Can Innovative Methods Improve Prediction of Fertility-Related Behavior Using Attitudinal Measures?

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ABSTRACT
Demographers have long struggled with the difficulty of predicting individual-level fertility outcomes using attitudinal measures. This study applies new methods of analysis to improve the utility of attitudinal data in predicting fertility-related behaviors, addressing recent calls by prominent demographers to use models of cognitive processes and demographic behavior that reflect advances in scientific knowledge about cognition and behavior (e.g., Bachrach 2014; Bachrach and Morgan 2013; Johnson-Hanks et al. 2011). We use an innovative conceptualization of attitudes that draws on advances in psychology, using the insight that attitude measures are meaningful in relation to other attitude measures, and thus consider patterns of relationships between attitude measures as a proxy for patterns of cognitive associations. We use two types of methods to analyze fertility-related attitudinal data in order to group survey respondents who think similarly about fertility: Latent Class Analysis, which creates latent groups based on sharing similar patterns of responses across a series of variables, and Relational Class Analysis (Goldberg 2013), which identifies subgroups of respondents who share similar relationships among their responses. Using data from the Relationship Dynamics and Social Life study, we use these methods to distinguish among respondents who give the same answers to some survey items but who think about fertility in fundamentally different ways. We describe the patterns of cognitive associations and sociodemographic characteristics of the groups identified. We then use these groupings to determine whether these methods predict a behavioral outcome—contraceptive use—better than do conventional methods of analyzing attitude data.
Attitudes and Behavior in Fertility Research

Demographers have long been interested in the relationship between attitudes and behavior. Decades of national and international surveys on fertility and family formation have asked respondents about their opinions and desires regarding family size, education, contraception, gender relations, and many other topics related to fertility. Yet the relationship between these attitude measures and behavioral outcomes is complex and still poorly understood. Even attitudes expected to be closely related to fertility behavior, such as how many children a respondent wants, do not always have a straightforward relationship to individual behavior (Hayford and Agadjanian 2012; Morgan and Rackin 2010; Quesnel-Vallée and Morgan 2003; Barber 2001; Bongaarts 1992; Westoff and Ryder 1977; Bumpass and Westoff 1969).

Attitudes may predict behavior poorly because of situational factors and constraints that intervene to shape behavior. Or attitudes may predict behavior poorly because current analyses fail to conceptualize and measure attitudes correctly. Our project focuses on the second possibility. We present an innovative conceptualization and measurement of attitudes related to fertility, drawing on advances in psychology regarding cognition and behavior, and use it to test whether new analytic methods improve our ability to predict fertility-related behavior. This study of cognitive associations, as represented by survey responses, is an empirical application of innovative theoretical approaches proposed recently by several prominent demographers. They call for the use of more realistic models of cognitive processes and their relationship to demographic behavior, drawing on recent advances in psychology (Bachrach and Morgan 2013; Johnson-Hanks, Bachrach, Morgan, and Kohler 2011). They also argue that demographic research needs usable models of cultural influence on demographic behavior (Bachrach 2014; Thornton et al. 2012; Johnson-Hanks et al. 2011). In particular, Bachrach has argued that schemas—cognitive structures of associations between concepts in a particular domain—are a
opportunity for demographers to study the effects of cultural factors on demographic behavior using replicable methods to analyze population-based samples.

The starting point of our model—the Relational Attitudes Model—is that using individual attitude questions as predictors of behavior, independently from other attitude measures of the same domain (in this case, fertility), is inadequate. Cognitive representations are stored as patterns of relational associations in the brain (Smith 1998). Studies of attitudes should thus consider attitude measures in relation to other attitude measures in the domain. Relational groups of attitude measures are used as a proxy for patterns of cognitive associations—mental structures that organize information, including attitudes, about a concept or stimulus (Fiske and Taylor 1991). Our analyses will use innovative methods to measure patterns of association between item responses to identify the principles that underlie respondents’ thinking about fertility. These methods identify separate populations that share a) similar responses across variables and b) distinct patterns of associations between attitude items, representing different meanings that respondents assign to groups of attitude items.

