

Bias in Interview Data created by Presence of a Third Party: Methodological issues in a study of Intra-household Deprivation

Sara Cantillon and Carol Newman

Abstract

This article examines the potential for bias in individual responses to sensitive survey questions caused by the presence of another adult at the time of interview. Specifically it looks at the issue of data collection in relation to questions on material equality between married couples within the same household. It examines the differences, if any, between interviews conducted with an individual husband or wife alone versus those conducted in the presence of a third party using data from the 1999 Living in Ireland Survey. The findings suggest that the presence of an adult is common and is non-random varying significantly across various household characteristics. The results find that a significant bias exists in the responses given by wives in relation to relative deprivation questions but that this bias does not exist in the case of husbands. The extent of this bias is measured and the deprivation index corrected appropriately. This study highlights the importance of ensuring either that candidates are interviewed separately where sensitive questions are being asked, or, that the presence of an adult is recorded during the interview process so considerations of the kind highlighted in this paper can be made.

Key words: spouse presence, bias in survey responses, intra-household distribution, individual measures of deprivation

Introduction

This paper examines the issue of data collection in relation to the interview process where the potential for bias in responses to questions on material equality between married couples within the same household is explored. Specifically it is concerned with testing and adjusting for bias which may be caused by the third party presence during individual interviews of married couples. It examines

the differences, if any, between interviews conducted with an individual husband or wife alone versus those conducted in the presence of a third party. In order to examine this issue, data collected for a study on within-household living standards in Ireland is used. Using specially designed non-monetary deprivation indicators, this study sought to examine whether there were any differences in living standards and in the control and management of resources between adults and between adults and children in the same household. For full details of the study and the results (see Cantillon *et al.*, 2004).

An objection raised with increasing frequency to conventional analysis of poverty and income inequality is that it neglects what goes on within households. The household is in effect treated as a “black box” with little or no attention paid to differences among household members in access to and control over resources. As stated, conventional methods of analysing poverty and income inequality take the household as the income recipient unit and assume resources are shared so that each individual in a given household has the same standard of living. Thus in presenting a profile of those falling below an income poverty line, for example, households below that income level will be identified and all persons living in such households will be taken to be poor. If different individuals within households actually experience different levels of well-being this could have major implications for our understanding of poverty and for the way anti-poverty policies are framed (see for example Phipps and Burton 1995). In particular, conventional practice could lead to understating the extent and nature of gender differences in the experience of poverty, to obscuring poverty for some children and to impairing seriously the capacity of policy to improve living standards.

The literature examining the effect of adult presence on individual responses to sensitive survey questions is limited. Aquilano (1993) in a study of married couples found that not only was the presence of the spouse at the time of individual interviews common but that it was non-random across various household characteristics. In addition, spouse presence was found to have a significant influence on responses to sensitive marriage related questions. Pahl (1989) found that frequently there were wide discrepancies between the husbands and wives answers to the same question when interviewed together initially and then separately at the same time in different rooms. Evidence from both studies undermines the assumption that the answers of partners who are not interviewed separately represented the position of the individuals concerned. Other research on this issue has also indicated that spouse presence may make it more

difficult to reveal negative aspects of the marital relationship and may encourage respondents to provide answers that please their 'mates' (Anderson and Silver 1987). More generally, research on the issue of the distribution of household resources also faces the difficulties of defining the analytical boundaries of households and the relationship between actors accounts and the conceptual categories used to describe behaviour (Laurie and Sullivan, 1991).

This paper is specifically concerned with the effect of third party presence on measures of deprivation and the extent to which the lack of privacy at the time of interview biases survey-based measures of deprivation. Using the Living in Ireland Survey, the effect of adult presence on individual responses to material deprivation is quantified. The hypothesis investigated is that the presence of another adult may create problems in attempting to analyse individual data, particularly those relating to responses on issues such as deprivation, which may implicate the respondent or their partner in some way that will lead to inaccurate responses being provided. To put it more bluntly, it would seem unlikely that a respondent would admit, for example, to going to bed hungry or going without new clothes if the beneficiary of their self (or coerced) sacrifice is present. Furthermore, the extent to which the presence of a third party at the time of interview is non-random is also explored.

Data

The analysis in this paper uses data gathered as part of the 1999 Living in Ireland Survey (LIIS) to monitor the evolution of poverty and financial circumstances in Ireland. The LIIS forms the Irish component of the European Community Household Panel (ECHP) – an EU-wide project, coordinated by Eurostat. The aim of the ECHP is to produce a harmonised dataset providing information on the social situation, financial circumstance and living standards of a panel of households that are followed over several years. The ECHP provides cross-sectional surveys for each year in which the survey is conducted, as well as longitudinal data for dynamic analysis of changes over time. The first wave of the ECHP was conducted in 1994. Data from 1999 are used in this analysis, the sixth wave of the survey.

