THE INTRAHOUSEHOLD COMMUNICATIONS STUDY: FAMILY COHESION AND THE LEVEL OF KNOWLEDGE ABOUT EXPENSES

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Government surveys often accept reports from proxy respondents. For example, the Current Population Survey (CPS), used to measure unemployment, uses proxy information about the employment status of other household members. The Consumer Expenditure Program, which provides the cost weights in the Consumer Price Index, accepts proxy reports about the expenditures of other family members. Because many government surveys rely on proxy reporting, the accuracy of important estimates from Federal surveys often depend on how much information family members communicate to one another. Recent work by Tanur (1990) on the problems of proxy reporting in the Current Population Survey (CPS), particularly with respect to the activities of young adults, has led to an interest at the Bureau of Labor Statistics (BLS) in the patterns of communications within families.

It is neither reasonable to expect nor practical to seek individual reports from each family member in every household. Some members cannot be contacted, others would refuse, and all of these individual reports would require a much greater expenditure of resources, especially interviewer time. Instead, it might be wise to find some method for estimating the accuracy of proxy responses from specific households. Interviews with every family member would only be attempted in those households with a very low probability of accurate proxy knowledge. Even if this information were not used to screen families, it would provide a means of evaluating the quality of survey estimates.

In order to explore the possibility of collecting such information, BLS contracted with Oak Ridge National Laboratory (ORNL) to conduct an experimental study of the level of proxy knowledge and the communication patterns within selected households concerning the employment history and expenditures of individual members. The project is called the Intrahousehold Communications Study (IHCS). Miller and Tucker (1993) developed a typology of family cohesion using data from the IHCS, and examined the relationships between cohesion and family characteristics. This paper uses the typology of cohesion, as well as information about the family characteristics, to better understand the causal process leading to proxy knowledge about expenditures. No attempt will be made to explain the creation of the cohesion measure. For a detailed account of the creation of the cohesion measure refer to Miller and Tucker (1993).

Factors Affecting Proxy Knowledge

There has been a great deal of research on the subject of proxy knowledge. While the results are somewhat inconsistent, much of the results can be summarized by the following statement from Groves (1989) about the importance of the social situation:

> The two-category model of respondent rule effects (self versus proxy) is clearly a naive one. From the perspective of a potential proxy reporter, both the likelihood of exposure to knowledge about an event *and* perceived importance of the event should be a function of social relationships with the sample person. (pp. 417-417, italics his)

For example, see Cannell et al. (1965), Bower and Gilligan (1977), Moore (1988), Blair, Menon, and Bickart (1991), and O'Muircheartaigh (1991).

The topic of the information also affects proxy knowledge. Not only does this refer to the specific content (Cash and Moss 1974; Mathiowetz and Groves 1985; and Moore 1988),

but also to the importance of the information to the proxy (Kuiper and Rogers 1979; Petty and Cacioppo 1982; Blair, Menon, and Bickart 1991). In addition, if a proxy respondent has participated in an event, he or she is more likely to recall it (Tulving 1972 and 1983; Kuiper and Rogers 1979; Bickart et al. 1990; and Blair, Menon, and Bickart 1991).

Given this research, we believe it likely that family cohesion, and its components, should be related to the level of proxy knowledge about expenditures. In particular, we expect that the connected families will show the greatest amount of proxy knowledge because all members will have a uniformly high level of interaction with one another. Members of disengaged families, on the other hand, interact very little, so these families will display the lowest level of proxy knowledge. Individuals in enmeshed families interact with one another a great deal , but the nature of these interactions may be such that information is not exchanged equally in both directions. Reciprocity is likely in the case of separated families, but the actual level of exchange is likely to vary from one dyad to another. Therefore, we expect enmeshed and separated families to have moderate levels of proxy knowledge. These hypotheses assume that all individuals possess the same ability to retrieve and, thus, pass on to other family members information about their expenditures.

