Instability Overlooked: Evidence for the Importance of Household Roster Data Collection and Matching Over Time

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ABSTRACT

Many studies on instability examine changes in relationships and household composition by using measures such as "are you married?" or "how many children in this household?" and then comparing the answers across time. Instability is determined from changes noted in respondents' answers and conclusions are made based on the impact of instability, or the lack thereof. However, these measures are one-dimensional; they do not capture the types of changes that may have occurred between waves. For example, respondents may be married at both waves, but to different people. This misconception calls for a more nuanced examination of households and relationships of members at each point in time. Data from the Making Connections Survey are used to compare different methods of measuring instability in relationships, number of adults, and number of children across waves. The data include a household roster that collects demographic information about each member of the household, as well as their relationship to the respondent. Moreover, household members on the roster are matched across waves and each person is given a unique identifier. This makes it is possible to tell changes in household composition and relationships on an individual basis, instead of relying on singular measures. Findings show that when longitudinal studies closely examine household rosters and link household members over time to measure instability, instead of using only single measures - a significantly greater proportion of change is captured. This study is important because it illustrates the importance of more detailed data collection on household members, and considering the fluid nature of especially poor families, the extent to which instability is overlooked by the usual measures. Finally this study provides evidence suggesting that conventional methods of capturing instability related to people in a household should be revisited.

BACKGROUND and LITERATURE REVIEW

Household instability or changes over time in the number or relationships of people in a home are concepts often included in research. For example, studies on marriage and family examine instability in the form of union dissolution (divorce or break-up of cohabiting union) and its effect on adults and children (Brown 2005; Meadows et al 2009). Then again, change in the number of adults or children in a home are also concepts used to capture household instability. These measures are often used as controls in models that examine various topics (see Disney et al 2008 for housing prices and household debt; Heflin and Iceland 2009 for relationship between depression and material hardship; and Handy et al 2008 for outdoor play among children) and changes in number of adults or children are found to have significant effects. The inclusion of these concepts in research suggests the importance of the concept of instability or change.

However, it is possible that current measures of change over time do not present an accurate picture of instability. Some studies are one dimensional in their measurement of change. By this we mean that they only look at the count of household members or answers to single questions such as, "are you currently married?" These measures are then compared at different waves of data collection to determine instability or change. For example, South et al (1998) use longitudinal data from the Panel Study of Income Dynamics to examine the relationship between parental divorce and mobility among children. They classify respondents into groups based on whether they changed their answers to the questions on union status at each wave of data collection and categorize people as continuously married, continuously single, divorced or separated, and so on. If someone stated that they were married at time 1 and married at time 2 they are classified as still married. But these measures do not consider that people can be married to one person and then, years later, married to another. Their measure of instability would not capture this change.

Similarly, while a household could, at one point in time have three children living there, it is possible that over time children move in or out, but the number of children remains the same. So the content changes, but not the count. For example Heflin and Iceland 2009 examine the relationship between material hardship and the depression. They control for a change in the number of children by using the difference in the count of children at each wave. They conclude that a change in number of children increases the risk of depression. Thus, no change in number of children has no impact on the risk of depression. However, their measure does not consider that types of children at each wave could be different in terms of age or relationships to one another. Studies that rely on these concepts of change could be missing some nuances and thus underestimating instability.

CURRENT STUDY

Instability and change over time in key concepts such as marriage and cohabitation and number of children or adults in a household are important aspects to many research studies. We examine current conventional methods of capturing change and instability and compare to a process of roster matching and unique person identifiers. We aim to provide a more complete measure of change over time and determine if there is any instability not accounted for by popular measures.

Two waves of data from the *Making Connections* Survey are used to compare these measures. The data are ideal for this study as they include detailed roster information about everyone in the household as well as a unique person identification number for each household member (not only the respondent or focal child) that can be compared at each wave of data. Moreover, the *Making Connections* Survey studies low-income families. These families are more likely to experience more instability in terms of people moving in an out due to their precarious economic conditions.

