

# **Micro-finance, women's empowerment and fertility decline in Bangladesh: How important was women's agency?**

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## **Abstract**

*It is currently widely argued that Bangladesh's development achievements have "important lessons for other countries across the globe", in particular a focus on "reducing gender inequality" (Sen, 2013: 1). A major avenue through which this emphasis has been manifest lies, according to this narrative, in enhancements to women's agency for instrumental and intrinsic reasons particularly through innovations in family planning and microfinance. The "Bangladesh paradox" of improved well-being despite low economic growth over the last four decades is claimed as a paradigmatic case of the spread of both modern family planning programmes and microfinance leading to women's empowerment and fertility reduction. In this paper we show that the links between microfinance, empowerment and fertility reduction, are fraught with problems, and far from robust; hence the claimed causal links between microfinance and family planning via women's empowerment needs to be further reconsidered.*

## **Introduction**

"Increases in women's ability to make effective choices in the household and society have led to improvements in their welfare and that of their children. Yet shifts in agency have proven difficult to achieve" (World Bank, 2011: Key Message, Chapter 4).

The association of women's agency with human development is a shibboleth of recent development studies and for many the nearest thing there is currently to a magic bullet for human development (World Bank, 2011; Klugman et al., 2014). In most of the literature Bangladesh is a paradigm defining example in which public policy has promoted human development notwithstanding poor economic growth, through projects and policies which work through the enhancement of female agency (Dreze and Sen, 2013). Reduction in fertility was an award winning<sup>1</sup> feature of the Bangladesh experience, which, according to this narrative, came about through innovations in public policy reducing infant mortality and promoting access to and adoption of modern contraception largely though use and promotion of women's agency both as about agents and recipients in family planning and mother and child health programmes, and in microfinance programmes also focused on women<sup>2</sup>.

In this paper we use the large scale fertility and demographic and health surveys in Bangladesh from the 1975 World Fertility Survey (WFS) to the 2011 Bangladesh Demographic and Health Survey (BDHS) to show that (1) fertility decline preceded the wide spread of the family planning, mother and child and microfinance programmes; (2) that male education is as good a predictor of fertility as female

education; (3) that female membership of microfinance NGOs is not associated with lower fertility; and (4) that couples who report that they make decisions jointly are more likely to adopt better reproductive health practices. Taken together this evidence seems to be inconsistent with the particular view that female agency was the “prime mover” to bring about fertility decline. The logic of this view is that women prefer lower fertility than men but require to be empowered (relative to men) in order that these preferences are expressed in the form of reduced fertility within patriarchal households. We trace this view to the rise of feminism in the 1960s in developed countries, and its spread into the population control arena in the 1970s and then into the development industry (Connelly, 2008), where it has dominated the women and gender and development arenas, assumes key roles for female waged employment and female education, but misunderstands family and kinship relations, and neglects or marginalises the roles of men. These views tend to ignore both their own provenance, and ethnographic evidence of different gender relations and fertility preferences in different societies<sup>3</sup>.

The paper proceeds as follows. First we discuss the literature linking microfinance, women’s empowerment and fertility; the presumption that empowered women will have lower fertility and that microfinance empowers women (who will consequently have lower fertility) is widespread. The apparently dramatic decline in fertility in Bangladesh in the last quarter of the last century is a widely used example of these presumptions. Then we show that fertility decline in Bangladesh in all likelihood

preceded both the advent of effective nationwide fertility programmes, and of microfinance, but may have decelerated during the period of the most rapid expansion of these programmes in the 1990s. Then we suggest that the evidence for the causal chain linking microfinance, women's empowerment and fertility decline is not robust, but that an alternative explanation in terms of structural changes affecting both male and female preferences for smaller families, and apparent widespread agreement between women and their partners about measures of female empowerment, suggests that emphasis on raising the power of women relative to men is not required to account for the decline in fertility (or improvement in reported reproductive health practices). This suggests a quite different approach to improving well-being; without denying either the intrinsic or instrumental values of gender equity in education and waged or entrepreneurial employment, social policy objectives might be better approached by taking a view of couples as the appropriate recipients of development resources and activism, and promoting structural changes that are conducive to preferences of couples for fewer children. Indeed, it should not be a matter of bringing men (back) in, but that they should never have been marginalised in efforts to reduce child and maternal mortality.

## Literature Review

### **Importance of microfinance and fertility**

Bangladesh fertility decline in the fourth quarter of the 20<sup>th</sup> century has been surprising and puzzling. The dominant view has been that this phenomenon was due to "massive

investment in resources, policy commitments, and operational measures in the family planning program" (Simmons, 1996:251). This latter view was put most forcefully in Cleland et al. (1994) drawing on the activities of the International Centre for Diarrhoeal Diseases Research, Bangladesh (ICDDR,B), and its research collaboration mainly with the Bangladesh Rural Advancement Committee (BRAC), from the mid 1970s (Choudhury and Bhuiya, 2004; Abed, 2013). While there have been critics of the "supply" driven account of Bangladesh's fertility decline who have sought to accord structural change and/or demand factors prime roles (notably Kabeer, 2001; van Ginneken and Razzaque, 2003), this literature remains muted, as evident in the continuing use of the Bangladesh fertility reduction experience (see for a very recent example *The Economist*, 12/12/2015:22&58<sup>4</sup>). A related view of the equally surprising related achievements in human development in Bangladesh over this period, emerged strongly in the recent Lancet series on Bangladesh, authored almost entirely by former or present staff of or consultants to ICDDR,B and, or BRAC (Das and Horton, 2013, and other papers in the same issue<sup>5</sup>). The empowerment of women is seen as playing a crucial role as both instrument and indicator of these achievements (e.g. Amin et al., 1995; Khandker, 1996; Latif, 1994; Nanda, 1999; Schuler et al., 1997) and is strongly presented in the Lancet issue (see also Sen, 2013, and Dreze and Sen, 2013). Furthermore, many of these authors see microfinance, promoted by non-governmental organisations (NGOs) such as BRAC, as both promoting fertility decline and empowerment of women, and in some accounts, asserting the causal chain from

microfinance/NGO membership through empowerment to fertility decline. According to this logic microfinance (and related interventions particularly mother and child health and nutrition, and female education) empower women, through women's entrepreneurship and consequent income, and exposure to "modern" and other empowering forces. This leads to increased voice in household affairs, and reduction in effective demand for children, increase in contraceptive adoption, and re-allocation of household resources in favour of human development, and so on (Overholt et al., 1985; Livi-Bacci and de Santis, 1998).

However, there appears to be a major flaw in the causal logic linking fertility decline with "massive investment" in mother and child and family planning, and with the growth of microfinance<sup>6</sup>; fertility decline, dates from at least the mid 1970s, if not to the late 1950s (Dyson, 2001; Kabeer, 2001), seemingly preceded both the geographically wide spread of major family planning programmes and the rise of microfinance in Bangladesh. Furthermore, if the fall in fertility stalled in Bangladesh in the 1990s, as argued by Bongaarts (2006, and others e.g. Shapiro et al., 2011), this would be further evidence against the link between fertility decline and microfinance which took off and expanded most rapidly in that decade.

We find evidence largely to the contrary as shown in Figure 1 below.