Method

A total of sixty-nine households and 166 people participated in the study. Households including at least two members 16 years of age or older were recruited from the Knoxville, Tennessee metropolitan area. Sixty of the sixty-nine families were included in our analyses. Seven of the households were deleted because they had no related individuals, and, thus, were not considered families for our purposes. Two households were deleted because the amount of missing data made the creation of important measures impossible. A discussion of the characteristics of these families is contained in Miller & Tucker (1993). A computer assisted personal interview survey was developed consisting of eight modules of questions. An experimenter worked with each household to answer the first module of questions consisting of household level questions. After completing the household set-up questions, subjects then began their individual sessions at separate terminals. Two to five members of a household were interviewed simultaneously on individual computer terminals. Each household member reported individual demographic information (module 2) and reported employment and expenditure information for themselves and one or two other members of their household (modules 3,4,6, and 7). For each proxy report about another household member, respondents answered communications questions concerning how they learned about that person's employment (module 5) or expenditures (module 8). A more detailed description of the experiment is provided in Miller and Tucker (1993).

Measurement of Family Cohesion

Although both dyadic and family level summary measures were created, only family level measures are discussed in this paper. At the family level, three dependent summary measures were developed to classify our families with respect to cohesion. The creation of these measures is discussed in Miller & Tucker (1993), but they captured the character of the family's social, emotional, and material interactions. Each of the sixty households was classified as 1) enmeshed, 2) connected, 3) separated, or 4) disengaged based on the substance of these interactions measured by the three indicators: 1) the nature of the communication between family members, 2) the degree of independence of family members, and 3) the strength of the bonds between family members. Again, other details of this assignment are in Miller and Tucker (1993).

Measurement of Self and Proxy Knowledge

At the family level, 10 performance measures were developed. Four of the measures reflected self reported information. Four of the measures reflected the match between self and proxy. The other two reflected the average number of expenditures per person and the average number of reported proxy expenditures. The measurement of these variables is summarized below.

Respondents were asked to report expenditure information about themselves and to provide proxy information for up to two other

household members for the following expenditure categories: clothing, entertainment, groceries, home furnishings, food away from home, non-business trips, and several categories of medical expenditures. In most cases, respondents were asked what the expenditure was, where they made the expenditure, and the cost of the expenditure. In some cases, respondents were asked other information such as the day the expenditure was made and the time of day.

All self reported expenditures were given four scores: a what score, a where score, a cost score, and a total score. These scores reflected 1) the level of specificity of the reported expenditure, 2) the level of specificity of the reported place that the expenditure was made, 3) the level of specificity of the reported cost of the expenditure, and 4) a total average score (see appendix 1 for guidelines for coding self expenditures). All scores ranged from 0 to 10. For example, when coding a reported expenditure, if a person reported that they had purchased a coke, that expenditure was scored as a 10. If a person reported that they had purchased junk food, that expenditure was scored as a 5. If the person reported that they did not know what the item was, but there was an expenditure, it was scored as a 0. When coding the cost, if a person reported an exact value, the cost was scored as a 10. If a person reported an estimate or range, the cost was scored as a 5. If the person reported that they did not know the cost or the cost was blank, the cost was scored as a 0.

Proxy reported expenditures were then matched with self reported expenditures and were scored according to the adequacy of the match. All matching scores ranged from 0 to 10. Each person's self reported expenditures were listed by the category of the expenditure followed by each proxy report within each of these expenditure categories. Upon viewing the self and proxy reports for a specific person, coders were instructed to code a match if there was even the slightest indication that two reports matched. For example, if Donna reported purchasing jewelry and Tom reported Donna purchasing a gown and stockings, there is obviously no match. However, if Donna reported purchasing a soda and Tom reported Donna purchasing junk food, if the day and time of the purchase were consistent, we assumed a match.

It is important to note that it was possible that two self reported expenditures could match one proxy report or two proxy reports could be coded as matching one self expenditure. For example, if Donna reported purchasing stockings and also reported purchasing shoes, Donna's two reports might be matched with Tom's proxy report that Donna purchased stocking and shoes.

Once a match was made, the adequacy of the match was scored. The self reported expenditure (the what) , the place the expenditure was made (the where), and the cost of the expenditure (the cost) was compared to the proxy reported information (see appendix 2 for a complete description of the matching guidelines). For example, for the *what*, if a specific item in both the self and the proxy were the same (e.g, coke and coke -- Pepsi and coke) then the *what* was scored as a 10. If there was a specific and a generic item (e.g., coke and junk food, jewelry and a ring), then the *what* was scored as a 7. If there was a generic and a generic item (apparel and apparel), then the *what* was scored as a 5. If there was an unsure case of a specific and a generic (e.g., milk and muffin vs pumpkin bread), then the *what* was scored as a 3. If there was a what reported in one but not in the other, or if the self and proxy were totally different, the *what* was scored as a 0. The *where* and *cost* were scored in a similar fashion.