This research is important for the following reasons. First, household instability and change over time are concepts often used in research, yet it is possible that they do not capture all change present in a home. Second, it supports the importance of using a household roster to collect data on all people in a home. And finally, it provides support for the process of matching people across waves, as done in the *Making Connections* Survey dataset.

We test the following hypotheses:

Hypothesis 1: The conventional method of determining relationship instability (i.e. divorce or dissolution of cohabiting union) provides a significantly lower rate of instability as compared to the measure using matched roster data and unique person identifiers.

Hypothesis 2: The conventional method of determining change in the number of adults in a household provides a significantly lower rate of change than the measure using matched roster data and unique person identifiers.

Hypothesis 3: The conventional method of determining change in the number of children in a household provides a significantly lower rate of change than the measure using matched roster data and unique person identifiers.

Hypothesis 4: There will be significant differences in key characteristics (age, gender, income, education, and employment) between those experiencing instability measured by the conventional method and the measure using matched roster data and unique person identifiers.

DATA and METHODOLOGY

Data are derived from the *Making Connections* Survey (http://mcstudy.norc.org), a longitudinal and cross-sectional study conducted in 10 low-income neighborhoods across the U.S. The neighborhoods are located in the metropolitan areas of Des Moines, IA; Indianapolis, IN; Denver, CO; San Antonio, TX; Seattle, WA; Milwaukee, WI; Oakland, CA; Hartford, CT; Providence, RI; and Louisville, KY. The survey is part of a larger initiative funded by the Annie E. Casey Foundation. Baseline survey data were gathered between 2002 and 2004 in the ten sites listed above and a first follow-up effort ('Wave 2') was completed between 2005 and 2007 in each site. Between 2008 and 2010 NORC completed a second round of follow-up interviews ('Wave 3') in six of the ten sites. Currently, NORC is collecting the third wave of data for a seventh site. See Table 1 of the Appendix for the weighted response rates and sample sizes from each round by site.

The *Making Connections* study design is unique in that it combines both cross-sectional and longitudinal (panel) methodologies. In each wave, NORC employs area probability sampling techniques to select a random set of addresses to represent each target neighborhood. In waves 2 and 3, interviewers revisited these sampled addresses in person or by telephone with the goal of collecting data with the current occupants. Many times, the occupants have not changed. Other times, new people have moved in. NORC also sampled new addresses at the start of each follow-up effort to include buildings that have been constructed or renovated since the previous wave. This methodology yields a cross-sectional snapshot of neighborhood residents at different points in time. *Making Connections* is also longitudinal in that NORC (1) re-interviews families that remain at sampled addresses within target neighborhoods and (2) tracks families with children that move to a *new* address, be it inside or outside of the neighborhood.

Data on the respondent and the respondent's spouse are collected, as well as information on all children living in the household. In addition, a household roster is recorded. For each adult and child living in the household, this roster includes demographic characteristics (age, sex, employment) as well as his or her relationship to both the respondent and focal child. A unique feature of the *Making Connections* data is the inclusion of individual household member identifiers based on the examination of household records that are compared and matched across waves, producing a complete picture of the people living in the household at up to three points in time. These identifiers allow the examination of the movement of individual persons in and out of the household and to measure the consequences of this movement on families.

Analytical sample

Data from the second and third waves are compared for cases that completed each wave. Respondents are determined through the selection of a focal child and the person who is most knowledgeable about the focal child. Thus it is possible that respondents are not the same at each wave. Only cases with the same respondents at each wave were included. This provides a final sample of 2242 households.

Focus Variables

Relationship Instability: This is a measure of instability in terms of married or cohabiting relationships. We have two measures of instability. First, we use the popular measure that relies on one question, "*Do you have a spouse or partner that lives in this household?*" Respondents can answer yes or no. This is examined at each wave and respondents were classified into one of the following groups: (0) spouse or partner present at Wave 2 and at Wave 3 (answered "yes" at both waves); (1) spouse or partner present at wave 2 but not at wave 3 ("yes" at Wave 2, but "no" at Wave 3). We refer to this as the "old way". See Table 1. Unfortunately this question does not allow us to discriminate between

married and cohabiting relationships. Moreover, instability brought about by the introduction of a spouse or partner between waves is not examined. We only examine instability in terms of the dissolution of a Wave 2 relationship.

