2   | 0.44  |
| Mali       | 2001 DHS    | 6.8                     | 5.87   | 7.41  | 0.4   |
| Mali       | 1995-96 DHS | 6.7                     | 5.96   | 7.19  | 0.4   |
| Mali       | 1987 DHS    | 7.1                     | 6.35   | 7.46  | 0.32  |
| Mozambique | 2011 DHS    | 5.9                     | 4.95   | 6.69  | 0.46  |
| Mozambique | 2003 DHS    | 5.5                     | 4.91   | 7.43  | 0.77  |
| Mozambique | 1997 DHS    | 5.2                     | 5.03   | 5.52  | 0.65  |
| Namibia    | 2013 DHS    | 3.6                     | 2.91   | 8.42  | 0.87  |
| Namibia    | 2006-07 DHS | 3.6                     | 2.68   | 8.22  | 0.83  |
| Namibia    | 2000 DHS    | 4.2                     | 2.93   | 7.58  | 0.73  |
| Namibia    | 1992 DHS    | 5.4                     | 4.43   | 7.66  | 0.7   |
| Niger      | 2012 DHS    | 7.6                     | 7.19   | 8.86  | 0.75  |
| Niger      | 2006 DHS    | 7                       | 6.72   | 7.9   | 0.76  |
| Niger      | 1998 DHS    | 7.2                     | 6.83   | 7.86  | 0.64  |
| Niger      | 1992 DHS    | 7                       | 6.71   | 7.33  | 0.53  |
| Nigeria    | 2013 DHS    | 5.5                     | 5.16   | 6.5   | 0.75  |
| Nigeria    | 2008 DHS    | 5.7                     | 5.24   | 6.7   | 0.69  |
| Nigeria    | 2003 DHS    | 5.7                     | 5.31   | 6.54  | 0.68  |
| Nigeria    | 1990 DHS    | 6                       | 5.65   | 6.39  | 0.53  |
| Rwanda     | 2014-15 DHS | 4.2                     | 3.26   | 9.18  | 0.84  |
| Rwanda     | 2010 DHS    | 4.6                     | 3.26   | 9.71  | 0.79  |
| Rwanda     | 2007-08 DHS | 5.5                     | 3.78   | 8.75  | 0.65  |
| Rwanda     | 2005 DHS    | 6.1                     | 4.35   | 7.42  | 0.43  |

