The Reliability and Stability of Measures about People's Values and Beliefs Concerning Family Life and Social Change

By

Arland Thornton

Dirgha Ghimire

Linda Young-DeMarco

Prem Bhandari

Institute for Social Research

University of Michigan

Ann Arbor, MI 48104

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Abstract

This paper examines the reliability and stability of developmental idealism measures in Nepal. Developmental idealism is a cultural schema that contains beliefs and values favoring modern societies and families over traditional ones and that views modern families as causes and effects of modern societies. It also views the world as dynamic, with change from traditionality towards modernity. Earlier studies have shown that developmental idealism has been disseminated widely internationally, but provide little evidence concerning whether individual views of developmental idealism can be reliably measured or the extent to which such views are stable across time. We estimate reliability and stability of developmental idealism measures using panel data collected in Nepal. Our results indicate substantial levels of reliability, with levels equal to or nearly equal to reliability levels of standard value and belief items measured in general American surveys. There is also considerable stability of developmental idealism views across time.

Keywords: Family Life, Social Change, Reliability, Stability, Developmental Idealism, Nepal

Introduction

This paper examines the measurement reliability and stability of individual views concerning developmental idealism, which is a cultural schema that contains beliefs and values concerning modern societies and families. Developmental idealism builds off the ideas of modernization and developmental theories and values modern societies and families over traditional ones, views modern families as causes of modern societies, and posits modern societies as causes of modern families. Developmental idealism also views the world as dynamic, with change moving from traditionality to modernity. It also emphasizes the importance of freedom and equality in human relations.

Developmental idealism is part of an increasingly influential world culture that has been spreading around the world (Krucken & Drori 2009; Meyer, Boli, Thomas & Ramirez 1997). This world culture emphasizes the importance of individualism, freedom, equality, development, education, human rights, and family forms seen as modern. The research literature has shown that world culture has helped foster many international changes, including increases in school enrollment and the standardization of educational content (Baker & Letendre 2005; Chabbott 2003), the spread of laws supporting human rights (Cole 2005; Meyer, Bromley, & Ramirez 2010), the establishment and spread of family planning programs (Barrett & Frank 1999; Thornton 2001, 2005), the spread of programs for gender equality and the elimination of female circumcision (Berkovitch 1999, Boyle 2002), and changing laws about sexual behavior (Frank, Camp, & Boutcher 2010). The primary focus of the research literature has been on the spread of world culture in laws, school programs and textbooks, governmental policies and programs, and the programs of nongovernmental organizations rather than on the beliefs, values, and behavior of individuals.

Nevertheless, research has shown that the ideas of modernization have been disseminated in many places around the world (Dahl & Rabo 1992; Deeb 2006; Ferguson 1999; Osella & Osella 2006; Pigg 1992; Ahearn 2001). There is also a growing body of survey research showing that many ordinary people around the world understand the basic ideas of development and developmental hierarchies (Binstock & Thornton 2007; Melegh et al 2012; Thornton et al 2012a). Many people also believe that societal modernity is both a cause and effect of family and demographic attributes (Abassi-Shavazi, Nodoushan & Thornton 2012; Binstock & Thornton 2007; Mitchell 2009; Thornton et al 2012b). This literature suggests that the spread of these developmental idealism beliefs is encouraging important social changes.

An important part of the developmental idealism theoretical framework is the expectation that individual developmental idealism beliefs and values influence individual and family behavior. However, in order for developmental idealism beliefs and values to be important for individual and family decisionmaking, they must be at least somewhat stable, because ephemeral factors can have little power in affecting lives. We know of no previous studies about the stability of individual developmental idealism beliefs and values.

Testing hypotheses about the effects of individual heterogeneity of developmental idealism beliefs and values also requires that the research community has a reliable battery of developmental idealism measures. Fortunately, there is now a small literature suggesting that answers to at least certain developmental idealism questions are of high quality. For example, survey respondents in Nepal answer developmental idealism questions straightforwardly; they also distinguish between questions that are worded in opposite directions (Thornton, Ghimire & Mitchell forthcoming.) Latent class analysis also shows that Nepalis can be divided reliably into groups with different levels of endorsement of developmental idealism (Mitchell 2009).

Furthermore, data from Argentina, China, and Egypt suggest that when the developmental idealism constructs being measured are very similar, the measurement reliabilities are high (Thornton et al 2011). However, these reliability estimates from Argentina, China, and Egypt confound reliability and conceptualization issues and cannot provide unbiased estimates of reliability itself. Without more information about the measurement reliabilities of developmental idealism beliefs and values, researchers cannot reliably examine how developmental idealism influences and is influenced by other factors.

We have multiple goals for this paper. First, we investigate the reliability of several batteries of developmental idealism beliefs and values collected in a panel study in Nepal. We do so using data and methods that permit us to estimate measurement reliabilities of individual survey items in ways that separate measurement reliability from conceptualization issues. Second, we compare measurement reliabilities for developmental idealism values with reliabilities for developmental idealism beliefs. Our expectation is that values are measured more reliably than beliefs. Third, we compare the reliability levels in Nepal with those in surveys in the United States to see if levels in Nepal are in the same general range as in the US. Finally, we provide estimates of the stability of individual beliefs and values across time. Our data and methods allow us to estimate stabilities of individual survey items across time, while both controlling for measurement reliability and avoiding issues of measurement conceptualization. We estimate both reliability and stability levels of several measures of developmental idealism using panel data collected in Nepal from 2008 to 2011.