Schemas and Relational Attitudes Model

Following work in the field of culture and cognition, which posits that cognitive associations and social and symbolic cues in the environment interact to shape individuals’ behavior (e.g., DiMaggio 1997), we assume that different cognitive associations, along with different activations of cognitive associations, are central mechanisms by which culture shapes behavior. Advances in cognitive psychology have greatly improved our understanding of mental representations and how they shape behavior. An attitude is the association between an object or concept and an evaluation of that object or concept. Schemas are a type of mental structure that organizes information, including evaluations like attitudes, about a concept or stimulus (Fiske and Taylor 1991). For example, sets of stereotypes such as “single mothers are poor” and “single
mothers are irresponsible” can form a schema that contains associations among characteristics (mother + unmarried ⇔ poor + irresponsible). Schemas may influence behavior by shaping what an individual pays attention to, how she processes new information, and how she evaluates and judges situations (Smith 1998). Each individual has many schemas that may be used in a given situation; some are mutually reinforcing and others are competing. Understanding what schemas people have and how they use them is an important part of understanding how mental processes affect behavior (Oyserman and Sorensen 2009).

Some schemas are shared across individuals through narratives or symbols, creating widely recognized associations. Schemas may be common among certain subgroups of a population, but rare or completely unknown among other social groups. For example, among some groups, the schema for childbearing includes parents being married; when a member of a group who holds this schema sees a mother with a child, she immediately assumes the mother is married and may act accordingly. For members of other groups, married parents are not a part of their childbearing schema. Schemas are influenced by social and cultural contexts in two ways, through (1) the acquisition of schemas that are shared with others, and (2) the degree to which schemas are supported and reinforced by the environment, which in turn influences how relevant and activated certain schemas are in processing new information. Thus, schemas illuminate the link between social and cultural contexts and mental processes, in addition to linking mental processes to behavior. The concept of a schema thus provides a means of bringing insights from the study of culture into practical use in mainstream demographic research (Bachrach 2014). A central goal of the proposed research is to use methods of analyzing fertility-related attitudinal measures that highlight associations among those measures in order to identify respondents’ fertility-related schemas. By identifying fertility-related schemas, we can build a more accurate account of respondents’ ways of thinking, which may bear on their behavior.
Our Relational Attitudes Model (Figure 1) builds on Bachrach and Morgan’s cognitive-social model of fertility intentions (2013). The darker arrows represent the processes that this study focuses on, while the complete model situates them in a broader conceptual framework. Patterns of cognitive associations shape behavior through two pathways. First, cognitive associations can motivate action through behavioral intentions, as when action is planned through conscious thought and decision making. This pathway is consistent with Ajzen and Fishbein’s Theory of Planned Behavior (TPB), a common attitude-behavior model in fertility research (Fishbein and Ajzen 1975; Ajzen 2012; Ajzen and Klobas 2013). In the second pathway, cognitive associations can affect behavior independent of behavioral intentions, as patterns of cognitive associations shape what an individual pays attention to, how she processes new information, and how she evaluates situations (Smith 1998). This process usually occurs beneath conscious awareness. We argue that individuals who have different patterns of association for the domain of fertility will behave differently from one another, and that identifying their patterns of cognitive associations will predict these differences better than conventional uses of individual attitude measures as predictors. Our methods identify different types of respondents, who are characterized by the relationships among their attitudes, while conventional approaches identify relationships among attitude measures in a population assumed to be homogenous.

Figure 1
The Relational Attitudes Model helps to explain the discrepancy between measured attitudes and behaviors. Conventional models (e.g., those using individual attitude measures or factor analysis of attitude measures) insufficiently represent the cognitive associations that respondents use to interpret and answer survey questions and stimuli in the world. Importantly, our model accommodates contradictory and conflicting attitudes by explicitly taking into account the nature of associations among attitudes about different dimensions of life (e.g., motherhood, contraception, education). For example, negative attitudes toward contraception may lead to not using contraception, which could lead to childbearing, but such attitudes can coexist with a desire not to have children. Our methods can capture such contradictory attitudes.