**Figure 1:** Total fertility trends in Bangladesh between 1960 - 2010

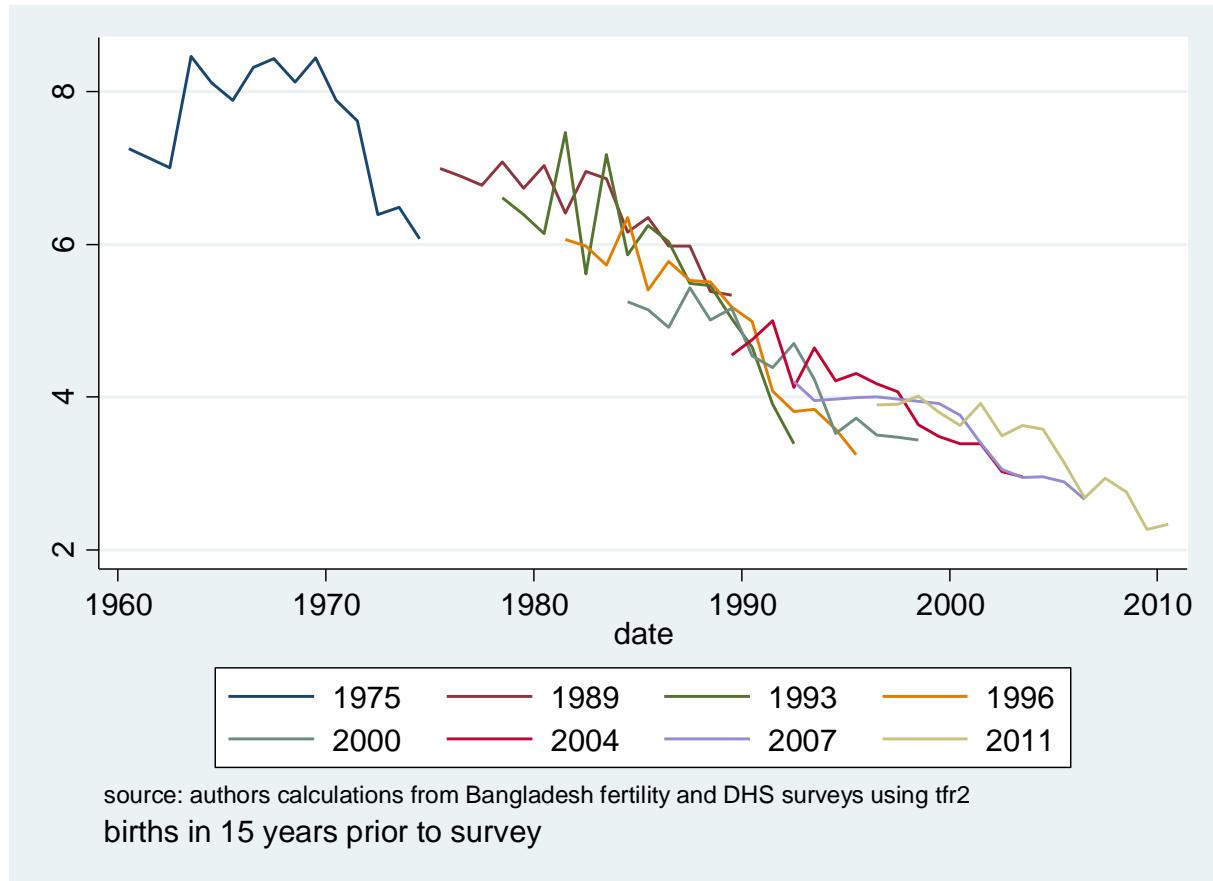
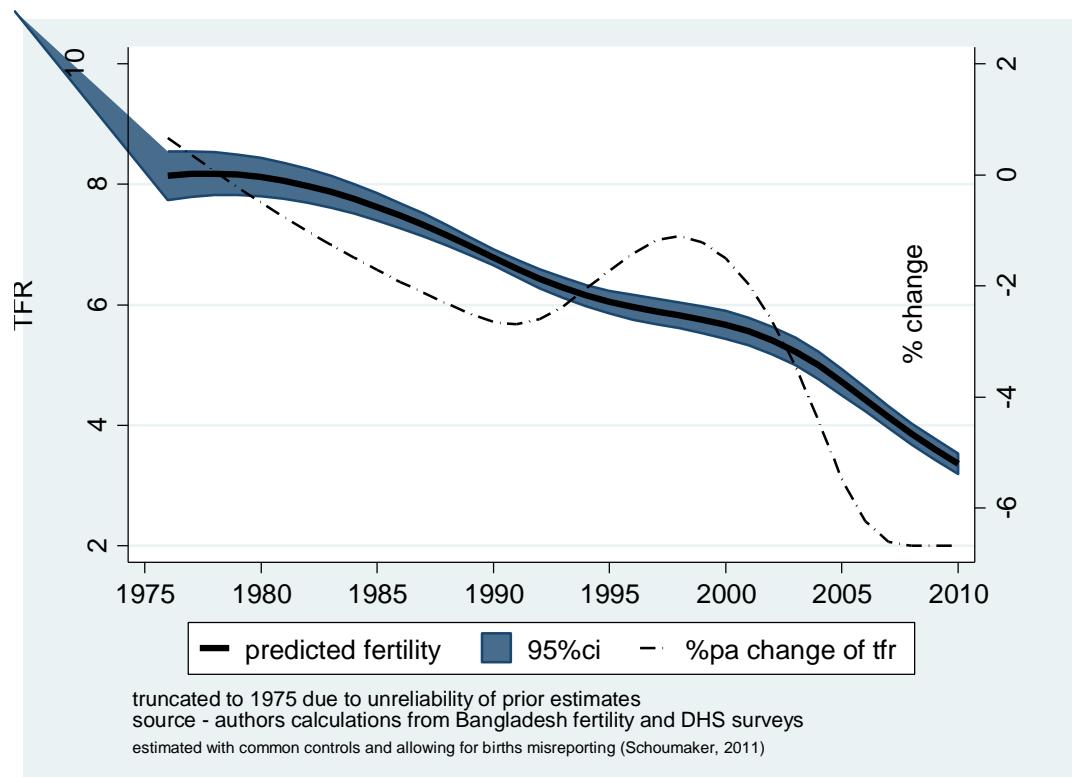