We now discuss developmental idealism and why its measurement is important. We then discuss our study site in Nepal. Then, we present our data and analytical methods, results, and conclusions.

Developmental Idealism

Developmental idealism emerged from the modernization/development model that has been powerful among social scientists and public policy makers for centuries (Nisbet 1975/1969). Although the model of modernization has been heavily criticized in recent years as a framework for scholarship and policy, its influence continues to be far-reaching (Nisbet 1975/1969).

For centuries, the development model has placed societies along a developmental staircase, with northwest Europe and its overseas populations identified as developed and other countries specified as less developed. The model tells adherents that their world is dynamic, with change moving towards modernity from traditionality. The good life is specified to be located in northwest Europe and its diasporas, and more advanced societies are specified as models for less-developed ones.

Developmental idealism is a cultural schema that draws from this developmental model beliefs and values to guide the lives of individuals and communities. It tells people that the societal attributes it defines as modern are good and to be sought after. Developmental idealism also places high value on modern families which it defines to include the following attributes: autonomy of children, romantic love, self-choice marriages, marriages contracted at mature ages, individualism, nuclear families, gender equality, contraceptive use, and low fertility. In recent decades, the rise of divorce, sex outside marriage, and non-marital cohabitation and childbearing in Europe and North America have caused these behaviors to be associated with modernity, but they are often perceived negatively by elites and the general public. Traditional families are assumed to reflect the other end of the continuums from modern families. Developmental idealism also includes causal statements about modern families fostering societal development

and societal development bringing modern families. Also, equality and freedom are identified as fundamental human rights.

The spread of developmental idealism as a cultural schema is particularly important because ideational factors are increasingly seen as having substantial consequences for family and demographic behavior (Lesthaeghe 1983; Cherlin 1992; van de Kaa 1987; Pearce 2002; Yount & Rashad 2008). Cultural models provide frameworks for understanding the world and how it works, how people should live, and what things are good and how to achieve them (Geertz 1973; Fricke 1997; Thornton, Axinn, Fricke, & Alwin 2001; Johnson-Hanks, Bachrach, Morgan, & Kohler 2011). Contradictory schemas often exist simultaneously across and within societies and within individuals. Of particular importance is that for centuries the societies of the world have had their own beliefs and values about the world, appropriate goals, and appropriate means to achieve goals. Developmental idealism specifically and explicitly contradicts many aspects of these historical family systems, with clashes of culture frequently resulting. Although resistance and adaptation are often the result, the introduction of developmental idealism often brings important changes in many aspects of family life.

Although a growing body of research has documented the widespread dissemination of developmental idealism, we have little information about the factors influencing its adoption by individuals. We also know little about the consequences of individuals holding developmental idealism beliefs and values for their demographic, familial, religious, and political behavior. Accomplishment of these important research agendas requires knowledge of the reliability and stability of the survey items measureing developmental idealism. Our goal is to increase understanding of these reliabilities and stabilities for one population in the country of Nepal.

As suggested above, developmental idealism covers many aspects of personal, religious, political, and family life. Some aspects have to do with beliefs and others have to do with values. We conceptualize beliefs as cognitive statements of "what is," "what was", or "what will be." Beliefs may or may not be true, or they may be contingent – true in some circumstances and not others. For example, an individual may believe that having fewer children increases a family's income, which may be true under some circumstances but not others. However, individuals' beliefs are real in their consequences for that individual (Thomas 1929).

Values, by contrast, are cognitive representations about what is good or valuable – "standards" that govern behavioral choices. Values are "abstract ideals, positive or negative, not tied to any specific attitude object or situation, representing a person's beliefs about ideal modes of conduct and ideal terminal goals" (Rokeach 1970: pg.124). Values are important because many central human institutions such as marriage, childbearing, and childrearing have strong evaluative components (Rokeach 1970, 1973).

Although we cannot evaluate every belief and value concerning developmental idealism in a single paper, we examine the reliability and stability of several. These include the following belief dimensions: whether Nepalis believe that family changes are moving toward modernity; whether Nepalis believe that modern society brings modern families; and beliefs concerning whether modern families help produce a modern society. Also included are the following value dimensions: whether Nepalis value family attributes defined as modern over family attributes defined as traditional; and whether Nepalis value family change in the direction of developmental idealism.

By examining these five dimensions of developmental idealism together, we can compare their reliabilities and stabilities. Our expectation is that values are measured more reliably than

beliefs. We base this expectation on Alwin's (2007) extensive research in the United States where he found that survey measures of values were, on average, more reliable than survey measures of beliefs. Our research will permit us to see if this conclusion generally holds for the very different setting of Nepal.

We also expect that values involving more complex cognition will be measured less reliably than values involving less complex cognition. More specifically, we expect that evaluations making straightforward comparisons between two family elements will be measured more reliably than evaluations involving future family trends. The former involves no time reference beyond the present while the latter concerns a hypothetical future.

Finally, our research permits comparisons of our measures of reliability with those obtained by Alwin (2007) using data from the United States. Although we use different questions than Alwin, which prohibits strict comparisons, we can investigate whether reliabilities in Nepal are in the same general range as those in the US.

Data and Measures

Setting

Our study setting is the Western Chitwan Valley, which lies in the south central part of Nepal. Nepal was kept in relative isolation from the rest of the world and had very little exposure to the outside world until the mid-1950s, when it opened up considerably. Nepal is one of the lowest income countries in the world, with a per capita income of only $490 per person per year in 2010 (ADB 2012) . Almost one third of the population lives below the absolute poverty line. The economy has been—and continues to be—characterized by dependence on agriculture, with over 85% of the population still involved in agriculture.