Our second measure of instability (or the "new way") draws upon the unique person identifier of each person in the household. We tally the cases where the relationship of the person to the respondent is either spouse or boyfriend/girlfriend (code of 1 or 2 for the relationship variable). To be consistent with the conventional question, we group married and cohabiting partners into one measure. We then compare the personal identifiers between waves to make sure that the person is the same across waves. We group respondents into: (0) spouse or partner identifier present at Wave 2 and at Wave 3; (1) spouse or partner identifier is not the same across waves.

Change in Number of Children: The first measure ("old way") is simply a count of the number of children on the household roster at Wave 2 and then again at Wave 3. The variable is coded as follows: (0) count of children at Wave 2 is same at Wave 3; (1) count of children at Wave 2 is not the same at Wave 3.

The second measure considers the unique person identifier ("new way"). The count of children at Wave 2 is compared to the unique identifiers at Wave 3 to determine if the same children – numerically and by identifier – are present in both waves. The resulting variable is coded as follows: (0) the same children are present in both waves; (1) the same children (by unique identifier) are not present in both waves.

Change in Number of Adults: Again, the first measure is counts the number of adults on the household roster at Wave 2 and Wave 3. The variable is coded: (0) count of adults at Wave 2 is same at wave 3; (1) count of adults at wave 2 is not the same at wave 3 ("old way").

The second measure examines the unique person identifier ("new way"). The number of adults along with their identifiers at Wave 2 is compared to the data at Wave 3 to determine if the same adults are present. The variable is coded: (0) the same adults are present in both waves; (1) the same adults are not present in both waves.

Analytical Strategy

First we determine the extent of instability for each concept (relationship instability, change in number of children, and change in number of adults) using the conventional method ("old way"). Next we find the rates using the proposed method based on the personal identifiers ("new way"). Then we test to see if the differences are significant. Next we examine differences in some common variables (respondent's age, gender, education, employment, and household income) between the conventional and proposed measures to see if differences in the measures result in significant discrepancies in outcome.

FINDINGS

Data presented in the Appendix include the unweighted frequencies and weighted proportions.

Relationship Instability: Using the old method we find that 14% of respondents who had a spouse or partner present at Wave 2 are no longer in a relationship at Wave 3. Using the new method we find that 19% have experienced instability (see Table 3). The difference is significant.

Tables 4 and 5 present the means and frequencies for respondent gender, age, income, education and employment. The findings show that the two methods produce significantly different groups in terms of all these factors. For example, the new measure of instability has significantly greater number of people who did not complete high school (42%) than what is presented by the old method (37%).

Change in Number of Adults: Table 3 shows the percentages of those experiencing a change in the number of adults in the household, comparing the old and new methods. When only examining differences in the counts – number of adults in Wave 2 is not the same as the number in Wave 3 – we find that 31% of households experience instability. However, when we consider unique identifiers we find 36% have experienced change. That is, for 5% of the sample, there was no numeric change in the adults living in the home at Wave 3, but there was compositional change and it is not the same people as in Wave 2. In terms of the gender break down and education of respondents in these households, we do find some significant differences between the two measures (see Tables 4 and 5).

Change in Number of Children: Again, as presented on Table 3, we find significant differences between the two measures. When considering only numeric differences in children the old way shows 22% of households have experienced instability. However, the new way finds 24% instability. This means that for 2% of the homes, children were moving in and out, but this instability was not captured by the old method as the count of children did not change. Table 6 shows that there are some significant differences between the two measures in the characteristics of the people they represent.

