

## What are Fertility Intentions? Using Sociology of the Future in Fertility Research

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Sociologists of the future stress that imaginings or projections of both short- and long-term futures motivate present agentic behaviors and shape eventual outcomes (Emirbayer and Mische 1998; Mische 2009; Wong 2018; Zimbardo and Boyd 2008). As a relevant case, fertility intentions can be thought of as assertions of an imagined future since they predict fertility and related outcomes (Berrington 2004; Miller, Barber, and Gatny 2013; Morgan and Rackin 2010). Less work has sought to explicitly understand how behavior unfolds when dimensions of an imagined future diverge (e.g. a woman desires to avoid pregnancy while expecting pregnancy to occur).

In this paper we draw on conceptual tools from the sociology of the future (Emirbayer and Mische 1998; Mische 2009) to interrogate the utility of measuring different dimensions of imagined futures -- namely ideals versus expectations -- since these are differently anchored to past experience and future imaginaries. Here we argue these two dimensions, although related, when modeled simultaneously provide a different lens through which to understand (and classify) future (un)intended pregnancy. More directly, this work has implications for what is being captured by our various measures of fertility intention.

### BACKGROUND

Future projections are multi-dimensional (Emirbayer and Mische 1998; Mische 2009), and *desires* are distinct from *expectations* (Emirbayer and Mische 1998). Desires are ephemeral and strongly future-oriented. Expectations are future orientations more strongly colored by the past: expectations are memory-sustained anticipations that past patterns will repeat themselves. This distinction suggests that fertility desires capture an ideal version of an individual's future – in some cases fertility desires may reflect cultural schemas about what families should look like (Bachrach and Morgan 2013) – whereas fertility expectations capture a future one is likely to have based on one's perceived life chances and capacities (Hitlin and Kirkpatrick Johnson 2015).

Practically, this means that women may state a given desire while expecting a different reality to unfold. The extent to which we consider a multidimensional imagined future has implications for our classification of important demographic behaviors such as unintended pregnancy. If a woman desires to avoid a birth but expects one to occur, how do we classify this pregnancy? Is this woman different from women whose desires and expectations converge? Furthermore, since fertility desires are situated against other life circumstances and desires, what does this multidimensional future tell us about how competing goals impede the realization of a desired future and/or define the expected future?

Empirically, we know that present circumstance and life changes induce changes in fertility desires (Sennott and Yeatman 2012). This includes changes in economic position, relationship status, or health, and can either increase or decrease the desire for further childbearing. This sensitivity to present conditions and experiences reflects the process by which imagined futures are altered and defined. While similar patterns can be identified across studies using different measures of imagined future fertility (e.g. intentions, desires, expectations), few studies have sought to directly compare these patterns or have considered modeling them simultaneously.

Here we offer preliminary results for (i) the extent to which fertility expectations and ideals are sensitive to a variety of important life changes, and (ii) how the convergence (or divergence) of imagined future fertility relates to the probability of being pregnant within the next four months. We propose further sensitivity tests and model refinements as it concerns the inclusion of covariates and model parameters.

## DATA AND METHODS

We draw on data from the Tsogolo la Thanzi (TLT) study, an intensive inquiry of a cohort of young adults (age 15-25). The baseline sample included 1,505 women living within seven kilometers of Balaka, a trading center in the southern region of Malawi, and was drawn as a random sample of adults from an initial census listing. Surveys were fielded every four months from 2009 to 2011, which resulted in eight waves of data collection at a highly consequential time in the life course when the majority of respondents were finishing their education, marrying, and having a first child. Desires and expectations for the future among these young adults were becoming increasingly crystallized and yet were still open for frequent reimagining.

Our key measures include (i) a dichotomous indicator of the desire for a child within two years, and (ii) the expectation of pregnancy within the next year (measured from 0 to 10). We consider these as having similar time horizons given the different lengths of time required to realize a birth as opposed to a conception. We use a set of dichotomous indicators of life changes to predict fertility desires and expectations (see Table 1). These models control for time, ideal family size, and respondent age. In models using fertility desires and expectations to predict pregnancy we include additional baseline controls (see Table 2).

