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Trade Union Membership in the Labour Force Survey: Is it who you ask or how you ask them?

Rhys Davies

Concerns regarding how the use of proxy respondents within the Labour Force Survey may affect the quality of official statistics on trade union membership data is not new. However, less attention has been given to interview mode. The analysis reveals that the mode through which an interview is conducted appears to be just as important as the more commonly cited issue of proxy response. Rates of trade union membership and presence are estimated to be higher when derived from telephone as opposed to face to face interviews.

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1. Introduction¹

The main source of data regarding union membership within the UK is the Quarterly Labour Force Survey (LFS) and official government statistics on trade union membership are based on this source. The Department for Business, Innovation & Skills (BIS) is responsible for publishing the official figures on trade union membership via its annual Statistical Bulletin 'Trade Union Membership'². Estimates of membership focus on 3 key measures:

- Union density: The percentage of those in employment who are a trade union member.
- Union presence: Whether or not a trade union or staff association is present within a workplace.
- Union coverage: Whether the pay and conditions of employees are agreed in negotiations between the employer and a trade union.

This Research Note examines 2 specific characteristics of the LFS that may give cause for concern regarding the quality of the information supplied by respondents to the survey with respect to trade union membership³. Firstly, approximately a third of responses to the LFS are provided via a proxy respondent. Concerns regarding the quality of data provided by proxy respondents is not new and the effects of proxy response on official estimates of trade union membership have recently been considered by BIS⁴ in its own analysis of potential bias in trade union membership statistics. This Research Note extends that analysis to also consider the effects of proxy response on estimates of union presence and union coverage.

A second area of concern relates to how the different methods used to deliver the LFS may influence responses to questions related to trade union membership. Trade union membership may be regarded by many as a sensitive and personal issue, reflected in legislation that protects workers from discrimination by employers on the basis of union membership (The Trade Union and Labour Relations (Consolidation) Act 1992) and the classification of membership status as sensitive data within the Data Protection Act. Reporting of trade union membership may be effected by 'social desirability bias'; a tendency by respondents to under-report sensitive issues. Such biases can vary depending upon the mode

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² <https://www.gov.uk/government/collections/trade-union-statistics>

³ The Labour Force Survey is produced by the Office for National Statistics. The data sets have been accessed via the UK Data Archive, University of Essex, Colchester. None of these organisations bears any responsibility for the analysis or interpretations presented here.

⁴ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/184693/13-733-Measuring-bias-in-the-LFS-for-Trade-Union-Membership.pdf

through which a survey is conducted. This Research Note therefore also considers the effect of response mode upon various estimates of trade union membership derived from the LFS.

2. An Overview of the UK Labour Force Survey⁵

The Labour Force Survey (LFS) is a survey of households living at private addresses in the UK. Its purpose is to provide information on the UK labour market which can then be used to develop, manage, evaluate and report on labour market policies. The quarterly LFS launched in 1992 in GB and in 1994 in NI having previously been conducted annually. An annual question on trade union membership was introduced into the Labour LFS in 1989 and it has been asked in the fourth quarter (Q4) every year since 1992. Questions on trade union presence and recognition were added in 1993, and a question on collective agreements was introduced in 1996. The union questions were revised substantially from 1999 affecting the consistency of time-series data for trade union presence and collective agreements. The LFS achieves interviews with some 45,000 households per quarter. Information is collected on approximately 100,000 individuals, of which approximately 60% are of working age making it the largest regular household survey conducted in the UK.

The target population of the LFS is based on the resident population in the United Kingdom. Specifically, the LFS aims to include all people resident in private households, resident in National Health Service accommodation, and young people living away from the parental home in a student hall of residence or similar institution during term time. The main sample of the LFS uses a rotational sampling design, whereby an address, once initially selected for interview, is retained in the sample for a total of five consecutive quarters. The first quarter an address is selected to take part in the LFS is referred to as Wave 1. The last time that address will be interviewed for the main LFS is referred to as Wave 5. It is the address that is selected for five quarters and not necessarily the particular people who live there. Therefore, it is possible to 'find' new households in the sample in Waves other than Wave 1, though the majority of people are first found in Wave 1. It is also possible for households that lived in an address to drop out of the sample before Wave 5 if they move to a different address. Individuals may appear to join or leave households at different points during the five waves of the survey for a wide variety of reasons (birth/death, partnership formation/dissolution etc.).

Households are generally interviewed face-to-face at their first inclusion into the survey and by telephone at quarterly interviews thereafter. This is with the exception of Scotland where

⁵ Information in this section draws upon material contained within volumes one and six of the LFS user guides. More detailed information regarding LFS methodology is available from the website of the ONS at: <http://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/methodologies/labourforcesurveyuserguidance>

a small proportion of first interviews are conducted by telephone, reflecting the difficulties associated with conducting face to face interviews in remote communities. Respondents are encouraged to agree to be interviewed in subsequent waves via the telephone. Some demographic variables are only asked of respondents during their first contact, such as ethnicity. For most core questions on the LFS the information from the previous wave is rotated into the next quarter. Interviewers check this information either by asking the question again or checking that the information given in the last wave is still correct.

The LFS allows interviewers to take answers to questions by proxy if a respondent is unavailable. This is usually from another related adult who is a member of the same household, typically the spouse. The quality of information provided by proxy respondents is considered to be of a generally acceptable level. However, in some areas studies have previously shown that proxy respondents under-report the incidence of events, including workplace accidents⁶, work-related ill-health⁷ (both requiring recall over a 12 month period) and workplace training⁸ (requiring recall over a 3 month period).