The LIIS is built around this core harmonised questionnaire but with additional modules of questions to meet national data needs, such as a module on pensions in 1995 and a module on intra-household distribution of resources in 1999 on which this paper is based. The LIIS is designed to provide a representative sample of private

households in Ireland with the sample drawn from the electoral register using a two stage stratified random sampling procedure. The LIIS for 1999 interviewed 5,451 individuals in 2,842 households and obtained an 84 per cent household response rate.¹ The sample available for analysis in the context of a comparison of spouses/partners comprises 1,124 couples (2,248 individuals) for which both partners completed the module of the 1999 LIIS.

As previous research has demonstrated, attempting to capture intra-household differences will have implications for the way the data should be collected. Small-scale intensive studies have shown the sensitivity and subtlety required to tease out differences between spouses in activities and attitudes (Graham 1987, Pahl 1989). The focus group sessions undertaken for the intra-household study on which this analysis is based also underscored the sensitivity required in framing and posing questions relating to the distribution of intra-household resources.

While it was not possible to ensure that each person was interviewed alone in the 1999 survey, interviewers were required to note, in a separate box designed specifically for this questionnaire, whether the partner or other adult family members were present when each respondent was completing the questionnaire. Interviewers were also carefully instructed on the need for clarity about questions focusing on the individual's own situation versus that of the family or household. The inclusion of this item provides a rare opportunity to test the impact of adult presence on interviewee's responses using a large nationally representative data sample.

Table 1 presents the proportion of cases where another adult is present at the time of interview. Overall, in almost 65 per cent of cases another adult is present at, or within hearing distance of, at least one of the individual interviews. This occurs in 56 per cent of cases where the husband is interviewed and 43 per cent of cases where the wife is interviewed.

Table 1 **Percentage of sample by presence of adult at interview**

	Husband's Interview (%)	Wife's Interview (%)	All Households (%) [*]
n = 1,124			
No adult present	44.04	57.38	35.14
Adult present	55.96	42.62	64.86

^{*} Adult present at or within hearing distance of at least one of the individual interviews.

¹ The very high response rate is a reflection of the fact that the survey is ongoing on an annual basis since 1994. In 1994 the response rate was 57 per cent with 4,048 households completing the survey. From 1994 to 1999 the response rate has averaged at over 80 per cent.

Empirical Analysis

An analysis of relative deprivation

In this section, the extent to which another adult being present effects responses given to questions relating to deprivation is examined. Table 2 presents six questions relating to deprivation and the percentage of cases where husbands and wives reported that they were deprived in relation to each item while their spouse was not. Also illustrated is the proportion of these cases where another adult is present at the time of interview. Where this proportion differs from the percentage of cases in the full sample where an adult is present at the time of interview, 56 per cent for husbands and 43 per cent for wives (see Table 1), indicates the potential for bias caused by this presence in the responses to deprivation questions.

Table 2 Individual responses to questions relating to deprivation where respondents give different answers

Deprivation Question (n = 1,124)	% Husbands	% Wives
Does not have a warm, waterproof overcoat	1.5 (64.7)	0.6 (28.6)
Does not have two pairs of strong shoes	1.9 (52.4)	1.3 (28.6)
Does not have a new good suit/outfit	1.8 (45.0)	2.0 (31.8)
Does not have a regular hair-do/haircut	1.3 (73.3)	4.6 (33.3)
Does not have a regular dental check-up	5.9 (68.2)	3.8 (40.5)
Does not visit the doctor when needed	1.1 (58.3)	0.7 (37.5)

For wives, in all cases a below average number of adults are present at the time of interview where the wife is deprived and her husband is not. This suggests that the wife is more likely to give a positive response to a deprivation question (i.e. indicate that she is not deprived) when another adult is present. In contrast, in most cases where the husband indicates that he is deprived and his wife is not, an above average number of adults are present suggesting that the husband is more likely to give a negative response to a deprivation question (i.e. indicate that he is deprived) when another adult is present. These statistics suggest that where wives are deprived and husbands are not there is less chance of an adult being present. The same pattern is not observed for husbands.²

² It should be noted that only in cases where the responses differ is this pattern evident. Where individuals give the same response the presence of a third party corresponds with the sample average.