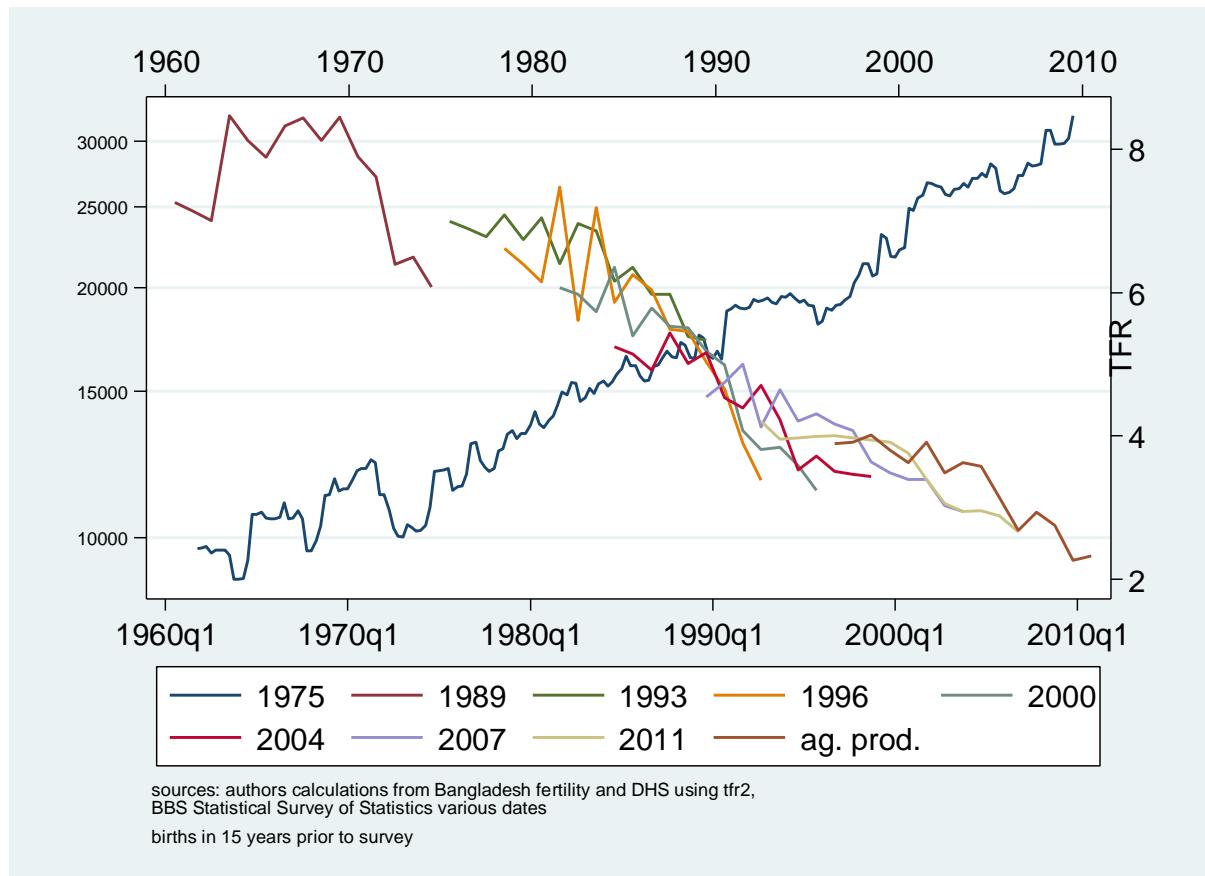
Figure 1 suggests that fertility declined steadily through the late 1970s, and continued to decline. However, there may have been some slowdown in the rate of reduction of fertility in the latter 1990s (Figure 2).

**Figure 2:** Estimated Fertility Trends in Bangladesh, 1975-2010



Indeed, if one is looking for a long term structural trend that could underlie the steady decline in fertility it may well have been the growth in agriculture (Figure 3), and associated growth of incomes proxied by real wages (Figure 4), as well as the growing land pressure and other factors discussed in Kabeer (2001), that contributed in major ways to the structural conditions conducive to preferences for smaller families.

**Figure 3:** Fertility trends and growth of staples in Bangladesh 1960-2011



**Figure 4:** Trends of agricultural wages and rice prices in Bangladesh 1950-2009

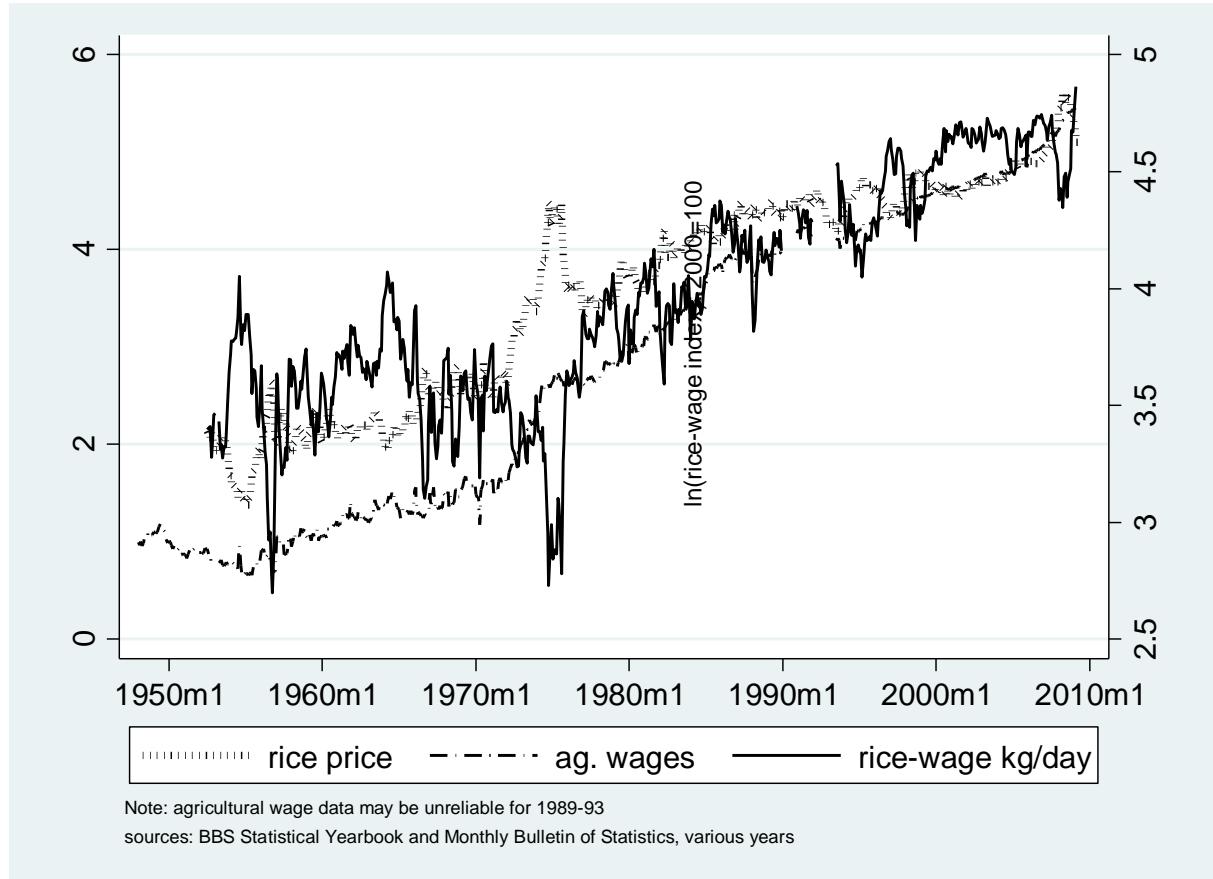


Figure 4 shows that contrary to widely held views (Boyce and Ravallion, 1991) real wages were increasing in the long run (Palmer-Jones, 1993; Palmer-Jones and Parikh, 1998; Rahman, 2009; Zhang et al., 2013), indicating lower poverty. Poverty figures are subject to debate, but it is clear that “money-metric” poverty has been falling (as real wages have been rising) since the late 1970s (World Bank, 2002, 2013; *pace* Ravallion and Sen, 1996). Rising incomes and falling poverty can affect demand for children (Pitt, Khandker, McKernan and Latif, 1999).

Figure 3 makes a similar point indicating that fertility steadily declines while agricultural production increases.