Analytically, we take all person-wave segments (i.e. requires two consecutive waves of observation) captured over the two-year study period (N=9,077) to model the association between life changes and current fertility attitudes as a lagged dependent variable model. Given the multiple representations of a single woman, we cluster on the individual woman, employ robust standard errors and control for time. Using a similar longitudinal approach, we model the probability of pregnancy at the next wave as predicted by current fertility desire and expectation of pregnancy. At each person-wave segment, we exclude those who are pregnant at time one to capture only new pregnancies at time two. This results in 8,118 person-wave segments.

## RESULTS

Descriptively, the proportion of women who wanted a child within two years (fertility desire) ranged from 12.3% to 13.9% across the 8 waves. Among those who did not want a child, their average expected chance of pregnancy ranged from 1.7 chances (out of 10) at baseline to 2.7 chances at wave 8. Among those who did want a child, their average expected chance of pregnancy stayed relatively more stable around 5.4 chances in 10 (+/- 0.3).

Table 1 shows the life changes from the last wave that are associated with changes in: (i) current desires for children in the next two years, and (ii) current expectations of pregnancy in the next year. Results represent bivariate associations between the life event and fertility attitude. In general, these various life changes work in the same direction for both ideals and expectations. However, some changes appear to be more strongly associated with expectations rather than ideals, and vice versa. For example, a suspicion that your partner has other partners is associated with an increased expectation of pregnancy but does not increase the likelihood of *wanting* a

Table 2. Life Events Associated with Fertility Desires and Expectations (Bivariate Associations)

		Model 1		Model 2		Model 3	
		$\Delta$ Want Child (Y/N)		$\Delta$ Change in Pregnancy Expectation		$\Delta$ Change in Preg Expect (net of $\Delta$ desires)	
	% (Yes)	Odds Ratios		$\beta$ (norm)		$\beta$ (norm)	
<b>Relationships &amp; Marriage</b>							
Marriage Proposal	6.3%	2.39	***	1.03	***	0.77	***
Heard Partner has Others	4.5%	0.94		0.37	*	0.35	*
Divorce or separation	2.1%	0.69		-0.2		-0.14	
<b>Family &amp; Kinship</b>							
Relatives Pressure to have Kids	0.9%	1.77	+	1.77	***	1.33	***
Other adults joined hhld	5.6%	1.17		0.45	**	0.36	**
Death of spouse/partner	0.1%	0.83		-2.09	***	-1.86	***
Death of child	0.9%	5.64	***	0.7		0.44	
Death of parent	1.9%	1.40		-0.35		-0.49	*
<b>Socioeconomic Conditions</b>							
R moved to better house	10.6%	1.14		0.49	***	0.44	***
R moved to worse house	3.1%	1.42	*	0.11		0.05	
Experienced food shortage	12.5%	0.99		0.15		0.17	+
<b>Couple Employment</b>							
Found a better job	1.0%	1.17		0.10		0.09	
Spouse found good job	5.6%	1.12		0.65	***	0.64	***
Partner migrated for work	5.0%	1.22		0.53	**	0.49	**
<b>Household Health</b>							
Been hospitalized	4.8%	0.87		-0.93	***	-0.69	***
Spouse/partner been ill	5.6%	1.11		0.35	*	0.26	+
Illness of parent	16.7%	1.28	**	0.18	*	0.12	
Illness of child	22.9%	0.79	**	-0.01		0.15	+
Had malaria	25.7%	1.20	*	0.36	***	0.30	***
Health improved	70.7%	0.93		0.10		0.11	
Health declined	4.7%	1.25		0.47	**	0.44	**
Had injury/accident	1.9%	1.02		-0.14		-0.12	
Spouse had injury/accident	1.2%	0.71		0.35		0.37	