However, beginning in the mid-1970s, Nepal has experienced dramatic social and economic change. Nepal started receiving large amounts of foreign aid from various countries, multi-national and bilateral organizations, and international non-governmental organizations. This flow of international aid was primarily targeted to the improvement of the living conditions of the rural poor through improvements in educational systems, health services, and rural infrastructure. The result has been a dramatic spread of formal education, wage work, government services, transportation and communication infrastructure, and the mass media. Even though Nepal is still predominantly a rural country, the process of urbanization has gained momentum in the last couple of decades.

Before the 1950s, the Western Chitwan Valley was primarily covered with dense forests and was infamous for malaria. With U.S. assistance, the Nepalese government initiated a reclamation program in the Valley during the 1950s by clearing the forests. Since then, the area has witnessed a rapid inflow of migrants. People were attracted by the free distribution of land for agricultural purposes at the beginning of settlement, and by the subsequent growth of amenities and services. Currently, the Valley is inhabited mostly by in-migrants, especially from the Nepali hills, adjacent districts in Nepal, and from northern India.

The Valley was connected to the rest of Nepal by all-weather roads in the late 1970s and experienced similar changes that occurred in other parts of the country (Shrestha 1989; Axinn & Yabiku 2001). Moreover, Chitwan's central location and relatively extensive transportation network have been the catalytic forces for transforming Chitwan into a hub for business and tourism. This has resulted in a rapid proliferation of schools, health services, mass media, transportation and communication infrastructure, and government wage labor opportunities (Shivakoti, Axinn, Bhandari, & Chhetri 1999). This spread of community level changes has

produced a re-organization of individuals' daily social lives within the lifetimes of Chitwan's current residents (Axinn & Yabiku 2001). These have included increasing participation in education and employment, exposure to mass media, and international communication and travel (Axinn & Yabiku 2001; Beutel & Axinn 2002; Ghimire & Axinn 2006), more specifically exposure to and interaction with the outside world and new ideas.

Sample Design

The data for our analysis come from a study of 151 neighborhoods scattered throughout Western Chitwan Valley. For this study, a neighborhood was defined as a geographic cluster of five to fifteen households. These neighborhoods were chosen as an equal probability, systematic sample of neighborhoods in Western Chitwan, and the characteristics of this sample closely resemble the characteristics of the Chitwan Valley population (Barber et al 1997).

The main universe of the study included all residents of the sampled neighborhoods aged 15-59 at the time of a household census in 2008. In addition to this main sample, we interviewed parents of unmarried people aged 15-34 and spouses of people aged 15-34, as long as the parents and spouses were living in Nepal. Because our sample comes from one valley, our results cannot be extrapolated to all of Nepal. The distribution of respondents on several key demographic characteristics is shown in Table 1.

Data

Our panel study was conducted from 2008 to 2011. The first interview included responses to a baseline interview (between July-December, 2008) collected from 5,190 individuals, with a response rate of 97.1 percent. Of the people interviewed in the baseline interview, 92 percent were interviewed through the subsequent interviews analyzed here. This data collection includes both structural and ideational measures, including the questions we

analyze in this paper. Each of the ideational measures used in this paper was initially gathered in the Wave 1 baseline and in two subsequent interviews, with the time between the Wave 1 and 2 measures and between the Wave 2 and 3 measures being approximately one year.

When we started this research, there were no measures of developmental idealism, and we needed to create new measures. Several approaches were used to accomplish this. We used the ethnographic fieldwork of others (Fricke 1997; Bista 1991; Pigg 1992; Guneratne 1998, 2001; Ahearn 2001) and conducted our own ethnographic fieldwork, informal discussions, focus groups, and in-depth interviews to understand Nepali thinking on the meaning of development and family matters. We followed these investigations by designing and pretesting survey questions about developmental idealism.

As noted earlier, in this paper we use data from five sets of questions. Each of these five sets of questions asked respondents about several family elements. Many of the family elements included have long been part of developmental idealism's traditional-modern continuum: arranged marriage; age at marriage; intergenerational coresidence; respect for authority; fertility; and putting family needs above one's own needs. We also asked about two family elements, same-caste marriage and widow remarriage, that are part of historical Nepali culture and often placed on a traditional-modern continuum. Our final family elements are premarital sex, nonmarital cohabitation, marital dissolution, and never marrying--elements that have become common in Europe and North America in recent decades and are frequently seen as aspects of modernity. The question wordings are provided in Appendix A.

Our first set of questions asked if development would decrease or increase the prevalence of the family elements mentioned above, and the second set asked if changes in family elements would make Nepal richer or poorer. The third question set asked about expectations concerning

future changes in various family elements, and the fourth set asked whether respondents thought that changes in family elements in the developmental idealism direction would be good, bad, or it didn't matter. For our fifth set, we asked people to compare family elements located at different ends of a continuum and evaluate which one they preferred.

With the exception of the questions asking respondents to evaluate future family changes, all of the answers were coded into dichotomies—either accepting or rejecting the developmental idealism response. The few people who said that they did not know or provided an answer that could not be coded as endorsing or rejecting the developmental idealism response were coded for our analysis as not giving the developmental idealism response. For the questions about evaluations of future trends, respondents were invited to say whether that change would be good, bad, or it didn't matter. For the purpose of showing univariate distributions, we dichotomized as developmental idealism responses those answers saying that a modern family change was good, while all other answers were coded as not developmental idealism. For the estimation of correlations, reliabilities, and stabilities, we used the ordered trichotomy of support for developmental idealism change ranging from bad, to indifferent, to good.