We should further note that the new and successful mother and child and family planning programmes were initiated in the late 1970s on a small scale in only one Thana (Matlab) out of more than 400, and was only expanded nationwide from the mid 1980s. Microfinance is seen as having been initiated in the mid 1970s but did not reach substantial proportions of the population of Bangladesh until the 1990s (Ahmed, 2013), when, as noted above, there may have been some stagnation in fertility decline. Given these complexities establishing a link between microfinance and fertility and women's empowerment is unlikely to be straightforward or constant over time given the uneven nature of agricultural growth and poverty reduction in Bangladesh since the 1970s (World Bank, 2008; see also Palmer-Jones, 1993:291-292).

### **The links between women's empowerment, microfinance and fertility**

It has long been argued that increasing women's status and role in society and rising incomes lead to a decline in fertility (Hartmann, 1995). Thus, many family planning programmes have been combined with income generating activities, such as microfinance schemes, that are often seen to be empowering women. Drawing on themes in the rise of feminism in North America in the 1960s women's empowerment was linked to employment and education and identified as an important factor determining fertility by actors who became prominent in population and development debates (Germain, 1975), and rose to further prominence thanks to the 1994 International Conference on Population and Development in Cairo (Schuler, Hashemi and Riley, 1997; Presser and Sen, 2000; Bledsoe et al., 1999). However, a recent Campbell Library systematic review of the evidence casts doubts about the ability of

microfinance to empower women (Vaessen et al., 2014; Duvendack et al., 2014). Women's empowerment may require more than just income and employment (Hartmann, 1995; Okali, 2011).

Women's status, autonomy and empowerment are terms that are often used interchangeably and there is no consensus on how empowerment is understood and conceptualised (Malhotra et al., 2002). We follow Kabeer's (2001) widely accepted definition of empowerment as a process, and not a static concept, that requires agency, i.e. women themselves have to get involved collectively in the process of empowerment so that personal and structural change can be achieved Kabeer (1999). It is both multidimensional and political. These complexities have implications for the measurement of empowerment (Malhotra et al., 2002). However, much of the work on women's empowerment uses indirect measures such as education and employment (for wages) which are likely to be confounded with both household (partner) characteristics and contextual (level of socio-economic development) variables. Furthermore, much of the analytic work has explicit political intent, namely redressing the historical injustices faced by females (Kabeer, 2001) potentially undermining academic credibility. Perhaps more subtly, because so many studies are conducted by or on behalf of institutions or organisations with powerful interests in population and fertility control, they are vulnerable to biases associated with the interests of (and accommodate to) these interests (Hartmann, 1995; Connelly, 2008; Robertson, 2012).

In the quantitative literature, empowerment is a latent variable which must be estimated before it can be used as an explanatory variable. This poses various challenges as empowerment is not only a complex polysemic concept, but, more mundanely, is both a dependent variable to be explained, and an exogenous or endogenous explanatory variable which is thought to play causal roles in explaining variables of policy concern, such as contraceptive use, or fertility (and well-being, of course). But how valid are claims that a latent variable represents the concept that is thought to play a causal role in determining these outcomes? Claims that variables representing empowerment are valid are sometimes made on the basis that they are associated with outcomes which are deemed to be demonstrative of empowerment.

For example Schuler et al. (2010) write:

“In addition to being based on extensive qualitative research in the socio-cultural context to which they apply (Hashemi and Schuler, 1993), the validity of these empowerment indicators is suggested by the fact that all of them were found to be significantly correlated with women’s participation in microcredit programmes (which were widely believed to be empowering women), controlling for socio-demographic factors; and by the fact that a subset was correlated with women’s use of contraception (Hashemi et al., 1996; Schuler et al. 1997)” (Schuler et al., 2010:842)<sup>7</sup>.

Elsewhere, the same authors use participation in microfinance to explain or account for empowerment, and empowerment is used to explain contraceptive use (Schuler et

al., 1997)<sup>8</sup>. Hence, the argument based on quantitative evidence claims what has to be demonstrated<sup>9</sup>.

### ***Empowerment and fertility***

There are many naïve studies examining empowerment and fertility using DHS data (see for example Upadhyay and Karasek, 2010; Woldemicael, 2007) which show that women's empowerment is positively associated with increased contraceptive use, birth spacing and lower fertility (e.g. Upadhyay et al., 2014; Schuler, Hashemi and Riley, 1997; Hindin, 2000). Many of these studies acknowledge the complexities of investigating the link between empowerment and fertility and suggest further study. It is often argued that increasing education and employment for women enable women's empowerment (e.g. Mason, 1986); however, there is evidence suggesting that this view is possibly misguided (e.g. Balk, 1994; Woldemicael, 2007; Hindin, 2000). Given doubts about education and employment as proxies for women's empowerment, many studies focus on decision-making as the main metric to establish empowerment and then link the various decision-making indices to reproductive decisions. Malhotra et al. (2002) point to 12 studies and Upadhyay et al. (2014) to 60 studies finding evidence of links between empowerment and fertility.

Most studies engaging with family planning issues have largely focused on women (as with other reproductive and mother and child health issues) but some have pointed out that male involvement in reproductive decisions is important and can lead to better health outcomes (Becker, 1996; Mullany, Hindin and Becker, 2005; Mullany, 2010;

Story and Burgard, 2012) – as we discuss in the next section. By excluding men from their analyses, many quantitative studies have ignored the potential confounding of associations between mother characteristics and desirable reproductive variables due to assortative mating (Breirova and Duflo, 2003; see also Iversen and Palmer-Jones, 2008, for a related argument).

### **Couples joint decision making, agreement, disagreement and male involvement**

As mentioned above, some recent studies have pointed out that male involvement in reproductive decisions can lead to better health outcomes (Beenhakker et al, 2005; Story and Burgard, 2012). Allendorf (2010) argues that reproductive decisions are made jointly. However, partner characteristics and views are often not included in the surveys data; in the relatively rare couples studies the responses on reproductive health issues of both husband and wife can allow us to gain a better understanding of the characteristics, attitudes and beliefs of both women and men towards reproductive decisions (Story and Burgard, 2012). Studying male involvement in reproductive health issues has risen partly because the HIV/AIDS epidemic was understood in the 1990s to have been spread rapidly by males with multiple sex partners (Becker, 1996; Carter, 2002). Studies engaging with the role of men in health-related issues argue that joint decision-making is the key to improving a woman's reproductive health. Carter (2002) provides an example from Guatemala concluding that the views of the dominant group of feminist researchers, who argue that women are more empowered when they have sole autonomy and decision-making power in the household (for example, Kishore, 2005), might be misguided. Carter (2002) reports that men pity

women who have sole autonomy, and that women prefer to have supportive husbands.

Beenhakker et al. (2005) argue that family planning programmes need to start targeting males and that we need to better understand intra-household decision-making processes. They argue that spousal communication is crucial in the decision-making negotiation process. Hindin (2000) concludes that simply targeting women when trying to influence fertility decisions is not enough because males dominate, in particular in patriarchal societies. Story and Burgard (2012) provide an interesting overview of the studies examining couples' decision-making and reproductive health, and discuss how best to measure decision-making and represent the voices of both husband and wife.

Bledsoe et al. (1999) also argue that we need to understand male fertility better to fully understand women's fertility (p. 22). Incidence of contraceptive use can often be low because many men are bound by traditions, situation and context, or the desire to have control and/or power over their wives, and thus preventing them from using contraceptives. Hence, men and not just women need to be educated about fertility issues. They further argue that equitable roles in decision-making led to more acceptance and adoption of family planning methods.

The next section presents data and methods as well as evidence attempting to establish a three way causal link between microfinance, women's empowerment and fertility.