Analytic Approach

We use two methods designed to gain insights into how respondents’ understandings of survey questions are shaped by their cognitive associations, by grouping respondents based on their patterns of responses, rather than treating the responses to each item as independent measures (Shepherd, DiMaggio and Goldberg 2014, Goldberg 2011). We will use Latent Class Analysis (LCA) and Relational Class Analysis (RCA) to identify groups of respondents with similar patterns of associations among attitude items and will then characterize these groups based on their socioeconomic background characteristics. These analyses will provide a basic understanding of the ways individuals think about the domain of fertility and their distribution in the population. Relational analyses allow us to holistically consider multiple concepts and areas of life that are related to fertility.

Including measures of educational and career goals, as well as relationship preferences, has been shown to improve the predictive capacity of models using attitudinal measures more directly related to fertility, such as desired family size (Morgan and Rackin 2010; Barber 2001). Our analyses examine the relationships between measures of attitudes related to five fertility-
related dimensions: the meaning and importance of motherhood, ideal relationship sequence, contraception, the timing of childbearing, and education and career. These inductive methods have been used before to study other attitude areas: racial attitudes and political attitudes. Previous work using RCA finds that the organization of Americans’ political attitudes falls into three groups: ideologues (strong liberals and strong conservatives), alternatives (morally conservative but economically liberal or vice versa) and agnostics (who have weak associations among political beliefs) (Baldassarri and Goldberg 2014). A study of white Americans’ racial attitudes used LCA and RCA to address longstanding debates over the organizing principles of racial attitudes. In that study, the authors find five LCA subgroups, which vary in racial progressiveness, and two RCA groups. The RCA groups were organized by either principled objection to racial policies or emotion-based group threat. Observing the overlap between LCA and RCA group memberships yielded a more nuanced picture of groups that were not identified using conventional socioeconomic and demographic characteristics (Shepherd, DiMaggio and Goldberg 2014).

This project will apply these same methods to the domain of fertility to describe heterogeneity among individuals in how they think about fertility, and identify subgroups in the population that share ways of thinking. We will also analyze how socioeconomic status, family background, and demographic characteristics reflecting structural context predict membership in each group. Patterns of cognitive associations are influenced by social and cultural contexts through (1) the acquisition of patterns of association that are shared with others, and (2) the degree to which certain patterns of association are supported and reinforced by the environment, which in turn shapes which associations are used to process new information. Although a causal analysis is beyond the scope of this project, by considering the background characteristics of individuals in different relational attitude groups, we investigate how patterns of association are
linked to social contexts.

Second, we use the group memberships identified using inductive methods in models predicting behavior (in this case, contraceptive use), and to compare the analytical value of these models to conventional models that use attitudes to predict behavior. As demographers try to incorporate more accurate and useful models of culture in their research, these analyses help to determine whether LCA and RCA are a productive direction for future efforts.

We predict that schema-based groups predict behavior better than conventional analyses of attitude measures because 1) attitudes measured through surveys are subject to context and order effects, and often force respondents to create attitudes “on the fly” (Schwarz 1999) that may have little connection to future behavior, and 2) patterns of associations among attitude questions convey information about how individuals think about and interpret stimuli in a domain. Because conventional analyses of attitudes cannot capture heterogeneity among respondents in the patterns of associations between attitude items, a great deal of information about mental representations of a domain like fertility is lost. Using LCA, which takes into account patterns across attitudes, we can interpret responses to specific attitude items in the context of responses to other attitude items. Additionally, researchers have found that RCA provides non-overlapping information to LCA in the domain of racial attitudes (Shepherd, DiMaggio, and Goldberg 2014). We test whether RCA provides additional information in the domain of fertility as well. Furthermore, RCA has yet to be tested with behavioral outcomes; this project provides the first test of its predictive value. We compare models that use LCA and RCA output to conventional models that use principal components analysis of attitudinal items, and to models based on the Theory of Planned Behavior with measures of perceived control and intentions. We also compare the relative predictive power of LCA versus RCA.
Data