After all matches were scored, the what, where, and cost scores of the proxy and self were summed separately across households, subjects, and category to create a family level file. Each of the self expenditure scores were then divided by the number of expenditures used to create those scores to give three total average self scores. The three average self scores were added together to create a final average self score. Each of the proxy expenditure scores was divided by the number of proxy reports to give three total average proxy scores. The three proxy scores were added to create a final average proxy score. The total number of expenditures was divided by the number of persons reporting in each household to give the average number of items reported by person.

Results

The analysis was restricted to bivariate relationships given the relatively small number of

families. Thus, the effects of each of the independent variables cannot be isolated, and this confounding must be kept in mind when interpreting the findings. Because of the small number of units and the fact that they are not representative, a significance level of .90 or greater is used only to indicate the most promising associations.

Table 1 contains the means for the four summary performance measures. overall, the connected families perform better than the others. The separated and disengaged ones perform the poorest. Enmeshed families have the lowest scores for proxy knowledge, but this may be the result of the large number of self-reported expenditures. Of greatest interest, perhaps, are the findings concerning the communication (social) component of cohesion. Not only do those families with a high level of communication have relatively better proxy knowledge, but they also have the best self reports. Notice that the families with the least communication have the worst self reports, too. The results for the measures of bonds and independence largely coincide with the findings about the enmeshed families, as might be expected.

It should not be surprising that good self reports are related to good proxy reports, and this may be the case in connected families. But the self reports can also appear to have the opposite effect, as in enmeshed families. This makes it difficult to interpret the results. An attempt was made to control for the independent effect of good self reports, but the number of cases was too small and the relationships too strong to leave much room for analysis. The average proxy score has about a .4 correlation with both the average score for self-reported expenditures and the average number of self-reported expenditures, but the first is positive while the second is negative. Even so, the two self-report measures are positively correlated.

What can be said is that cohesion, and its components, may have as much to do with good self reports as good proxy reports. Either the information is not transmitted to other family members at the same rate in different types of families, or there may be a point at which more information cannot be absorbed. Encouraging is the fact that families with high communication have not only the greatest number of self-reported expenditures but also the best proxy knowledge of those expenditures.

Table 2 shows the means for the performance measures for the various demographic subgroups. Most of the relationships are very

Table 1.

Means of Performance Measures by Levels of Cohesion Indicators

	Sum Self	Match Total	Sum Proxy	Expenditure
Family	P<.2787	P<.2554	P<.2661	P<.3311
Enmeshed	25.50	.3824	7.503	6.901
Connected	24.33	.5390	11.20	5.219
Separated	21.45	.4138	8.099	4.850
Disengaged	23.14	.4041	9.547	4.041
Communication	P<.0209	P<.3817	P<.6538	P<.0259
High	25.77	.4860	10.27	7.809
Moderate	24.49	.5014	7.979	5.401
Low	19.61	.3576	10.17	3.375
Bonds	P<.0137	P<.3062	P<.5956	P<.1132
Strong	18.43	.4500	9.981	7.111
Moderate	24.57	.5097	10.22	5.057
Weak	24.73	.3360	7.421	4.500
Independence	P<.9588	P<.0693	P<.0740	P<.4518
Very indep.	23.82	.2787	9.331	4.803
Somewhat indep.	23.94	.5237	10.84	5.349
Dependent	24.49	.4435	5.119	6.750

weak. Large families, which are most likely to be enmeshed, do tend to have less proxy knowledge, but they also have more reported expenditures. Interestingly enough, families with the least education have the greatest proxy knowledge.

Conclusions

The hypothesized relationship between cohesion and proxy knowledge received some support, but cohesion is clearly confounded with the quality of the self report. In fact, cohesion, and/or its components, may be more related to motivation, or quality of the survey response in general, than to proxy knowledge in particular. It could be that people who are willing to take the time to give complete reports about themselves do

Table 2.