## **Data and Measurement**

### **Data**

In our analysis we use 7 nationally representative surveys, the WFS of 1975, the Bangladesh Fertility Survey (BFS) of 1989, and 6 BDHS surveys (1993, 1996, 2000, 2004, 2007 & 2011). Each survey data set, contains birth histories of a nationally representative sample of ever-married women, which can be used to compute fertility (number born and number alive<sup>10</sup>), but the data on respondent characteristics, empowerment and NGO membership vary considerably, as discussed below<sup>11</sup>.

### **Measurement**

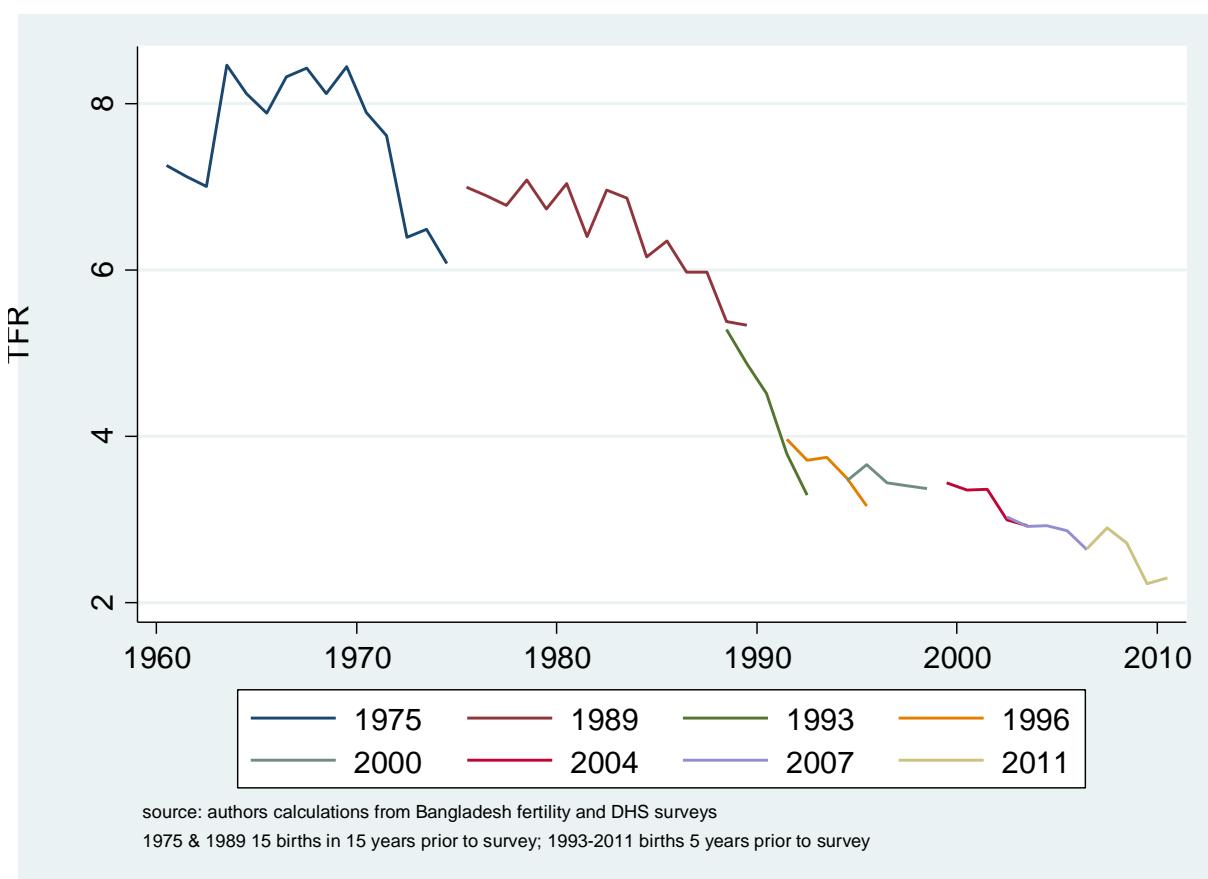
The main challenges in analysing relationships among microfinance, women's empowerment and fertility are outlined below. Also, the causal direction is not always clear (e.g. does empowerment cause female wage employment or vice versa, or is causality in both directions?).

Microfinance can be proxied by microfinance/NGO membership, membership duration, number, timing or amount of borrowings, or, conceivably by participation in trainings, or other social mobilisation activities<sup>12</sup>. Only membership of prominent microfinance institutions is reported in these data.

Fertility is slightly more challenging; it may only be measured imperfectly because of poor administration of questionnaires (for example dropping or shifting of births to avoid filling in long questionnaires (Schoumaker, 2011)); or memory lapse with regard to births, especially of children born a long time ago or who died). Thus, there seems

to be a problem between the 1993 and 1996 BDHS which report sharply falling and low fertility between 1989 and 1993 when these surveys were reporting the previous 5 years and births 3-7 years prior to the survey, while the later surveys (1996, 2000, 2004), reporting births for this period show higher birth rates. Thus later surveys suggest less dramatic decline in fertility over the 1980s and 1990s implying a rather different pattern of fertility decline to that which uses births only in the years immediately prior to the survey.

**Figure 5:** Fertility in Bangladesh in the years immediately prior to survey



Thus Figure 5 uses births only in the years immediately preceding the survey, showing a dramatic fall in fertility in the 1980s and evident stalling from about 1993 through to

the early 2000s at least. Figures 1 & 2 using births for a larger number of years prior to the survey show a more moderate decline in the earlier period and little stagnation in the 1990s. The interpretation of the pattern of fertility shown by using the longer recall suggests there was no dramatic decline associated with the nationwide spread of NGO implemented family planning projects or microfinance in the 1980s and 1990s respectively.

Measurement of empowerment, or synonyms such as autonomy, is even more problematic. These questions refer to characteristics of individuals rather than processes, the variables from which to construct these indicators vary between surveys, and different authors use different variables and methods to construct empowerment indexes in apparently *ad hoc* ways<sup>13</sup>.

For simplicity, indicators of women's empowerment can be divided into two categories, indirect and direct. Indirect measures are constructed from variables which are held to be causal to empowerment and are widely found to be correlated with other variables held to be indicative of empowerment (and each other). Education and waged (or money income earning) employment are typical of this category. The answers to these questions occur in all the BFS and BDHS survey rounds; they arose out of common practice in early fertility and indeed most socio-economic surveys and censuses, but their connection to empowerment in relation to demographic variables arose from the political agendas of western (primarily North-American) feminists for whom access to education and employment to mitigate their social disadvantages in

the post-World War II period, and indeed earlier, and modern fertility control were primary objectives(Germain, 1975).

The variables used in construction of indexes thought to more directly measure empowerment, were not widely adopted until the late 1990s (Kishore, 2005) and reflected common understandings of female disadvantage (and empowerment) in South Asia (Schatz and Williams, 2012; Heckert and Fabic, 2014). Simplifying greatly, these variables and the questions from which they were derived, concerned, at least initially, female independent mobility because of widespread practices of seclusion or purdah in South Asia, and female participation in decision making reflecting its presumed denial in systems of patriarchal control over women and household affairs.

These presumed direct indicators of empowerment are indexes constructed from questions about participation in decision making<sup>14</sup>, about practices and potential to go outside the household, acceptability of wife beating, and experience of domestic violence. But questions from each of these groups do not occur in every survey, and the questions within any group varies between surveys in which they occur.