We use data collected by the Relationship Dynamics and Social Life (RDSL) study. RDSL’s population-representative random sample is comprised of 1,003 women ages 18 to 22 residing in a county of Michigan. The sample was drawn from the Michigan Department of State driver’s license and Personal Identification Card database. Comparing the sampling frame by zip code to 2000 census-based projections showed 96% agreement between the frame and projections (Barber et al. 2011). Although RDSL is not nationally representative, Michigan falls around the national median of many key measures, such as age at first birth, nonmarital childbearing, and teenage childbearing (see Lesthaeghe and Neidert, 2006). This is not to suggest that Michigan is representative of the nation, but that Michigan is not an outlier. The target county was chosen because of the racial, ethnic and socioeconomic variation of individuals who reside there. The data also target young women in an age range in which they make key decisions about investments in education and family formation. Baseline data collection was completed in 2009.

The first component of data collection was a baseline face-to-face survey interview on sociodemographic characteristics, attitudes, and relationship, contraceptive, and pregnancy histories. The response rate for this interview was 83%, with an interview cooperation rate for located respondents of 93%. The data in the RDSL study include dynamic, prospective measures of contraceptive use, as well as related experiences, via a weekly journal spanning 2.5 years. The respondents—95% of whom participated in the journal component (N=953)—completed 57,602 journals: approximately 5-minute surveys on the internet or by phone. Respondents were paid $1 per weekly journal with a $5 bonus for on-time completion of five weekly journals in a row. Journal incentives were distributed via reloadable cash cards (Gatny et al. 2009). Eighty-four percent of respondents have data for at least 6 months, 79% for at least 12 months, and 75% for
at least 18 months (Barber et al. 2013). The modal number of days between journals for a respondent is 8 and the mean percentage of missing questions in each journal is 3%.

**Measures**

*Attitudes and Perceptions of Norms:* Measures include respondents’ evaluations of the following:

<table>
<thead>
<tr>
<th>Subject</th>
<th># of items</th>
<th>Sample item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contraception</td>
<td>8</td>
<td>Birth control is morally wrong</td>
</tr>
<tr>
<td>Timing of childbearing</td>
<td>6</td>
<td>Babies born to older mothers have more health problems</td>
</tr>
<tr>
<td>Premarital sex or cohabitation</td>
<td>3</td>
<td>Premarital sex is okay if there is attraction</td>
</tr>
<tr>
<td>Nonmarital parenthood</td>
<td>1</td>
<td>Alright for a woman to have a child without being married</td>
</tr>
<tr>
<td>Raising children</td>
<td>3</td>
<td>Children cause worry and emotional strain for their parents</td>
</tr>
<tr>
<td>Abortion</td>
<td>6</td>
<td>Alright if woman could not afford to have any more children</td>
</tr>
<tr>
<td>Education</td>
<td>1</td>
<td>How far would you like to go in school</td>
</tr>
<tr>
<td>Work and career</td>
<td>2</td>
<td>Expect work to be a major source of satisfaction</td>
</tr>
<tr>
<td>Family size</td>
<td>1</td>
<td>What is the ideal number of children for an average family</td>
</tr>
</tbody>
</table>

Attitude measures also include evaluations of prototypical women who participate in certain behaviors (e.g., “Women who carry a condom are intelligent/careless/cool”). These include two prototypes related to birth control and one prototype related to each of the following: pregnancy, attending college, and full-time work. Perceptions of what peers and parents believe is acceptable behavior are important to how respondents understand and evaluate behaviors for themselves (Prentice 2012). The measures of perceived norms reflect respondents’ perceptions of peers’ and parents’ social evaluation of behaviors (14 items, e.g., “How would your friends/parents react if you …had sex”, “…got pregnant”, “…got a fulfilling job”).