Methods for Estimating Reliability and Stability

Most estimates of the reliability of survey measures are derived using multiple survey items that are assumed to measure the same underlying construct, with the unfortunate consequence that reliability is confounded with violations of the assumption that the items are measuring the same thing. To avoid this confounding of reliability and conceptualization problems, we estimated reliability in a model using data for a series of one-item variables that are each measured three times in a panel study (Alwin 1989, 2007).

Our procedure is summarized in Figure 1 where we specify that an underlying variable with a true score of eta (η) is measured by a single indicator (y) for the same individual at three points in time. The observed indicator (y) in each year is specified to be the product of the underlying variable (η) in the year that the indicator is measured. As shown in Equations 1, 2, and 3, the observed indicator (y) is linked to eta (η), the true score, through lambda, the regression coefficient, also referred to as the factor loading. The observed indicator is also affected by the unobserved error of measurement (ε), which we assume to be random.

Reliability indicates the extent to which the variance of the observed indicator (y) is "true" rather than "error" variance. It is measured as the ratio of the true score's (η) variance to the indicator's (y) variance. The square root of this reliability is equal to lambda, the factor loading. When reliability is equal to 1, the variance in the indicator reflects only the variance of the underlying construct and there is no error variance. When reliability equals zero, none of the indicator's variance reflects the underlying construct and all of it is error variance.

$$y_1 = \lambda_1 * \eta_1 + \varepsilon_1 \quad (1)$$

$$y_2 = \lambda_2 * \eta_2 + \varepsilon_2 \quad (2)$$

$$y_3 = \lambda_3 * \eta_3 + \varepsilon_3 \quad (3)$$

Equations 4 and 5 link together the three underlying variables (also see Figure 1). These equations indicate a process where each underlying construct is assumed to be caused by the immediately preceding underlying construct and a substantive error term (ζ) (Alwin, 1989, 2007; Joreskog, 1970). This means that the time 1 underlying construct is assumed to affect the time 3 construct only because it influences the time 2 construct. The beta coefficients in the substantive equations (and in Figure 1) are standardized regression coefficients that indicate the temporal

stability of the underlying variables, where the underlying constructs have been purged of measurement error.

$$\eta_2 = \beta_{21} * \eta_1 + \zeta_2 \quad (4)$$

$$\eta_3 = \beta_{32} * \eta_2 + \zeta_3 \quad (5)$$

These standardized regression coefficients (Beta) indicate the standard deviation difference produced in the dependent variable by a standard deviation difference in the predictor variable. Coefficients below 1.0 indicate that there is a regression to the mean as individuals both high and low in the distribution tend to move towards the mean, whereas coefficients above 1.0 indicate movement away from the mean as individuals high in the distribution tend to move even higher and individuals low in the distribution tend to move even lower.

We estimated these models by first calculating the appropriate tetrachoric and polychoric correlations among Wave 1, Wave 2, and Wave 3 variables for a particular family construct using MPLUS (Muthén 1981; Muthén & Muthén 1998-2010). For the variables measured as dichotomies, we based our estimations on tetrachoric procedures. For variables measured as ordinal trichotomies, we based our estimates on polychoric procedures.

With the correlations estimated, we estimated λ, β_{21}, and β_{32} using the procedures described by Heise (1969) and Alwin (1989, 2007). This procedure required making simplifying assumptions to estimate Equations 1, 2, and 3, with an essential assumption being that the measurement reliabilities are equal across time. Also, since we are using correlations for our main input, we have fixed the variances of y and eta at one.

Results

Aggregate Distributions.

We begin our discussion of results with the univariate distributions of each of the variables analyzed. We show these aggregate distributions as dichotomies in Table 2, with the numbers indicating the percentage of people endorsing a particular aspect of developmental idealism. We also show in the next-to-last row the average number of developmental idealism responses given by respondents for each set of questions These averages are calculated for people with good data in all waves of the interviews, whereas the individual percentages are based on people having good data for just that wave.

The Wave 1 data show that the endorsement of developmental idealism depends greatly on the family element being studied and on the dimension of developmental idealism being asked about. In general, the support for developmental idealism was higher for the two dimensions focused on development causing family change and for expectations for future change than for the other three dimensions. This can be seen most clearly in the average number of developmental idealism answers given, where the means are above seven (out of 11 or 12 items) for both development causing family change and for expectations for future change, and the means for each of the other three dimensions are below five (out of 9-12 items).

More specifically, for the dimension of future expectations, the percentage expecting increases in developmental idealism in the next twenty years exceeded fifty percent in all but two cases. In addition, in nine of the twelve questions about the future, seventy percent or more expected changes in the direction of developmental idealism, and in several cases the percentage exceeded eighty percent. The two family elements where fewer than fifty percent expected family change in the developmental idealism direction were respect for authority and women never marrying.

Similar patterns existed for the dimension of development causing family change. In all but three questions more than fifty percent said that development would bring family change in the direction of developmental idealism. In addition, for seven of the eleven family elements, more than seventy percent said that development would bring family change in the developmental idealism direction.