Measuring and correcting for the adult presence bias

In order to determine whether or not this bias is statistically significant, a summary deprivation measure for husbands and wives is first constructed and an Ordinary Least Squares regression model is estimated to determine the factors causing variations in this deprivation measure both with, and without, the inclusion of a control for the presence of an adult. The deprivation measure used is an additive index of the six items reported in Table 2 and is constructed by adding a value of one for each case where the individual is deprived relative to their spouse. Cronbach's alpha is measured at 0.61 and 0.63 for the husbands' and wives' indices respectively indicating a reasonable degree of consistency across the items included in the summary index. Summary statistics relating to these indices are presented in Table 3. As illustrated, on average, husbands experience a higher level of relative deprivation, based on these six items, compared with wives.

Table 3 Summary statistics

n = 1,124	Mean	Standard Deviation
Husbands' deprivation index	0.1343	0.5140
Wives' deprivation index	0.1281	0.5130
Household income ^v	200.41	114.92
Age		
Husband	51.76	14.78
Wife	49.06	14.02
Higher education		
Husband	0.1655	0.3718
Wife	0.1415	0.3486
Leaving Cert education		
Husband	0.1939	0.3956
Wife	0.3123	0.4636
Professional		
Husband	0.3425	0.4748
Wife	0.2891	0.4536
Skilled		
Husband	0.3897	0.4879
Wife	0.2891	0.4536
Employed		
Husband	0.7108	0.4546
Wife	0.4208	0.4939
Urban	0.3559	0.4790
Children	0.5267	0.4995

^vNet household income adjusted for household size

Deprivation levels of husbands and wives are assumed to be explained through various personal and household characteristics. Summary statistics for these variables are also presented in Table 3. Initially all characteristics are included in the model with insignificant factors

eliminated as appropriate. The results of the deprivation models for husbands and wives, including and excluding controls for adult presence, are presented in Table 4.³ As illustrated, the inclusion of a control for the presence of an adult at the time of interview has no effect on the husband’s deprivation index while for the wife’s index the control has a negative and significant effect. These findings provide some evidence for the need to hold separate interviews where candidates are being questioned on items relating to basic deprivation. This is particularly important in the case of wives whose responses, in this application, are found to be significantly biased by the presence of an adult at the time of interview.

Table 4 Determinants of husbands’ and wives’ relative deprivation

	Husband Relative Deprivation		Wife Relative Deprivation	
	Excluding Control	Including Control	Excluding Control	Including Control
Constant	0.4076*** (0.1129)	0.4012*** (0.1152)	0.2736*** (0.0319)	0.3009*** (0.0354)
Household income	-0.0003** (0.0002)	-0.0003** (0.0002)	-0.0006*** (0.0001)	-0.0007*** (0.0001)
Age	-0.0028* (0.0015)	-0.0028* (0.0015)		
Higher education	-0.0875* (0.0459)	-0.0864* (0.0461)		
Leaving Cert education	-0.0705* (0.0415)	-0.0704* (0.0416)	-0.0545* (0.0327)	-0.0563* (0.0327)
Employed	-0.0890** (0.0447)	-0.0887** (0.0447)		
Children	0.0675* (0.0404)	0.0675* (0.0404)		
Adult Present		0.0087 (0.0312)		-0.0545* (0.0307)
R ²	0.0276	0.0276	0.0233	0.0360
Adjusted R ²	0.0224	0.0216	0.0216	0.0234
F-test	5.28 (0.0000)	4.53 (0.0001)	13.36 (0.0000)	9.97 (0.0000)

Standard errors given in parenthesis, *** indicates significance at the 1% level, ** indicates significance at the 5% level, * indicates significance at the 10% level

The results of the Ordinary Least Squares regression model presented in Table 4 highlight the importance of correcting for the bias caused by another adult being present at the time of the wife’s interview. Based on the regression output, an adult being present at the time of the wife’s interview reduces the deprivation score of wives by 0.0545. To correct for this bias a score of 0.0545 is added to the deprivation score reported by each wife interviewed in the presence of a third party producing a measure of the wife’s relative deprivation which controls for the bias caused by this presence. Average relative deprivation of

³ The coefficients presented in Table 4 are unstandardised.

wives adjusted in this way is 0.1513, higher than the unadjusted average at 0.1281 and the average of the husband's index at 0.1343.

The determinants of spouse presence

Spouse presence, during an interview is unlikely to be a purely random occurrence and as such an investigation of the determinants of spouse presence may be of interest to researchers working with survey data that does not record the presence of third parties during individual interviews. In this section, the extent to which another adult being present at the time of interview in the 1999 LIIS is influenced by the type of household, measured by specific household characteristics, is examined.⁴ Using a probit model, the effect of various household and personal characteristics on the probability that an adult is present at the time of interview is quantified. The results of this model for husbands and wives are separately presented in Table 5.⁵

As illustrated, in all cases, there are some household characteristics which have a significant relationship with the probability of an adult being present at the time of interview. For husbands, household income and an urban location have a significant negative impact on the probability of an adult being present. In addition where the husband has higher education the probability of an adult being present is lower. However, where the wife is a professional, the probability of an adult being present at the time of the husband's interview is higher. For wives, where either husband or wife has a higher level of education and are working the probability of an adult being present at the wife's interview is lower. The probability is also lower where the husband is in the skilled social group. A negative effect is also observed for wives living in urban locations and where children are present. These results imply that any potential bias as a result of the presence of an adult is not random. Ultimately this highlights the importance of recording information on the presence of third parties at the time of individual interviews in surveys of this kind and controlling for this presence in modelling responses to individual questions.