*Behavior:* Our main dependent variable is a summary measure of contraceptive use. In weekly journals, respondents who report being in a relationship (broadly defined to include all sexual
contact) are asked whether they had sexual intercourse. Those who report intercourse are asked if they used contraception for each instance of intercourse that week. Consistent contraceptive use is defined as using contraception in every instance of intercourse that week. Analyses of the first year of data found about 1/3 of respondents are always consistent over the course of a year, about 1/3 are sometimes consistent, about 1/10 are never consistent, and about 1/4 are abstinent. We use these four categories as a categorical dependent variable in our analyses.

Family Background, Socioeconomic Status, and Demographic Characteristics: We use these measures to describe the groups we identify using LCA and RCA, and as control variables in models comparing the analytical value of these groups to conventional methods of examining the relationship between attitudes and behavior. Family background measures are: mother’s education, father’s education, family structure, mother’s age at first birth, mother’s number of children, father’s number of children, mother’s work, family’s receipt of public assistance during childhood, parents’ home ownership during childhood, and parents’ income (past year). Socioeconomic measures are: respondent’s income (past year); current receipt of public assistance (WIC, FIP, cash welfare, or food stamps); and whether the respondent owns a car. Demographic characteristics are race and religion. Measures of sex, contraception, and pregnancy experiences prior to the baseline interview are also used as covariates: age at first sex, number of sex partners, any prior use of birth control, any prior sex without birth control, and number of prior pregnancies.

Analysis

Use LCA and RCA to categorize respondents using baseline measures of their fertility-related attitudes, and describe the groups identified. The first set of analyses in this study use LCA and RCA to analyze the baseline values of fertility-related attitudes from the RDSL data to create categories of respondents. Groups based on LCA and RCA membership approximate sharing...
similar cognitive schemas. The first analysis uses LCA to assign respondents to groups that share similar views on the fertility-related attitudes measured at baseline. The second analysis uses RCA to group respondents with others who share a similar organization of fertility-related attitudes at baseline, as described below.

LCA (McCutcheon 1987) identifies groups of respondents who share similar patterns of responses across variables. This approach produces groups in which respondents generally agree with one another on the substance of the questions. In LCA, conditional probabilities of particular responses to observed variables are multiplied by the probability of the observation belonging to any particular level (class) of the latent variable. The goal is to describe latent variables that eliminate the dependence between observed variables when taken into account (so that the observed variables become “locally independent” or uncorrelated within each class). Maximum likelihood estimation is used to calculate the conditional and latent class probabilities. We determine the number of analytic groups identified by LCA using two methods: BIC goodness-of-fit statistics and chi-squared tests calculated using a parametric bootstrap procedure. LCA analyses are implemented using LatentGold.

RCA is a new method to identify groups of respondents who share similar patterns of relationships among responses (Goldberg 2011). RCA aggregates people who may not agree on the substance of the issues, but who agree on how beliefs are associated with one another, by identifying subgroups of respondents who use similar principles to organize meaning in a particular social domain. A measure of relationality, calculated for each pair of respondents, compares their respective vectors of survey responses to determine “whether the components of [the] two vectors … follow a similar pattern,” regardless of whether they assume the same absolute values (Goldberg 2011:1404). The analysis thus uses both information about relationships between variables within each respondent, and comparisons of these relationships.
across respondents. This is done by calculating the mean difference in the pairwise distances between variables in each pair of survey-response vectors (Goldberg 2011:1404-6). RCA differs from LCA by a) focusing on patterns of relationships among variables instead of the values of those variables, and b) allowing the observed variables to remain correlated among groups of respondents.

For all analyses, missing measures of attitudinal data are handled using listwise deletion rather than multiple imputation, because imputation contradicts the principles underlying RCA and LCA. One of the strengths of LCA and RCA is that they do not rely on the categories conventionally used to group people, such as race and socioeconomic status, and may reveal groups that would not otherwise be distinguishable. Imputing the attitudinal measures using other characteristics observed in the data would undermine this goal. We expect data loss to be minimal since only 0.07% of our attitude items are missing in the baseline survey.