Means of Performance Measures by Demographic Subgroups

	Average Sum Self	Match Total	Average Sum Proxy	Average Expenditure
Family Type	P<.9713	P<.4746	P<.5146	P<.8766
Youngest less than 13	23.77	.4476	9.816	5.288
Youngest between 13 and 17	24.35	.3787	7.161	6.055
Youngest older than 17 or no children	24.01	.5087	10.34	5.361
Family Size	P<.7841	P<.2014	P<.0993	P<.2164
Two persons	24.44	.5096	10.78	5.011
Three or four persons	23.48	.4909	10.08	5.366
Five or more persons	23.90	.2959	4.81	7.541
Family Education	P<.3308	P<.4548	P<.0624	P<.9945
High school, technical school, or less	25.56	.5454	12.82	5.348
Some college or 2 year degree	23.21	.4337	8.056	5.409
College degree or more	23.61	.4798	9.611	5.462
Family Age	P<.2848	P<.9368	P<.5648	P<.2856
Less than 30	23.44	.4916	11.01	4.613
Between 30 and 50	25.42	.4676	9.784	5.757
Greater than 50	23.23	.4968	8.740	6.250
Family Income	P<.0661	P<.8910	P<.3824	P<.6682
Less than $15,000	20.47	.4317	7.967	5.296
Between $15,000 and $29,999	23.00	.4981	11.69	4.461
Between $30,000 and $44,000	25.16	.5065	10.71	5.742
Greater than $45,000	25.14	.4604	8.532	5.794

the same when reporting for other family members, and vice versa.

There do not appear to be strong relationships between most family characteristics and the performance measures. Family size may be the most important, which suggest the consideration of other variables measuring the family's physical circumstances. As pointed out in Miller and Tucker (1993) other, less easily measured family characteristics also may be at work. When the dyadic analysis is undertaken, we will also be examining the particular relationships in the family and how they affect proxy knowledge.

This research has been exploratory in nature. In our next study, we want to develop a better measure of emotional bonds. We also need to select families more carefully and have a larger number of them in order to overcome some of the confounding we experienced this time.

References

Blair, J., Menon, G., & Bickart, B., (1991). Measurement effects in self vs. proxy responses to survey questions: An information processing perspective. In R. Groves (Ed.). Measurement Errors in Surveys (pp 145-166). New York: John Wiley and Sons.

Bower, G.H., and Gilligan, S.G., (1977). Remembering information related to one's self. Journal of Research in Personality, Vol. 13, pp. 420-432

Cash, W.S. & Moss, A.J. (1972). Optimum recall period for reporting persons injured in motor vehicle accidents. Vital and Health Statistics, National Center for Health Statistics, Series 2, No. 50

Cannell, C.F., Fowler, F.J., & Marquis, K.H. (1965). A Report on Respondents' Reading of the Brochure and Letter and an Analysis of Respondents' Level of Information. Ann Arbor, Institute for Survey Research, University of Michigan.

Groves, R.M., (1989). Survey Errors and Survey Costs. New York: John Wiley & Sons.

Kuiper, N.A., & Rogers, T.B., (1979). Encoding or personal information: Self-other differences. Journal of Personality and Social Psychology, Vol 37, pp. 499-514.

Mathiowetz, N., & Groves, R.M., (1985). The effects of respondent rules on helath survey reports. American Journal of Public Health, Vol. 75, pp. 639-644.

Miller, L., & Tucker, C., (1993). The Intrahousehold Communications Study: A typology of family Cohesion. Paper to be presented at the 1993 American Statistical Association winter conference, Ft. Lauderdale, FL.

Moore, J.C., (1988). Self-proxy response status and survey response quality: A review of literature. Journal of Official Statistics, Vol 4, No. 2, pp 155-172.

O'Muircheartaigh, C., (1991). Simple response variance: Estimation and determinants. In P.P. Biemer, R.M. Groves, L.E. Lyberg, N.A. Mathiowetz, & S. Sudman (Eds.), Measurment Errors in Surveys. New York: John Wiley and Sons.pp. 551-574.

Petty, R.E., & Cacioppo, J.T., (1982). Communication and Persuasion: Central and Peripheral Routes to Attitude Change, New York: Springer Verlag.

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