As already noted, there was less overall support for the other three dimensions of developmental idealism—saying that family change would bring development, evaluating developmental idealism change as positive, and valuing family elements in the direction of developmental idealism. In fact, for all three of these dimensions of developmental idealism, the modal support was less than fifty percent. A majority said that family change in the direction of developmental idealism would bring change only in the cases of age at first marriage increasing, more self-choice in spouse selection (but just barely), and time from marriage to first birth. Endorsement of trends in the direction of developmental idealism exceeded fifty percent only in the cases of age at first marriage, widow remarriage, and the time from marriage to the first child. Fewer questions were asked about general values concerning developmental idealism, but the picture here is one of relatively little endorsement of developmental idealism. In only three questions out of nine—divorce, arranged marriage, and widow remarriage—was the developmental idealism option chosen over the opposite option. In each of the other six family items the percentage endorsing the developmental idealism option was less than twenty percent.

Comparing the data from Wave 1, Wave 2, and Wave 3, we see that there is considerable aggregate stability across these waves in the percentage of people endorsing a particular item. For three of the five developmental idealism dimensions—development causes family change, family change causes development, and evaluations of future family changes, the distributions

are remarkably similar across the three waves. There are modest ups and downs for individual items and for the means, but these are not in a consistent direction.

However, for the questions about expectations for future trends and for values for developmental idealism, there seems to be a modest upward trend in the percentages endorsing the developmental idealism position. This holds true for nine of the twelve items measuring expectations for future trends and for six of the nine items measuring general values for developmental idealism. It also holds true for the averages, with the increases in average endorsement between Waves 1 and 2 and between Waves 2 and 3 being statistically significant for these two dimensions of developmental idealism.

Individual Measurement Reliability

We now shift to individual measurement reliability and Table 3 where we present the reliabilities for each measured variable. These reliabilities equal the square of the standardized effect of each of the underlying eta variables on its corresponding observed y variable.

Table 3 indicates that the reliabilities are generally similar for three dimensions of developmental idealism—development causing family change, expectations for the future, and evaluations of the future. Looking first at the reliabilities for the development causing family change questions, we see that they range from .30 to .68. The average of these reliabilities is .47. For the future expectation questions, the reliabilities range from a low of .31 to a high of .74. The average of these reliabilities is .51. The reliabilities for the evaluation of future developmental idealism trends range from .43 to .57. The average of these reliabilities is .50, similar to the average reliability for the future expectations questions.

The reliabilities for general values for developmental idealism generally tend to be higher than the reliabilities for the three sets of variables just mentioned, and those for family change causing development are generally lower. The reliabilities for general developmental idealism values range from .39 to .78. Furthermore, the mean reliability for general values is .65, compared to the .47, .51, and .50 average reliabilities for the three sets of variables just mentioned.

As already mentioned, the reliabilities for the dimension of family change causing development are generally lower than the reliabilities of the other four dimensions of developmental idealism. Here the reliabilities range from .28 to .49, with the average being .40.

We are not surprised about the reliabilities, on average, being higher for the general value variables than for the other four sets of variables. As we noted earlier, Alwin (2007) found that in the United States measures of values had higher reliabilities than did measures of beliefs. On the basis of Alwin's American work, our general value variables are expected to have higher reliabilities than are the three dimensions of developmental idealism that we categorize as belief variables: development causing family change; family change causing development; and expectations about future family change.

As expected, the questions measuring the general family value dimension are generally more reliable than questions measuring evaluations of future family change. We expect that this higher reliability is at least partially due to the lower cognitive difficulty of evaluating value questions without a time reference compared to the greater cognitive difficulty of evaluating value questions about a hypothetical future. We do not have explanations for the family change

causing development belief variables having lower reliabilities than the belief dimensions of development causing family change and expectations about the future.

We now turn to the question, how do these reliabilities compare to the reliabilities observed in studies of other populations? Here we compare our average reliabilities to the average reliabilities calculated by Alwin (2007) for many different questionnaire items used in American surveys. Alwin estimated the average reliability of American value questions to be .65 and the average reliability of American beliefs questions to be .58

Remarkably, our average reliability of .65 for the general value items is identical to Alwin's average American value reliability of .65. Thus, our results from a Nepali population on this set of value variables are very similar to results in the United States for other variables. However, our other Nepali value questions—those asking people to evaluate future family changes--have lower reliabilities (.50) than the average reliability of .65 in Alwin's American value data. Given the cognitive complexity of this set of questions, it is not surprising that our average Nepali reliability for them is a bit lower than the average American value reliability.

As we noted earlier, we classify our questions about development causing family change, family change causing development, and expectations of the future as beliefs. Our average reliabilities of .47 for the development causing family change question and .51 for expectations of future family change questions are only somewhat lower than the average reliabilities of belief measures in the United States (.58). Our average reliabilities for the questions about family change causing development are, as we discussed earlier, somewhat lower at .40. Again, we emphasize that our questions about beliefs are complex as they ask respondents about causation and to peer twenty years into the future and report their expectations about that future compared

to the present. We expect that this kind of belief is more complex and difficult to report reliably than most belief questions asked in the United States. In addition, the reliabilities of belief questions in Nepal may be lowered by an extensive period of civil conflict and uncertainty in the country. The data are certainly consistent with these expectations, although the differences in reliability are not very large in the case of questions about development causing family change and about expectations of the future.

Earlier we mentioned that the square root of a measurement reliability is equal to the lambda coefficient, which is the standardized loading or effect of the true score on the observed variable. The square roots of the average reliability scores for the five sets of questions equal .69, .63, .71, .71, and .81 respectively. These standardized effects of the true scores on the observed scores are quite high.