DISCUSSION and CONCLUSION

There is support for all the hypotheses tested in this study. We find that a significant proportion of instability is overlooked by conventional measures. Moreover, these old methods do not present an accurate picture of the characteristics of people experiencing instability. Our findings suggest that there are compositional changes that are not captured by measures of instability that rely on single questions or simple counts. Research needs to consider a redefinition of instability that goes beyond numeric change to examine the types of compositional instability taking place in these homes.

APPENDIX

Table 1: Example of coded data

OLD WAY			NEW WAY				DIFFERENCE
Wave 2 Is spouse/ partner present in household?	Wave 3 Is spouse/ partner present in household?	Instability between waves	Wave 2 Spouse/ partner identifier	Wave 3 Spouse/ partner identifier	Same person by ID	Instability between waves	
Yes	Yes	No	61116380C	61116380D	No	Yes	X
Yes	No	Yes	61116810C	.	No	Yes	
Yes	Yes	No	61116820H	6116820H	Yes	No	
Yes	Yes	No	61810210A	61810210D	No	Yes	X
Yes	No	Yes	61810450A	.	No	Yes	
Yes	Yes	No	61810450A	61810450F	No	Yes	X
Yes	Yes	No	61810970A	61810970A	Yes	No	

Table 2: Focus variables

Number of children (total number of cases, n=2242)	Wave 2	Wave 3
Relationship status		
Spouse/partner present	46%	46%
Number of adults		
Mean number of adults	1.93	4.43
Standard deviation	1.90	4.43
Number of children		
Mean number of children	1.16	1.23
Standard deviation	6.48	6.76

Table 3: Relationship instability and change in number of adults and children by type of measure

	Old Way	New Way
Relationship instability (among married at Wave2, n=979)	**14%***	**19%**
	(141)	(176)
Change in number of adults between waves	**31%***	**36%**
	(670)	(786)
Change in number of children between waves	**22%***	**24%**
	(511)	(544)

NOTE: *$p<.05$, **$p<.01$; ***$p<.001$

Table 4: Means of Wave 2 characteristics by measure of instability

Characteristics	TOTAL ALL CASES	RELATIONSHIP INSTABILITY (among married at Wave 2)		CHANGE IN NUMBER OF ADULTS		CHANGE IN NUMBER OF CHILDREN	
		OLD WAY	NEW WAY	OLD WAY	NEW WAY	OLD WAY	NEW WAY
Unweighted n	(2242)	(141)	(176)	(670)	(786)	(511)	(544)
Age mean	44.68	**38.30***	**40.81**	40.29	40.30	35.56	35.62
Standard deviation	79.87	72.66	82.32	70.88	71.07	54.98	54.64
Household income mean ($)	$29,027.85	$35,499.08	$31,915.26	$30,426.91	$29,851.89	$26,994.62	$26,187.39
Standard deviation	$118,158.99	$12,467.37	$121,301.20	$119,191.69	$117,679.97	$100,243.52	$98,961.50
Household income (log) mean	9.78	9.97	9.86	9.85	9.84	9.73	9.72
Standard deviation	4.71	4.89	4.90	4.39	4.44	4.23	4.20

NOTE: *p<.05, **p<.01; ***p<.001

Table 5: Percentage of Wave 2 characteristics by measure of instability (for those experiencing instability between waves)

Characteristics	TOTAL ALL CASES	RELATIONSHIP INSTABILITY (among married at Wave 2)		CHANGE IN NUMBER OF ADULTS		CHANGE IN NUMBER OF CHILDREN	
		OLD WAY	NEW WAY	OLD WAY	NEW WAY	OLD WAY	NEW WAY
Female	71	**87***	**83**	**80***	**78**	85	85
Education - Less than high school	34	**37***	**42**	**33***	**34**	38	38
Education - High school/GED	31	**32****	**30**	35	35	**33***	**34**
Education - More than high school	35	**31***	**28**	31	31	28	27
Employed respondent	54	**56***	**52**	58	58	**59***	**60**

NOTE: *p<.05, **p<.01; ***p<.001

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