⁴ It should be acknowledged that the presence of another adult at the time of interview may be influenced by the time of day that the interview is conducted, which in turn may be determined by the characteristics of the individuals in question. For example, if both individuals work then an evening or weekend interview where both are present may be more likely. Data are not available to control for this possibility and this should be acknowledged in any interpretation of results presented in this section.

⁵ A number of household characteristics are originally considered with insignificant variables dropped from the model to reach the final specification.

Table 5 Determinants of Adult Present at Time of Interview

	Adult Present at Husband's Interview	Adult Present at Husband's Interview	Adult Present at Wife's Interview	Adult Present at Wife's Interview
Constant	0.6564** (0.3127)	0.7043*** (0.0805)	0.7000** (0.3103)	0.3562*** (0.0878)
Household income	-0.0007*** (0.0001)	-0.0008*** (0.0001)	-0.0002 (0.0001)	
Urban	-0.3581*** (0.0822)	-0.3686*** (0.0809)	-0.2290*** (0.0833)	-0.2313*** (0.0813)
Children	0.0732 (0.1002)		-0.2086** (0.1001)	-0.1492* (0.0865)
<i>Husband's Characteristics</i>				
Age	0.0058 (0.0096)		-0.0040 (0.0095)	
Higher education	-0.3358*** (0.1377)	-0.3498*** (0.1122)	-0.2368* (0.1397)	-0.2961*** (0.1207)
Leaving Cert education	-0.0427 (0.1136)		0.0639 (0.1137)	
Professional	0.0325 (0.1127)		-0.0047 (0.1122)	
Skilled	0.0215 (0.0983)		-0.2110** (0.0974)	-0.1796** (0.0824)
Employed	-0.0342 (0.1178)		-0.3220*** (0.1154)	-0.2979*** (0.0987)
<i>Wife's Characteristics</i>				
Age	-0.0056 (0.0099)		-0.0006 (0.0099)	
Higher education	-0.1438 (0.1587)		-0.2970* (0.1613)	-0.2725** (0.1394)
Leaving Cert education	0.0464 (0.1022)		-0.0402 (0.1022)	
Professional	0.3486*** (0.1208)	0.2490** (0.1035)	0.3125*** (0.1202)	0.2334** (0.1143)
Skilled	0.0107 (0.0925)		0.1423 (0.0920)	
Employed	-0.1460 (0.0950)		-0.1814* (0.0952)	-0.1645* (0.0889)
Pseudo R ²	0.0611		0.0484	0.0439
LR Test (P-value)	94.19 (0.0000)		74.09 (0.0000)	67.36 (0.0000)

Standard errors given in parenthesis, *** indicates significance at the 1% level, ** indicates significance at the 5% level, * indicates significance at the 10% level

Summary and Recommendations

In this analysis, the potential for bias in individual responses to sensitive survey questions caused by the presence of an adult at the time of interview was explored. The application chosen to illustrate the presence and extent of such a bias was responses to questions relating to material deprivation among couples taken from the 1999 Living in Ireland Survey. The findings reported in this paper suggest that the presence of an adult is common and is non-random varying significantly across various household characteristics. The results find that a significant bias exists in the responses given by wives in relation to relative deprivation questions but that this bias does not exist in the case of husbands. The extent of this bias is measured and the deprivation index corrected appropriately.

This study highlights the importance of either ensuring that candidates are interviewed separately where sensitive questions are being asked or at least ensuring that the presence of an adult is recorded during the interview process so considerations of the kind highlighted in this paper can be made. It is likely that the extent of the bias caused by third party presence will depend on the nature of the survey and the type of question being asked. Whatever the issue being analysed, with appropriate information gathered on the presence of a spouse or other adult at the time of interview, an analysis of the kind presented in this paper can go some way to ascertaining whether third party presence is an issue of concern and how individual responses should be adjusted for any bias it may cause.

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*Dr Sara Cantillon
Senior Lecturer
Equality Studies Centre
University College
Dublin
sara.cantillon@ucd.ie*

*Dr Carol Newman
Lecturer in Economics
Dept. of Economics
Trinity College
Dublin
cnewman@tcd.ie*