| Country      | Survey year | F= Total fertility rate | F <sub>w</sub> = Total wanted fertility rate | F <sub>n</sub> = natural fertility (Fertility rate in absence of any contraception) | I <sub>p</sub> = Index of preference implementation |
|--------------|-------------|-------------------------|--|---|---|
| Rwanda       | 2000 DHS    | 5.8                     | 4.64   | 6.7   | 0.44  |
| Rwanda       | 1992 DHS    | 6.2                     | 4.71   | 7.91  | 0.53  |
| Senegal      | 2016 DHS    | 4.7                     | 4.59   | 6.32  | 0.93  |
| Senegal      | 2015 DHS    | 4.9                     | 4.76   | 6.43  | 0.91  |
| Senegal      | 2014 DHS    | 5                       | 4.77   | 6.46  | 0.87  |
| Senegal      | 2012-13 DHS | 5.3                     | 4.92   | 6.48  | 0.76  |
| Senegal      | 2010-11 DHS | 5                       | 4.7  | 5.77  | 0.72  |
| Senegal      | 2005 DHS    | 5.3                     | 4.92   | 6.03  | 0.66  |
| Senegal      | 1997 DHS    | 5.7                     | 5.09   | 6.56  | 0.59  |
| Senegal      | 1992-93 DHS | 6                       | 5.4  | 6.5   | 0.46  |
| Senegal      | 1986 DHS    | 6.4                     | 5.74   | 7.23  | 0.56  |
| Sierra Leone | 2013 DHS    | 4.9                     | 4.45   | 5.9   | 0.69  |
| Sierra Leone | 2008 DHS    | 5.1                     | 4.4  | 5.57  | 0.4   |
| Tanzania     | 2015-16 DHS | 5.2                     | 4.51   | 8.55  | 0.83  |
| Tanzania     | 2010 DHS    | 5.4                     | 4.59   | 8.32  | 0.78  |
| Tanzania     | 2004-05 DHS | 5.7                     | 4.78   | 7.8   | 0.7   |
| Tanzania     | 1999 DHS    | 5.6                     | 4.76   | 7.56  | 0.7   |
| Tanzania     | 1996 DHS    | 5.8                     | 4.82   | 7.14  | 0.58  |
| Tanzania     | 1991-92 DHS | 6.2                     | 5.4  | 6.94  | 0.48  |
| Togo         | 2013-14 DHS | 4.8                     | 4.15   | 6.02  | 0.65  |
| Togo         | 1998 DHS    | 5.2                     | 4.53   | 6.84  | 0.71  |
| Togo         | 1988 DHS    | 6.4                     | 5.44   | 9.78  | 0.78  |
| Uganda       | 2011 DHS    | 6.2                     | 4.41   | 8.93  | 0.6   |
| Uganda       | 2006 DHS    | 6.7                     | 4.72   | 8.84  | 0.52  |
| Uganda       | 2000-01 DHS | 6.9                     | 4.97   | 8.99  | 0.52  |
| Uganda       | 1995 DHS    | 6.9                     | 5.32   | 8.13  | 0.44  |
| Uganda       | 1988-89 DHS | 7.4                     | 6.17   | 7.79  | 0.24  |
| Zambia       | 2013-14 DHS | 5.3                     | 4.23   | 10.6  | 0.83  |
| Zambia       | 2007 DHS    | 6.2                     | 4.75   | 10.62   | 0.75  |
| Zambia       | 2001-02 DHS | 5.9                     | 4.61   | 9.06  | 0.71  |
| Zambia       | 1996 DHS    | 6.1                     | 5.06   | 8.29  | 0.68  |
| Zambia       | 1992 DHS    | 6.5                     | 5.53   | 7.69  | 0.55  |
| Zimbabwe     | 2015 DHS    | 4                       | 3.43   | 12.55   | 0.94  |
| Zimbabwe     | 2010-11 DHS | 4.1                     | 3.49   | 10.17   | 0.91  |
| Zimbabwe     | 2005-06 DHS | 3.8                     | 3.22   | 9.85  | 0.91  |
| Zimbabwe     | 1999 DHS    | 4                       | 3.43   | 8.8   | 0.89  |
| Zimbabwe     | 1994 DHS    | 4.3                     | 3.67   | 8.44  | 0.87  |
| Zimbabwe     | 1988 DHS    | 5.4                     | 4.38   | 9.64  | 0.81  |

Table 1: Trends in Estimates of I<sub>p</sub>, F<sub>w</sub> and F<sub>N</sub> from Various Subs Saharan African Countries

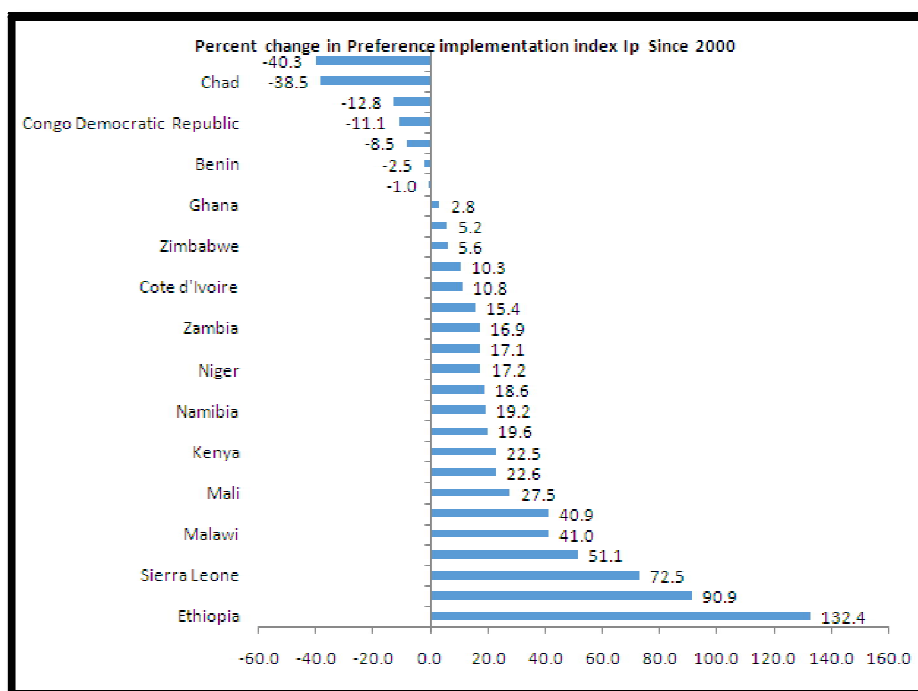


Figure 2: Percent Change in Preference Implementation Index IP Since 2000

### 3.1. Decomposition of Fertility Change and the Contribution of Wanted Fertility Rate and Preference Implementation Index