Individual Stabilities Across Time

We now turn to our estimates of individual level stabilities across time, which are reported in Table 4. As we discussed earlier, these are standardized regression coefficients of a Wave 2 variable on the comparable Wave 1 variable and standardized regression coefficients of a Wave 3 variable on the comparable Wave 2 variable. Table 4 demonstrates considerable stability of true scores between Waves 1 and 2 for each of the five sets of variables. All of the stabilities between Waves 1 and 2 are quite high, ranging from a low of .55 to over 1. Furthermore, the average stabilities do not vary greatly over the five dimensions of developmental idealism—from a low average of .75 for development causing family change to a high average of .85 for values about developmental idealism. These are substantial stabilities, although we note that the intervals between waves were relatively short.

The data also demonstrate that for almost all of the variables there is an increase in stabilities between Wave 2 and Wave 3 compared to the Wave 1 to Wave 2 stabilities. There is only one exception to this observation in the entire table. Furthermore, the average stabilities between Waves 2 and 3 are noticeably higher than the average stabilities between Waves 1 and 2. The smallest increase in average stabilities was from .85 to .92 for the general developmental idealism values dimension and the greatest increase in average stabilities was from .75 to .95 for the development causing family change dimension.

Conclusion

We began this paper with the observation that developmental idealism is an important set of ideas with implications for a broad range of behaviors. We also noted that empirical investigations of the factors influencing developmental idealism and the consequences of these values and beliefs require questionnaire items that can be reliably measured. To our knowledge, this paper is the first empirical test of the reliability of questions designed to measure people's endorsement of five dimensions of developmental idealism.

The results of our research are reassuring about the quality of our measures of developmental idealism, as it has shown that for five dimensions of developmental idealism, the measurement reliabilities in Nepal are quite favorable. Our average estimated reliabilities ranged from .40 to .65, with the factor loadings ranging from .63 to .81.

Furthermore, the average reliability of our straightforward value questions concerning different family elements is very similar to the average reliability of value questions measured in American surveys. However, as expected, our more cognitively complex value questions were

measured with somewhat less reliability. Furthermore, the reliability averages of two of our dimensions measuring developmental idealism beliefs had reliabilities that are only a bit lower than the average reliabilities for beliefs found in American surveys. These results are very reassuring for the research community's ability to study reliably the causes and consequences of developmental idealism beliefs and values.

Our research also demonstrates that rather than the various dimensions of developmental idealism being ephemeral, they are quite stable over time. This suggests that they may also be important features of people's mental maps of the world, with potentially strong implications for decisionmaking and behavior.

We end our paper with the caveat and challenge that our research has only been conducted in one region of Nepal and may not be generalizable to the entire country. Nepal is also only one country in a very diverse world. This suggests the need for the reliability and stability of developmental idealism measures to be examined in other parts of the world.

Figure 1. Single Item Reliability and Stability Model

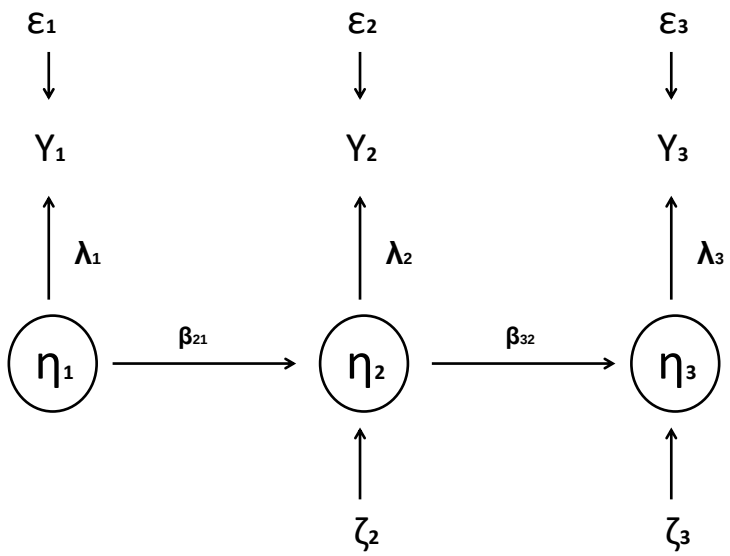

Table 1. Percent Distribution of Respondent Characteristics

	Percent
Gender	
Female	58
Ethnicity	
Brahmin/Chhetri	45
Dalit	11
Newar	6
Hill Indigenous	17
Terai Indigenous	21
Education	
None	24
1-5 years	9
6-10 years	22
11-14 years	27
15+ years	18
Marital status	
Ever married	76
Number of Children	
0	29
1-2	30
3-4	26
5+	15
Age in years in 2008	
15-24	30
25-34	25
35-44	20
45+	25

Table 2. Percentage of Respondents Giving Developmental Idealism Answer by Developmental Idealism Dimension, Family Element, and Wave