Two of the BDHS surveys also provide responses by partners to questions used to construct empowerment indexes (2004 and 2007)<sup>15</sup>. The BDHS 2007 data have been used to argue that partner involvement promotes adoption of bio-medically mandated health practices (Story and Burgard, 2012). The BDHS 2004 has a limited set of these questions asked to partners, but only some were asked to the female. The male

responses can be used either to corroborate female answers, or as independently relevant variables reflecting (accurately, or not<sup>16</sup>) partner characteristics. Finally, the different surveys provide different variables to control for potential confounders, or to identify heterogeneity in responses.

## Analysis

Given the constraints outlined above we are not exhaustive in our analyses of these data; our purpose is to show some of what can be said using fairly crude methods. Furthermore, analyses of these data are complicated because the key variables are arguably endogenous and the direction of causality ambiguous, there are likely missing potentially confounding variables, and response biases. As is well known, membership of microfinance is subject to selection and placement biases. It is not clear whether microfinance promotes empowerment or more empowered women take up microfinance. Similarly, the relationship between fertility and empowerment (autonomy or status) is not clear and may be dependent on the measure of empowerment used (Upadhyay et al., 2014).

Fertility is measured as total number of children ever born (whether presently alive or dead), and number of living children using the Stata user written “tfr2” programme (Schoumaker, 2013), which also conducts Poisson regressions<sup>17</sup>. We also conduct Poisson regression with “svy” specifications of primary survey unit and sample weights<sup>18</sup>. The effects of variables on fertility are reported as “incidence rate ratios” (IRR); the IRR coefficients can be interpreted as proportional differences in fertility

compared to the base case, or when subtracting one and multiplying by 100 as percentage differences in number of reported births<sup>19</sup>.

### **Empowerment and fertility**

In Table 1 we report the regressions of the indirect indicators of empowerment (education and employment) on fertility from all surveys. It is clear that these variables have strong relationships with fertility with the expected signs in all surveys.

**Table 1:** Indirect indicators of women's empowerment and fertility (number born – incidence ratios)

Indicator	Survey year							
	1975	1989	1993	1996	2000	2004	2007	2011
Primary education	0.935 (-1.53)	1.012 (0.88)	0.989 (-0.81)	0.953* (-2.54)	0.973* (-1.97)	0.980 (-1.74)	0.956*** (-3.48)	0.963** (-3.22)
Secondary education	0.800 (-1.89)	0.927*** (-3.74)	0.896*** (-5.67)	0.859*** (-7.32)	0.880*** (-5.85)	0.881*** (-7.70)	0.862*** (-8.81)	0.847*** (-11.86)
Higher education	0.622 (-0.99)	0.814*** (-4.21)	0.734*** (-6.10)	0.662*** (-8.34)	0.742*** (-9.55)	0.771*** (-8.08)	0.746*** (-10.89)	0.762*** (-12.58)
Unpaid work	0.904 (-1.22)	0.887*** (-3.62)	0.908* (-2.23)	0.975 (-1.22)	0.824*** (-5.33)	0.841*** (-5.64)	0.808*** (-6.73)	0.863*** (-3.85)
Paid work	1.019 (0.30)	0.875*** (-6.87)	0.889*** (-6.99)	0.917*** (-5.28)	0.849*** (-10.61)	0.883*** (-8.43)	0.874*** (-9.73)	0.846*** (-13.34)
Possessions (Wealth)	0.936*** (-4.22)	0.993 (-1.70)	0.992* (-1.99)	0.995 (-1.26)	0.950*** (-5.93)	0.963*** (-7.23)	0.961*** (-6.33)	0.968*** (-6.84)
Age at first marriage	1.034*** (5.69)	1.009*** (3.62)	1.020*** (8.88)	1.029*** (6.29)	1.026*** (10.18)	1.017*** (6.01)	1.021*** (7.78)	1.023*** (11.35)
Urban residence	0.910* (-2.46)	0.959** (-2.91)	0.945** (-2.87)	0.898*** (-4.10)	0.961* (-2.00)	0.952* (-2.50)	0.974 (-1.22)	0.957* (-2.54)
N	4535	11905	9337	8699	10163	11043	10666	17257

Notes: Exponentiated coefficients > 1 (< 1) are incidence-rate ratios implying higher (lower) fertility than the base case; t statistics, are negative for incidence ratios less than 1 because of the implied lower fertility than in base cases; \* p<0.05 \*\* p<0.01 \*\*\* p<0.001; controls for age and age squared; work 0 =

none 1 = not paid 2 = paid (except WFS 1975); education: 0 = none/Madrassa 1 = primary 2 = secondary, 3 = higher. All estimates use Stata (14) Poisson regression with clustering on primary sampling units and sample weights.

The variables primary (after 1996) and secondary (after 1998) education, unpaid and paid employment, wealth, and urban residence are all negatively associated with fertility, reflecting the common association classic modernisation variables with falling fertility. Only age at first marriage is positively associated with fertility. The majority of the coefficients are statistically significant, but effect sizes are only relatively large for secondary and higher education, and paid and unpaid work. The wealth index has a small effect size.

Table 2 suggests there is also a negative and statistically significant association between participation in decision-making and fertility; the effect size is small (2-3 percent of a standard deviation of fertility).

**Table 2:** Participation in decisions and fertility

	1989	2000	2004	2007	2011
Dependent variable is number born					
Decisions	0.988*** (-3.96)	0.988*** (-4.23)	0.987*** (-4.05)	0.980*** (-6.56)	0.979*** (-6.75)
N	11905	9830	11043	9677	16133

Notes: Exponentiated coefficients, \* p<0.05 \*\* p<0.01 \*\*\* p<0.001, t statistics in parentheses, controls and estimations as in Table 1.

The results in Table 3 further support this view where higher scores on the other empowerment indexes that can be computed are associated with lower fertility, although again the effect sizes are small. The indexes are constructed from the first

principal component after recoding the raw responses into ascending order of presumed state of empowerment<sup>20</sup>

**Table 3:** Empowerment indexes and fertility (number born - incidence ratios)

	1989	2000	2000	2007	2007	2011
	Index of autonomy	Experience problems	Need to be accompanied	Acceptability of spousal beating	Experience of spousal violence	Acceptability of spousal beating
Index of autonomy	0.973*** (-7.76)					
Experience problems		0.994 (-1.71)				
Need to be accompanied			0.983*** (-3.41)			
Acceptability of spousal beating				0.986*** (-4.70)		0.987*** (-4.06)
Experience of spousal violence					0.991* (-2.73)	
N	11905	9137	10163	10576	4207	17257

Notes: Exponentiated coefficients, \* p<0.05 \*\* p<0.01 \*\*\* p<0.001, t statistics in parentheses, controls, coding, and estimations as in Table 1. Empowerment variables are: autonomy (freedom of movement); problems (difficulty in getting health treatments and so on); accompanied (no need for company to move about); beatings (acceptability of beating - no = 1 yes = 1); violence (experience of domestic violence).

### Microfinance and empowerment

In this section we explore the link between microfinance and women's empowerment using NGO membership as a proxy for microfinance membership. Our indexes of empowerment are computed from the groups of questions available in each of the surveys; they do not all have the same set of questions even when given the same label

(e.g. decisions). The indexes are constructed from the first principal component after recoding the raw responses into ascending order of presumed state of empowerment.