Table 2 shows the decomposition of fertility change among countries with two or more surveys. There are substantial variations between categories and the results clearly indicate the important role of changes in preference implementation, wanted fertility and natural fertility. In 8 countries TFR increased (marked yellow), in 6 of the 8 countries where fertility increased there was a decline in Ip, in 5 of the 8 countries there was an increase in wanted fertility rate, Fw. Largest decline in fertility occurred in Rwanda, Malawi, Kenya and Ethiopia. The four countries also had the greatest contribution of Ip (Rwanda, Malawi, Ethiopia and Kenya) to fertility decline. Greatest contribution of wanted fertility decline to fertility change occurred in (Malawi, Rwanda and Kenya).

| Country       | Surveys |      | # of Years between | Absolute change in TFR <sup>@</sup> | Absolute contribution to fertility change* |       |       | Percent contribution to fertility change* |     |     |
|---------------|---------|------|--------------------|-------------------------------------|--|-------|-------|---|-----|-----|
|               | Base    | Last |                    |                                     | Fw   | Fn    | Ip    | Fw  | Fn  | Ip  |
| Rwanda        | 2005    | 2014 | 9                  | 1.89                                | 0.69                                       | -0.64 | 1.84  | 37  | -34 | 97  |
| Malawi        | 2004    | 2015 | 11                 | 1.59                                | 0.82                                       | -0.52 | 1.30  | 51  | -33 | 82  |
| Kenya         | 2003    | 2014 | 11                 | 1.00                                | 0.45                                       | -0.29 | 0.84  | 45  | -29 | 84  |
| Ethiopia      | 2005    | 2016 | 11                 | 0.82                                | 0.10                                       | -0.36 | 1.08  | 13  | -45 | 132 |
| Benin         | 2001    | 2011 | 10                 | 0.70                                | 0.31                                       | 0.48  | -0.08 | 44  | 68  | -12 |
| Uganda        | 2000    | 2011 | 11                 | 0.68                                | 0.31                                       | 0.03  | 0.34  | 46  | 4   | 50  |
| Guinea        | 2005    | 2012 | 7                  | 0.60                                | 0.16                                       | 0.41  | 0.03  | 26  | 68  | 6   |
| Senegal       | 2005    | 2016 | 11                 | 0.59                                | 0.26                                       | -0.06 | 0.38  | 45  | -10 | 65  |
| Zambia        | 2001    | 2013 | 12                 | 0.59                                | 0.29                                       | -0.35 | 0.65  | 50  | -60 | 111 |
| Namibia       | 2000    | 2013 | 13                 | 0.56                                | 0.02                                       | -0.17 | 0.71  | 3   | -30 | 127 |
| Lesotho       | 2004    | 2014 | 10                 | 0.51                                | 0.15                                       | -0.02 | 0.38  | 29  | -3  | 74  |
| Liberia       | 2007    | 2013 | 5                  | 0.51                                | 0.15                                       | -0.02 | 0.38  | 29  | -3  | 74  |
| Mali          | 2006    | 2012 | 6                  | 0.50                                | 0.20                                       | 0.20  | 0.10  | 41  | 40  | 19  |
| Tanzania      | 2004    | 2015 | 11                 | 0.49                                | 0.21                                       | -0.18 | 0.46  | 42  | -36 | 94  |
| Madagascar    | 2003    | 2008 | 6                  | 0.42                                | 0.17                                       | -0.28 | 0.53  | 41  | -66 | 125 |
| Nigeria       | 2003    | 2013 | 10                 | 0.21                                | 0.11                                       | 0.01  | 0.09  | 37  | -34 | 97  |
| Cote d'Ivoire | 1998    | 2011 | 12                 | 0.20                                | 0.09                                       | 0.00  | 0.11  | 47  | 0   | 53  |