	Dev → Fam			Fam → Dev			Expect DI in Future			Prefer DI in Future			Prefer DI		
	W1	W2	W3	W1	W2	W3	W1	W2	W3	W1	W2	W3	W1	W2	W3
Non-Marital Cohabitation	74.8	75.1	76.7	16.3	22.2	21.4	82.5	84.0	85.8	15.9	18.2	16.4	12.6	13.5	12.5
Age 1st Marriage for Women	45.7	42.2	38.3	54.8	51.6	46.7	75.2	75.4	76.5	66.8	65.7	66.3			
Divorce	48.1	52.2	56.7	7.3	11.6	10.8	62.8	66.7	70.0	12.4	12.5	11.9	57.3	61.8	65.7
Married Children Living with Parents	65.3	70.2	71.3	37.6	37.0	33.5	70.5	73.2	76.0	17.2	16.2	13.5	12.4	14.3	13.2
Respect for Authority							39.9	42.8	46.1	16.5	13.5	12.6			
Individual Needs Before Family	77.3	76.1	77.1	30.6	34.9	32.4	76.3	78.7	81.1	39.4	40.1	34.8	13.0	19.4	19.3
Premarital Sex	80.6	79.0	82.3	6.4	10.4	10.0	88.0	88.3	89.5	6.4	6.5	5.9	1.7	1.8	2.3
Marriages Arranged by Parents	86.3	86.3	84.6	50.7	48.9	42.6	87.7	86.4	87.5	37.9	32.8	29.6	70.8	74.5	74.1
Inter-caste Marriage	87.6	87.5	88.7	40.9	46.3	43.6	92.4	91.9	92.6	35.4	36.5	32.6	13.3	15.6	15.6
Women Never Marrying	39.5	38.4	41.1	41.6	42.2	40.7	42.8	42.2	45.6	26.4	27.2	28.1	8.5[a]	7.5[a]	7.3[a]
Widow Remarriage	80.1	80.7	82.8	47.0	48.2	48.5	79.4	83.6	86.1	59.1	62.5	64.1	77.8	80.5	83.8
Time from Marriage to 1st Birth	72.4	68.3	68.9	75.8	73.0	70.6	71.9	72.0	75.1	71.1	71.2	72.1			
Mean # of Developmental Responses	7.58	7.56	7.68[c]	4.09	4.26[b]	4.00[c]	8.70	8.86[b]	9.13[c]	4.04	4.02	3.87[c]	2.67	2.89[b]	2.94[c]
N	4628	4631	4631	4628	4631	4631	4652	4656	4655	4652	4656	4655	4652	4656	4656

[a] Question wording read "Most People" instead of "Women"

[b] Mean difference in number of developmental responses between Waves 1 & 2 significant at p=.05 or better

[c] Mean difference in number of developmental responses between Waves 2 & 3 significant at p=.05 or better

Table 3. Reliabilities of Individual Measures on Latent Variables, by Developmental Idealism Dimension and Family Element

	Dev → Fam	Fam → Dev	Expect DI in Future	Prefer DI in Future	Prefer DI
Non-Marital Cohabitation	.43	.44	.50	.54	.39
Age 1st Marriage for Women	.61	.28	.44	.47	
Divorce	.50	.33	.60	.54	.76
Married Children Living with Parents	.35	.32	.48	.43	.66
Respect for Authority			.60	.53	
Individual Needs Before Family	.30	.44	.31	.51	.54
Premarital Sex	.68	.49	.74	.56	.55
Marriages Arranged by Parents	.52	.38	.55	.44	.70
Inter-caste Marriage	.51	.47	.54	.57	.78
Women Never Marrying	.48	.48	.35	.44	.68[a]
Widow Remarriage	.48	.35	.56	.45	.77
Time from Marriage to 1st Birth	.30	.41	.40	.46	
Average Reliability	.47	.40	.51	.50	.65
Average Reliability[b]	.47	.40	.53	.51	.64

[a] Question wording read "Most People" instead of "Women"

[b] Each average calculated using only those family elements measured across all dimensions of developmental idealism.

Table 4. Stability Coefficients from Wave 1 to Wave 2 and from Wave 2 to Wave 3, by Dimension of Developmental Idealism and Family Element

	Dev → Fam		Fam → Dev		Expect DI in Future		Prefer DI in Future		Prefer DI	
	W1-W2	W2-W3	W1-W2	W2-W3	W1-W2	W2-W3	W1-W2	W2-W3	W1-W2	W2-W3
Non-Marital Cohabitation	.72	1.01	.75	.86	.66	.94	.72	.92	.76	.84
Age 1st Marriage for Women	.79	.92	.77	1.04	.80	.92	.62	.78		
Divorce	.65	.90	.99	1.04	.81	.90	.72	.90	.81	.99
Married Children Living with Parents	.75	.96	.88	.97	.82	.89	.74	.79	.81	.82
Respect for Authority					.76	.92	.55	.63		
Individual Needs Before Family	.78	1.10	.76	.94	.75	.92	.86	.95	.83	.92
Premarital Sex	.74	.90	.88	.85	.78	.85	.83	.95	1.04	1.12
Marriages Arranged by Parents	.85	.98	.76	.95	.96	1.0	.75	.90	.86	.89
Inter-caste Marriage	.84	.96	.76	.95	.87	1.0	.80	.92	.88	.93
Women Never Marrying	.69	.89	.76	.92	1.0	1.15	.78	.97	.81[a]	.90[a]
Widow Remarriage	.70	1.02	.88	1.05	.64	.83	.86	.94	.86	.92
Time from Marriage to 1st Birth	.77	.84	.76	.88	.70	.96	.74	.88		
Average Stability	.75	.95	.81	.95	.80	.94	.75	.88	.85	.92
Average Stability[b]	.75	.98	.83	.95	.79	.92	.78	.91	.86	.93

[a] Question wording read "Most People" instead of "Women"

[b] Each average calculated using only those family elements measured across all dimensions of developmental idealism

Appendix A. Nepal Developmental Idealism Survey Question Wording

Development Causes Family Change

Some people think that Nepal will become richer in the future. Let's talk about what things that would increase and what things would decrease if Nepal became richer.