We use the results of each analysis to describe the content of associations between attitude items that characterize the members of each group. For LCA, we use mean values on attitudinal items to describe how respondents’ positions on different attitudinal items vary between groups. For RCA, correlations between attitude items can be visualized as a network, where the attitude items are the nodes and the strength of the correlations between the items constitute the links (ties) between nodes. This method of visualization highlights the insight from cultural sociology that the meaning that respondents assign to attitude items depends on the relationship of those items to other attitude items. These relationships can be used to approximate a respondent’s schema of the fertility domain; researchers have advocated measuring schema as an important contribution to understanding demographic behavior (Bachrach 2014).

We then compare the demographic characteristics of those groups of respondents
identified by LCA and RCA. To describe the sociodemographic characteristics of members of each analytic group, with separate analyses for LCA and RCA, we use multinomial logistic regressions to predict group membership using the sociodemographic variables collected at baseline. This description shows to what extent the analytic groups identified by LCA and RCA reflect subgroups in the population that can be identified using conventional methods. Finally, we compare the extent to which the groups created by LCA differ from the groups created by RCA to assess the extent to which the measures capture different information.

We conduct sensitivity analyses to test the robustness of LCA and RCA results to the inclusion or exclusion of specific attitude measures. Since the RDSL data have such extensive attitude measures, we can compare analyses that include more versus fewer attitude measures of a given topic, and also compare analyses that include or exclude related domains, like career and education. Previous studies of attitudes using these methods have not been able to conduct such analyses due to data limitations.

**Hypotheses for Group Composition and Characteristics.** We expect that the LCA analyses will identify four distinct groups of respondents with similar attitude patterns across five dimensions (motherhood, relationship sequence, contraception, timing of childbearing, and education and career). Based on qualitative accounts of how young women think about fertility (Edin and Kefalas 2005; Harding 2007) we expect to find one “Traditional” group that places very high value on the experience of motherhood, embraces a traditional relationship sequence (e.g., rejects premarital sex and unmarried parenthood), is positive about early childbearing, is relatively against contraception, and places less emphasis on educational and career goals. We expect to find a second group, the “Meaningful Motherhood” group described in detail by Edin and Kefalas (2005) as having few opportunities for meaningful social roles and connections outside
of motherhood. We expect this group to also place high value on motherhood and early childbearing, but to accept a non-traditional relationship sequence, and hold mixed attitudes about contraception and personal pursuit of education and career. A third group is expected to exhibit key features of the “Second Demographic Transition” in the U.S., placing less importance on motherhood, rejecting a traditional relationship sequence, rejecting early fertility, and embracing contraception, education, and career (Lesthaeghe and Neidert 2006). Finally, we expect to find a fourth “Modern Traditional” group, who share the “Traditional” high value on motherhood and a traditional relationship sequence, and embrace of early motherhood, but accept contraception and value education and career. If other groups exist, our methods will allow us to identify them.

In contrast to LCA, which provides the content and central tendencies of how groups of respondents think about the domain of fertility, RCA provides the structure of belief systems regarding fertility. We predict two main RCA groups. The first is a cohesive belief group, in which group members strongly associate all of our measured dimensions of fertility with each other; their thinking about fertility is organized in such a way that all dimensions are understood in relation to all other dimensions. The second is a partitioned group, in which respondents see each dimension as internally related, but see only weak relationships across dimensions. These groups represent two very different ways of understanding the domain of fertility. Again, if there are other groups present, our methods will allow us to identify them.