|                           | Surveys |        | # of Years between | Absolute change in | Absolute contribution to fertility change* |         |         | Percent contribution to fertility change* |         |         |
|---------------------------|---------|--------|--------------------|--------------------|--|---------|---------|---|---------|---------|
|                           | Year 1  | Year 2 |                    |                    | Value 1                                    | Value 2 | Value 3 | Value 4                                   | Value 5 | Value 6 |
| Sierra Leone              | 2008    | 2013   | 5                  | 0.20               | -0.03                                      | -0.15   | 0.38    | -14                                       | -74     | 188     |
| Ghana                     | 2003    | 2014   | 11                 | 0.19               | 0.11                                       | 0.04    | 0.04    | 57  | 21      | 22      |
| Cameroon                  | 2004    | 2011   | 7                  | -0.08              | 0.14                                       | 0.02    | -0.23   | -179                                      | -26     | 305     |
| Burkina Faso              | 2003    | 2010   | 7                  | -0.09              | -0.02                                      | -0.13   | 0.05    | 19  | 139     | -58     |
| Chad                      | 2004    | 2014   | 10                 | -0.10              | 0.10                                       | 0.08    | -0.28   | -93                                       | -77     | 270     |
| Zimbabwe                  | 2005    | 2015   | 10                 | -0.16              | -0.19                                      | -0.20   | 0.24    | 121                                       | 126     | -147    |
| Congo                     | 2005    | 2011   | 6                  | -0.31              | -0.25                                      | -0.02   | -0.04   | 80  | 7       | 14      |
| Congo Democratic Republic | 2007    | 2013   | 6                  | -0.31              | 0.01                                       | -0.11   | -0.20   | -2  | 37      | 66      |
| Mozambique                | 2003    | 2011   | 8                  | -0.40              | -0.03                                      | 0.29    | -0.66   | 6   | -71     | 165     |
| Niger                     | 2006    | 2012   | 6                  | -0.60              | -0.36                                      | -0.24   | -0.01   | 59  | 39      | 2       |

Table 2: Contribution of Wanted Fertility Rate and Preference Implementation Index to Fertility Change Selected SSA Countries

@ Negative Values Imply an Increase in TFR; \* Negative Values Imply Contributed To Increase in Fertility Rather Than Decline

### 3.2. Preference Implementation Index and Unmet Need for Contraception

Figure 1 shows the association between implementation index and unmet need for contraception. Countries with low values of Ip tend to have higher unmet need for contraception

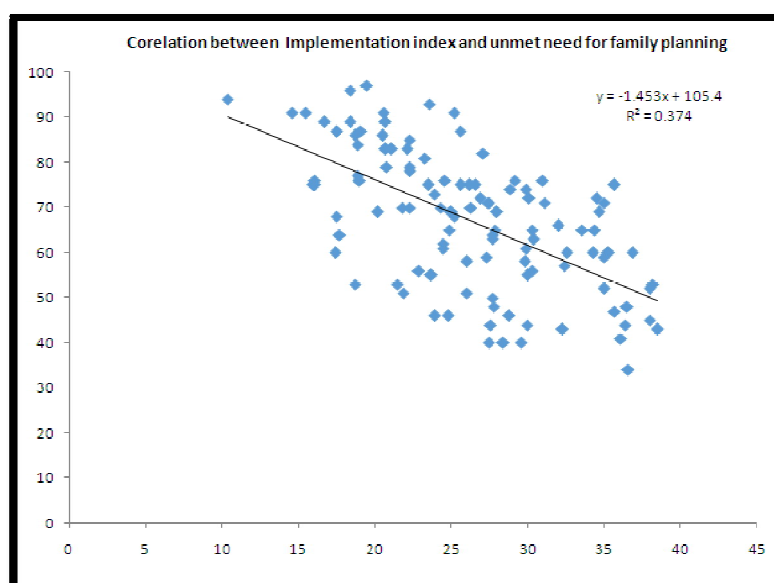


Figure 3: Correlation between Implementation Index and Unmet Need for Family Planning

## 4. Discussion and Conclusions

This observed decline in the indices of fertility i.e. (TFR,  $F_n$ ,  $F_w$  and  $I_p$ ) further confirms the strength of the program efforts by the various stake holders in making contraception available (to curb the unmet need), accessible and affordable to their populace as well as improved contraceptive technology. Unconstrained access to conception is an important marker. The association between  $I_p$  and unmet need suggests that  $I_p$  can be used as an indicator for program efforts.

## 5. References

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