**Table 4:** Association between membership of NGOs and indicators of empowerment

Indicator	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	2000 Decisions	2000 Accompanied	2000 Problems	2004 Decisions	2007 Decisions	2007 Beating	2007 Violence	2011 Decisions	2011 Beating
Major NGO membership	1.058 (1.02)	1.125** (3.00)	1.125* (2.04)	1.040 (1.05)	1.001 (0.02)	0.976 (-0.62)	0.990 (-0.12)	0.960 (-1.52)	0.977 (-0.75)
N	10082	10531	9183	11439	10874	9739	4279	16695	17830

Notes: \* p<0.05 \*\* p<0.01 \*\*\* p<0.001, t statistics in parentheses, controls, coding, and estimation as in Table 1. Exponentiated coefficients > 1 (< 1) imply increased (decreased) value of the empowerment index.

From Table 4 we can see that membership of an NGO has little association with indexes of empowerment as most of the coefficients are statistically not significant, and for those that are significant the effect sizes are small (results available from the authors). For example, the coefficient of NGO membership has an effect size of only 0.03 standard deviations of the “accompanied” index of empowerment.

### Microfinance and fertility

Table 5 explores the link between microfinance membership, again using NGO membership as a proxy, and fertility expressed by the number of children ever born.

**Table 5:** NGO membership and fertility (number born – incidence ratios)

Indicator	(1)	(2)	(3)	(4)	(5)	(6)
	1993	1996	2000	2004	2007	2011
Major NGO membership	1.007 (0.48)	1.011 (0.65)	1.020 (1.28)	0.978 (-1.84)	1.028* (2.28)	1.024* (2.46)
N	9337	8699	10150	11042	10665	17257

Notes: Exponentiated coefficients, \* p<0.05 \*\* p<0.01 \*\*\* p<0.001, t statistics in parentheses, controls, coding, and estimations as in Table 1.

Table 5 presents a positive association of membership of a major NGO with fertility which is statistically significant only after 2007. Again effect sizes where statistically significant are very small with NGO members having 2 to 3 in 100 more children.

The tables presented here indicate that fertility is reduced by indirect indicators of empowerment (education, but also employment), but that membership of a major NGO has little relationship with empowerment and it has either no effect on or increases fertility (controlling for wealth etc.).

### **The role of males in decision-making and fertility**

We outlined above the importance of male involvement in reproductive decisions of the household. Table 6 below shows that male education and employment have similar effects to those of the female respondents across all the fertility surveys.

**Table 6:** Male education and fertility – indirect indicators of women's empowerment (number born - incidence ratios)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	1975	1989	1993	1996	2000	2004	2007
Primary education	1.002 (0.19)	1.017 (1.26)	1.009 (0.64)	1.017 (1.31)	1.022 (1.70)	0.987 (-0.94)	0.993 (-0.64)
Secondary education	0.958* (-2.21)	0.978 (-1.34)	0.875*** (-3.79)	0.960* (-2.40)	0.936*** (-4.42)	0.922*** (-4.80)	0.901*** (-8.36)
Higher education	0.822** (-3.18)	0.861*** (-6.36)	0.768*** (-7.09)	0.865*** (-6.00)	0.850*** (-7.23)	0.802*** (-9.36)	0.815*** (-12.66)
Unpaid work	0.885*** (-3.69)	0.912* (-2.10)	0.973 (-1.35)	0.834*** (-5.07)	0.839*** (-5.74)	0.819*** (-6.40)	0.866*** (-3.77)
Paid work	0.874*** (-7.06)	0.887*** (-7.13)	0.911*** (-5.66)	0.851*** (-10.44)	0.879*** (-8.78)	0.872*** (-9.86)	0.841*** (-13.63)
Possessions	0.994 (-1.59)	0.992 (-1.96)	0.999 (-0.18)	0.940*** (-7.21)	0.962*** (-7.15)	0.961*** (-6.18)	0.967*** (-7.18)
Age at first marriage	1.009*** (3.39)	1.019*** (8.44)	1.028*** (6.00)	1.022*** (9.38)	1.014*** (5.36)	1.018*** (6.99)	1.020*** (10.26)
Urban	0.954** (-3.30)	0.939** (-3.19)	0.897*** (-4.10)	0.970 (-1.51)	0.952* (-2.49)	0.976 (-1.11)	0.959* (-2.42)
N	11878	9263	8607	9966	11033	10672	17248

Notes: Exponentiated coefficients; t statistics in parentheses; \* p<0.05 \*\* p<0.01 \*\*\* p<0.001 controls, coding, and estimation as in Table 1.

Effect sizes may not be quite as large as for female respondents but this is not surprising because of assortative mating and because more men are educated at each level, and hence are likely to be of lower unobserved intrinsic capability. Partner (male) education has similar associations with the indexes of female empowerment.

Female and partner responses, independently expressed, about who makes decisions are overwhelmingly that they are made jointly (Table A1)<sup>21</sup>, and fertility preferences are the same (Table A2). Men's indirect indicators of empowerment have very similar associations with indicators of female empowerment as those of the respondent (wife) (Table A3). Finally, where men report that women participate in decisions, whether the woman reports this or not, the likelihoods of use of modern reproductive health

practices and achieved fertility are no different from where both agree that decision making is joint, except in the relatively few cases where the wife says the husband makes the decision (Table A4).

## **Conclusion**

The new analyses presented in this paper suggest that fertility decline in Bangladesh appears to have preceded the family planning programmes initiated by ICDDR, B and developed by BRAC in the 1970s, and subsequent expansion nationwide through the 1980s (Kabeer, 2001), and any extensive deployment of microfinance, which occurred in the 1990s. Fertility continued to decline in Bangladesh in the 1990s (*pace* Bongaarts, 2006), although the rate of decline did not increase. This temporary stalling might be taken to imply an effect of microfinance increasing fertility (as suggested weakly in Table 5), reflecting perhaps growing incomes and a normal demand for children, even if this effect was insufficient to offset other factors reducing fertility (and the rate of decline in fertility accelerated again in the 2000s). However, the “money metric” poverty rates calculated by the World Bank show the reverse – a faster rate of decline in poverty between 1991-2 and 1995-6 than between 1995-6 and 2000 (World Bank, 2002:2). A more plausible temporal association, among potential candidates for a causal role in the surprising and steady decline in fertility, is with the growth of agriculture with attendant rising incomes and off-farm employments, commercialisation of the rural economy, reductions in poverty, and so on, which provided the environment in which microfinance was able to flourish<sup>22</sup>.

We also show that the evidence linking empowerment and/or microfinance with fertility reduction is decidedly mixed, and contradictory, and does not provide strong evidence for the Lancet narrative of “prime-mover” roles for innovative family planning, mother and child health, or innovative microfinance programmes and projects, or for women’s (independent) agency. The former may have substituted or indeed augmented traditional methods of family planning and/or rural finance, but that does not replace the role of a conducive structural environment. Using data from the same nationwide fertility surveys we show varied relationships between indirect and direct indicators of women’s empowerment and fertility, microfinance and fertility, and between microfinance and women’s empowerment. These do not add up to a linear causal chain from participation in innovative development programmes, such as microfinance, through women’s empowerment to fertility reduction. Rather, it seems plausible that the associations we observe (or fail to observe), which, except for the *positive* association of microfinance membership and fertility, accord with the logic relating microfinance membership to (women and men’s) “empowerment” to fertility reduction, are due to the association of all these variables with modernisation based on agricultural and associated growth, which were themselves based on technical and institutional innovations in groundwater based irrigation (Palmer-Jones, 1999; Orr, 2012).