N=1,453 clusters

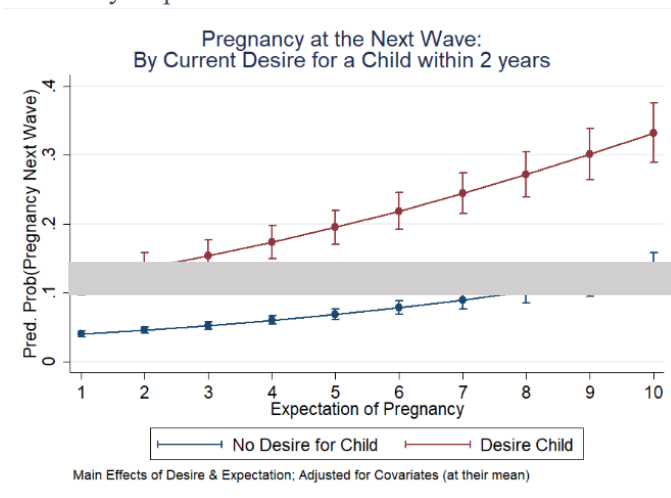
*Adjusted for wave and respondent age; using robust standard errors*

child in the near future compared to later or never. A similar pattern exists for those with improved economic conditions (e.g. moved into a better house), or whose spouse has migrated for work or found a better job. Conversely, in the area of health, a parental illness or having had malaria strongly increases the desire for a child soon while inducing only a small change on expectations relative to the magnitude of change attached to other life events. Relatively strong associations exist between marriage proposals and both ideals and expectations. Thus, fertility

desires and expectations change in relation to other life events, but whether they change in similar ways depend on what those specific life events are. Model 3 of Table 1 shows the change in expectations net of any change in fertility ideals. Many of the associations with life events identified in model 2 remain. In other words, net of any change in a woman’s desired fertility, several life changes are associated with a further increase her expected chance of pregnancy.

Ultimately, we might want to know how the correspondence of ideals and expectations relate to future outcomes – in this case, pregnancy. Figure 1 shows the marginal effects (as predicted probabilities) of pregnancy at the next wave after including both the desire for a child and one’s expected chance of pregnancy within a year. Desiring a child in the near future is associated with a higher likelihood of next-wave pregnancy compared to those who do not want a child. However, when modeled in conjunction with expectations, the higher the expectation of pregnancy (regardless of the desire) the more likely one is to realize a pregnancy at next wave. In other words, regardless of what women want, those who expect to get pregnant are more likely to actually become pregnant compared to those who did not expect to become pregnant. The blue line in figure 1 (those who do not want a child soon) would be classified as the probability of unintended pregnancy – however, while they may not be “wanted” it would be incorrect to say they were unexpected or a “surprise”. Furthermore, as the grey, horizontal band suggests, those who do not desire a pregnancy but strongly expect it to occur (10/10 chances) are similar to those who desire a pregnancy but do not expect it (0/10 chances) in their predicted probability of pregnancy.

Figure 1. Predicted Probability of New Pregnancy by Fertility Expectations and Desires



While these women look similar in terms of their outcomes, their orientations to their future are notably different.

Moving forward, we aim to unpack these patterns to consider (i) who are the women who express a greater degree of divergence between desires and expectations, and (ii) is their probability of future pregnancy explained by a similar set of recent life changes? In the process we’ll conduct sensitivity tests to insure proper modeling of these outcomes, including a refinement of the covariates and life changes maintained.

## DISCUSSION AND CONCLUSION

Our findings push forward theoretical understandings of the extent to which a multidimensional view of imagined future fertility is sensitive to recent life changes, and the utility of modeling them simultaneously when observing how behavior unfolds with time. This paper generates useful questions about women’s agency when unpacking the reasons for and conditions under which women do not desire a given outcome but expect it to occur (and vice versa). Are these divergences representative of external forces reducing autonomy or within-person tensions to reconcile competing aspirations? Relatedly, this work intersects with work on ambivalence. Although measured as a dichotomy, would a more nuanced measure of pregnancy desire relate more strongly to pregnancy expectations?

Table 3. Logistic Regression Predicting Pregnancy at Next Wave

<i>Pregnancy at Next Wave</i>	Model 1	Model 2	Model 3
	Odds Ratios	Odds Ratios	Odds Ratios
Expected Likelihood of Pregnancy		1.25 ***	1.15 ***
Desire a Child in 2 Years	5.53 ***		3.29 ***
Ideal Family Size at Baseline			1.08 +
Respondent Age	1.02	1.03 *	0.99
Years of Education at Baseline			0.94 ***
Ever-Married at Baseline			1.16
Wave of Interview	1.03	0.98	1.02
Intercept	0.03 ***	0.02 ***	0.05 ***

*N=8,118 Person-Wave Segments*