Since LCA and RCA provide different types of information that build on each other, we will examine the overlap between the two types of groups. We predict a higher concentration of cohesive belief respondents among the Traditionalists, and a higher concentration of partitioned respondents among the Modern Traditionalists and the Second Demographic Transition group, though we do not expect any of the LCA groups to contain only one RCA belief system. We are
agnostic about the RCA belief structures of the Meaningful Motherhood group. These predictions stem from an earlier study of RCA and LCA that found that more extreme LCA groups had a more homogeneous RCA composition (Shepherd, DiMaggio and Goldberg 2014).

*Determine whether the categorizations identified using inductive measures improve prediction of fertility behavior compared to conventional methods.* We model an important fertility behavior—contraceptive use—as a categorical outcome, using a multinomial logit model. Our main explanatory models are membership in a LCA group (Model 1a below) or in a joint LCA-RCA group (Model 2a) to predict contraceptive use. We compare these two models to a model with attitudes that uses conventional variable-based methods (Model 3a), rather than using LCA or RCA to group types of respondents. Model 3a includes values from a factor analysis of the same individual attitude measures used to create the group classifications with LCA and RCA. All models include family background, socioeconomic status, and demographic control measures (see Measures section). We use multiple imputation for missing data on sociodemographic variables that serve as controls in these models, using values of other observed characteristics. We test whether the models that include group membership variables from the LCA and RCA analyses (Models 1a and 2a) improve model fit over Model 3a, using the Akaike Information Criterion (Burnham and Anderson 2002) and the Bayesian Information Criterion (Raftery 1995) as tests of model fit. We also test which group membership variables – LCA or RCA – provide better model fit. These comparisons show whether identifying groups with shared schematic understandings allows better prediction of their behavior. For these multinomial logistic regression models, there are four contraceptive use outcomes, so \( j = \{1,2,3\} \); there are \( K \) groups; and there are \( X \) factors from the factor analysis.
Eqn. 1a: $\eta_j = \alpha_j + \beta_j \ast baseline \ controls + \sum(\gamma_{jk} \ast LCA \ group_k)$, where $k = \{1, \ldots, K - 1\}$

Eqn. 2a: $\eta_j = \alpha_j + \beta_j \ast baseline \ controls + \sum(\gamma_{jk} \ast Joint \ LCA-RCA \ group_k)$, $k = \{1, \ldots, K - 1\}$

Eqn. 3a: $\eta_j = \alpha_j + \beta_j \ast baseline \ controls + (\gamma_{j1} \ast factor \ 1 + \ldots + \gamma_{jX} \ast factor \ X)$

This study also contributes to a key question in debates over attitude-behavior models in demographic research: to what extent does the pathway from cognition to behavior go through intentions? A final test of the LCA and RCA classifications addresses this question. We will add intentions to the models above, as shown in models 1b, 2b, and 3b below. The results will contribute to the ongoing debate over whether intentions fully mediate the link between attitudinal factors and behavior, as posited in the Theory of Planned Behavior, or whether other pathways operate outside of behavioral intentions.

Eqn. 1b: $\eta_j = \alpha_j + \beta_j \ast baseline \ controls + \sum(\gamma_{jk} \ast LCA \ group_k) + \delta_j \ast intentions$, where $k = \{1, \ldots, K - 1\}$

Eqn. 2b: $\eta_j = \alpha_j + \beta_j \ast baseline \ controls + \sum(\gamma_{jk} \ast Joint \ LCA-RCA \ group_k) + \delta_j \ast intentions$, where $k = \{1, \ldots, K - 1\}$

Eqn. 3b: $\eta_j = \alpha_j + \beta_j \ast baseline \ controls + (\gamma_{j1} \ast factor \ 1 + \ldots + \gamma_{j(X+1)} \ast factor \ X) + \delta_j \ast intentions$

Comparing the results of models with and without behavioral intentions will provide evidence on the extent to which intentions mediate the effect of attitudes on behavior as predicted in the TPB. If the relationship between relational attitude group membership and behavior is not mediated by intentions, then other processes may be driving the relationship between patterns of attitudes and behaviors.

Results

Analyses are ongoing; results are forthcoming.
REFERENCES