Broadly three theories of fertility can be thought to apply to fertility decline in Bangladesh. The first emphasises satisfying unmet need arising from structural

changes linked to a traditional theory of demographic transition by supplying modern contraception through effective family planning programmes. The second emphasizes rational calculations by families (which implies joint decision-making by couples and the role of males in this context) adopting traditional and modern fertility control practices, preceding the advent of modern family planning technologies but adopting them as they become available and suitable. The third focuses on the empowerment of women through entry into the labour force, education and support by activists and NGOs providing conscientisation and mobilisation, solidarity, microfinance, and other partial supports.

Elements of each approach are shared among them, but they evidently differ as to the “prime mover”; the first emphasises supply of modern contraception, the second economic growth, and the third social development through promotion of women’s empowerment. The first and last can in principle be effective in unchanging economic circumstances, but can be enhanced by increasing economic activity and well-being. The first absorbs the social development approach by “using” a focus on women as change agents in family planning programmes, and as targets of family planning and related health messages and services for population control. Economic growth provides a context in which the changing costs and benefits of children, including shifts in demand for “quality” as opposed to “quantity” of children leads to adoption of whatever proximate determinants of fertility are available, traditional or modern. The third sees women as demanding fewer children than men, so that the

empowerment of women relative to men enables them to impose their, presumably less pro-natalist, fertility choices.

This paper suggests that the the second theory supplies the “prime mover” in the case of Bangladesh, together no doubt with local contextual factors to do with land pressure, changing roles of women and other local specific cultural and historical features, the changing health environment and health technologies and institutions, and so on, some of which were described in Kabeer (2001). This theory does not provide a universal model for ready transfer elsewhere; growth, according to this narrative may have been an important “prime mover”, but it clearly may not be a universal panacea to high population growth rates. Similarly, the empowerment of women in the limited sense of growing education and awarenesss of modern contraception and health practices, generally shared with their partners, as suggested by the association of joint decision making with adoption of modern health practices and lower fertility, may have been an important feature of the Bangladesh experience, but whether that is transferable as a development technology would surely depend on the cultural and structural features into which it was being transferred. In this sense, the Bangladesh experience may be instructive, but the lesson may have much to do with local specifics rather than as the basis of a blueprint for transfer elsewhere.

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## Endnotes

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<sup>1</sup> The UN Population Award was given to General Ershad President of Bangladesh in 1987.

<sup>2</sup> For a thorough going example of the narrative see the Lancet six-part series on Bangladesh in 2013, to which further references are provided in the text.

<sup>3</sup> There is some discussion of men in the gender and development literature (e.g. Barker et al., 2007, and similar sources; see also Cornwall et al., 2011), but it is almost entirely from a mainstream feminist perspective (subsuming different feminisms). Arguing this (and the general conceptualization of men in gender studies) is obviously beyond the scope of this paper. However, the neglect of men is transparently obvious in the sorts of data used here in the paucity of men as respondents in demographic, health and fertility surveys.

<sup>4</sup> The former lauds the supply of contraception in Matlab in the 1970s while the latter the programmes of BRAC focusing on “ultra-poor” women.

<sup>5</sup> As noted above, Amartya Sen has an article in this issue; the Bangladesh phenomenon and the roles of development organisations such as ICDDR,B and BRAC, feature prominently in the claims for public policy promoted by Sen and co-authors; see for example, Dreze and Sen (2013). With the exception of Sir Fazle Abed, none of the authors of the papers in this issue acknowledge potential conflicts of interest.

<sup>6</sup> We touch on the arguments advanced in the Lancet series but a fuller discussion would go beyond the concerns of this paper.

<sup>7</sup> It should be noted that the qualitative literature on these microfinance, empowerment, and so on, is widely equally tainted by close activist researchers with vested interests in the official logics of these development agendas; again, demonstrating this would go beyond the scope of this paper and we mention it only to be even handed between research methods.

<sup>8</sup> A related example of policy induced evidence is where the apparent failure of women found to be “empowered” in the 1990s were found to not have “empowered” daughters (Schuler et al., 2010; Schuler and Rottach, 2010), leading to a call for new ways to measure empowerment.

<sup>9</sup> In other words, the indicator of the latent variable empowerment is justified because it is correlated with microfinance membership, and microfinance membership (or borrowing) is claimed to be empowering because it is associated with the latent variable which is validated because it is associated with microfinance membership!

<sup>10</sup> Still births are reported in the WFS and BFS.

<sup>11</sup> It is notable that all the Bangladesh Demographic and Health Surveys (1993-2011) were conducted by the same private consultancy firm, but still did not always use consistent questions and coding or include the same survey modules (e.g. partner questions).

<sup>12</sup> Because microfinance institutions have different practices (at different times and locations), in particular whether the focus is exclusively on microfinance or also includes training and/or empowerment activities, disaggregation by microfinance institution is a possibility. However, in reality, in the period covered by these data the distinction between microfinance only and microfinance and other supportive activities was not as clear sometimes as suggested.

<sup>13</sup> Thus this literature is likely to suffer badly from false positives and confirmation bias where the particular index which fits the maintained hypothesis is reported and those which are less consistent are neglected (Camfield et al., 2014).

<sup>14</sup> There may be a number of questions about participation in decision making over different items of expenditure or other issues; the number and scope of these questions is also not standardized across surveys. Different items in this group have been divided into those which are in a sense about issues within the normal scope of female responsibility, and thus when answered in the affirmative may not reflect autonomy of decision making, and those which are perhaps discretionary relating to a woman’s private interests (Basu and Koolwal, 2005).

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<sup>15</sup> Some questions about respondent's (ever-married women) partners were answered by the respondent; others by the partner himself (all partners are male in these data).

<sup>16</sup> There are many reasons to believe that answers from women and men to these types of questions may suffer badly from various response biases - diplomatic, normative, response set. For example, women may falsely cede decision making to men out of deference, and men to women out of political correctness (Story and Burgard, 2012).

<sup>17</sup> That is:

tfr2 indepvars [iweight = weightvar], cluster(psuvar)

<sup>18</sup> i.e. we specify:

svyset psu [weight= weightvar]

svy: poisson

<sup>19</sup> i.e. a coefficient of 1.02 (0.98) means 2% more (fewer) births. "t-statistics" are positive (negative) for IRR coefficients greater than (less than) one.

<sup>20</sup> Some of the questions have binary but others have polytomous responses; the former are coded 1 for the presumed "empowered" response, the latter are coded into an ordinal integer scale from 0 to highest. Thus for "decisions" the lowest value is where the respondent does not have a say or does not participate in the decision, next lowest where the final say or participation is joint, and the highest value is the respondent having the final say or decision making alone. There is some doubt as to whether this is the appropriate ordering (Hsiao-Li, 2010), and indeed whether responses to such questions are not clouded by various response biases as mentioned above.

<sup>21</sup> We classify a decision as joint when (1) both say joint, (2) either say jointly and husband says wife, (3) wife says wife and husband says jointly, (4) wife says husband and husband says wife. The main other category is where wife says husband and husband says husband or jointly. This classification may go some way to accommodating the response (and cognitive) biases mentioned in the text.

<sup>22</sup> It has been argued elsewhere (Palmer-Jones, 1999) that there was a slowdown in the rate of growth of agriculture in the early-mid 1990s followed by a rise at the end of the decade and into the 2000s, as can be seen in Figure 3 above.