- How about females marrying before the age of 18? If Nepal becomes richer, over time would that increase or decrease females marrying before the age of 18?
- Parents choosing who their children marry - If Nepal becomes richer, over time would that increase or decrease parents choosing who their children marry?
- Marriages ending in divorce?
- Unmarried men and women living together like married couples?
- Premarital sex?
- People putting individual needs before family needs?
- Married children living with their parents or in-laws?
- Women who never marry?
- People marrying a person of a different caste?
- Young widows getting remarried?
- The length of time between getting married and having a child?

Family Change Causes Development

We have been talking about what might happen to families if Nepal became richer. Now we are going to talk about something different - what might happen to Nepal if some things about the Nepali family changed. For each of the following things, please tell me whether you think it would help make Nepal richer or help make Nepal poorer.

- What if fewer females married before the age of 18? Would that help make Nepal richer or help make Nepal poorer?
- What if fewer parents chose who their children married – would that help make Nepal richer or help make Nepal poorer?
- If there were more marriages ending in divorce?
- If more unmarried men and women lived together like married couples?
- If there was more premarital sex?
- If more people put individual needs before family needs?
- If fewer married children lived with their parents or in-laws?
- If more women never married?
- If more people married a person of a different caste?
- If more young widows got remarried?
- If the length of time between getting married and having a child increased?

Expectations and Evaluations of Future Change

Now please think about the next twenty years in Nepal.

- Do you think unmarried men and women living together like married couples will increase or decrease in Nepal during the next twenty years?
- Suppose unmarried men and women living together like married couples increases in Nepal during the next twenty years. Overall, will that be a good thing, bad thing or won't it matter?
- Do you think the average age for a woman to get married will increase or decrease in Nepal during the next twenty years?
- Suppose the average age for a woman to get married increases in Nepal during the next twenty years. Overall, will that be a good thing, bad thing or won't it matter?
- Do you think marriages ending in divorce will increase or decrease in Nepal during the next twenty years?
- Suppose marriages ending in divorce increases in Nepal during the next twenty years. Overall, will that be a good thing, bad thing or won't it matter?
- Do you think married couples who live with their parents or in-laws will increase or decrease in Nepal during the next twenty years?
- Suppose married couples who live with their parents or in-laws decrease in Nepal during the next twenty years. Overall, will that be a good thing, bad thing or won't it matter?
- Do you think the respect for authority will increase or decrease in Nepal during the next twenty years?
- Suppose the respect for authority decreases in Nepal during the next twenty years. Overall, will that be a good thing, bad thing or won't it matter?
- Do you think people putting individual needs before family needs will increase or decrease in Nepal during the next twenty years?
- Suppose people putting individual needs before family needs increases in Nepal during the next twenty years. Overall, will that be a good thing, bad thing or won't it matter?
- Do you think premarital sex will increase or decrease in Nepal during the next twenty years?
- Suppose premarital sex increases in Nepal during the next twenty years. Overall, will that be a good thing, bad thing or won't it matter?

- Do you think parents choosing who their children marry will increase or decrease in Nepal during the next twenty years?
- Suppose parents choosing who their children marry decreases in Nepal during the next twenty years. Overall, will that be a good thing, bad thing or won't it matter?
- Do you think people marrying someone from a different caste will increase or decrease in Nepal during the next twenty years?
- Suppose people marrying someone from a different caste increases in Nepal during the next twenty years. Overall, will that be a good thing, bad thing or won't it matter?
- Do you think women never getting married will increase or decrease in Nepal during the next twenty years?
- Suppose women never getting married increases in Nepal during the next twenty years? Overall, will that be a good thing, bad thing or won't it matter?
- Do you think young widows getting remarried will increase or decrease in Nepal during the next twenty years?
- Suppose young widows getting remarried increases in Nepal during the next twenty years. Overall, will that be a good thing, bad thing or won't it matter?
- Do you think the length of time between getting married and having a child will increase or decrease in Nepal during the next twenty years?
- Suppose the length of time between getting married and having a child increases in Nepal during the next twenty years. Overall, will that be a good thing, bad thing or won't it matter?

Which Family Attributes are Better

Now I would like you to compare different family situations. For each of the following comparisons, please tell me which situation would be better for most people in Nepal today.

- First overall, which do you think is better for most people in Nepal today – married children living with their parents or in-laws, or married children living separately?
- Overall, which do you think is better for most people in Nepal today – young people choosing their own spouses, or parents choosing their spouses for them?
- A society in which it is acceptable for an unmarried man and woman to live together like a married couple or a society where it is not acceptable for an unmarried man and woman to live together like a married couple?
- Waiting until marriage to have sex or having sex before marriage?
- Overall, which do you think is better for most people in Nepal today – a divorce or an unhappy marriage?
- Overall, which do think is better for most people in Nepal today – to put individual needs first or to put family needs first?
- Overall, which do think is better for most people in Nepal today – marrying within one's own caste or marrying someone of another caste?
- Overall, which do you think is better for most young widows in Nepal today – to remarry or not to remarry?
- Overall, which do you think is better for most people in Nepal today – to get married or not to get married?
- What do you think is better for most people - youth choosing their marriage partners or parents choosing on their behalf?

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