Table 1 shows the distribution of response type and response mode within the LFS by survey wave for the period 2006-2014. The data refers to respondents of the survey during Q4 of each year – the Quarter that includes the questions on union membership. The data excludes Northern Ireland as data on response mode is not available. During this Quarter, some respondents will be appearing in the LFS for the first time. These will predominantly be Wave 1 respondents and Table 1 confirms that 95% of interviews undertaken at Wave 1 are conducted face to face. Other respondents in that quarter will already have responded to the LFS during previous quarters. Among Wave 2 respondents, approximately three quarters are conducted by telephone. This figure gradually increases thereafter, reaching 83% by Wave 5. Across all Waves, a third (34%) of interviews are conducted via a proxy respondent.

Table 1: GB Labour Force Survey Response by Wave (Quarter 4, 2006-2014)

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Total
Personal Response - f2f	60.1	15.8	12.6	11.7	10.9	24.2
Personal Response - telephone	4.0	50.3	53.7	55.7	57.4	42.1
Proxy Response - f2f	34.4	9.0	7.6	6.6	6.4	13.9
Proxy Response - telephone	1.4	24.9	26.2	26.1	25.3	19.8
All Proxy	35.8	33.9	33.8	32.7	31.7	33.7
All Telephone	5.4	75.2	79.8	81.8	82.7	61.9
Sample	76,589	66,892	61,096	57,513	57,156	319,246

⁶ <http://www.hse.gov.uk/research/rrpdf/rr386.pdf>

⁷ <http://www.hse.gov.uk/research/rrpdf/rr953.pdf>

⁸ Arulampalam, W, A.L. Booth and P. Elias (1997). Work related training and earnings growth for young men in Britain. *Research in Labour Economics*, 16: 119-147.

3. Trade Union Member Membership by Mode and Response Type

Table 2 presents the patterns of responses provided by respondents to the LFS with respect to questions on trade union membership. Figures relate to employees aged 16 and over. Respondents to the LFS are first asked whether or not they are a member of a trade union. Two key findings emerge. Firstly, the analysis confirms the findings of the earlier BIS report that proxy respondents report lower levels of trade union membership than personal respondents. For interviews that are conducted face to face, 19% of respondents report that the target respondent is a member of a trade union. This is compared to 25% for face to face interviews conducted directly with the target respondent. A similar differential is observed between personal and proxy respondents where the interview is conducted over the phone. It is also observed that non-reporting of union membership is higher among proxy respondents (3%) than personal respondents (<1%). However, the level of missing data among proxy respondents is not sufficient to account for the lower levels of membership. Secondly, the analysis reveals that the reporting of union membership is higher among those who are interviewed over the telephone compared to those who are interviewed face to face. This differential is larger among personal (i.e. non-proxy) respondents, where 31% of telephone respondents report being members of trade unions compared to 25% of face to face respondents. Mode of response does not appear to affect the propensity of LFS respondents to provide no response to this question.

Within the LFS, respondents who reported that they themselves (or the target respondent) were not members of trade unions are then asked (with the exception of home workers) whether any of the people at the respondent's place of work are members of a trade union or staff association. Combined with union membership, this question is designed to measure whether trade unions are present at the respondent's workplace. Table 1 reveals that proxy respondents are approximately twice as likely to provide a missing response to this question compared to personal respondents. However, unlike the membership question, there are also significant mode effects. Among both personal and proxy respondents, telephone respondents are also twice as likely to provide a missing response to this question compared to face to face respondents. In the case of proxy respondents, 1 in 5 of those responding via telephone do not provide a valid response to the union presence question. This is compared to 9% of proxy respondents who are interviewed face to face and less than 5% of personal respondents who are interviewed face to face. For questions of union presence, the effects of mode interview on non-response appear as large as the effects attributable to being a proxy as opposed to a personal respondent.

Table 2: Estimates of Trade Union Membership, Presence and Coverage

	Personal Response		Proxy Response		Total
	Face to	Telephone	Face to	Telephone	
	Face		Face		
Membership/Presence					
1. Member	25.1	30.8	19.1	22.0	25.9
2. Free Rider	19.9	21.6	14.3	15.3	18.8
3. Non Member - No Presence	45.2	32.7	51.2	35.2	39.0
4. Non Member - Home Worker	4.9	5.7	3.5	4.3	4.9
5. Non Member - Presence Unknown	4.5	9.1	8.8	20.1	10.1
6. Membership Not Reported	0.4	0.3	3.2	3.1	1.3
Total	100	100	100	100	100
Coverage					
7. Yes	30.8	29.2	24.8	21.3	27.4
8. No	63.8	60.5	63.6	59.4	61.5
9. No Answer	5.4	10.3	11.7	19.2	11.1
Total	100	100	100	100	100
Official Statistics					
Membership (% excl 6)	25.2	30.8	19.7	22.7	26.2
Presence (% 1+2, excl 6))	45.2	52.5	34.5	38.5	45.3
Coverage (% excl 9)	32.6	32.6	28.0	26.4	30.8

Finally, official publications on trade union presence estimate the coverage of collective agreements which is defined as the proportion of employees in the labour force whose pay and conditions are agreed in negotiations between the employer and a trade union. The LFS asks all respondents whether the pay and conditions of the respondents are 'directly affected' by agreements between employers and trade unions(s). In terms of non-response to the question on trade union coverage, similar patterns emerge to those observed for the question about trade union presence. In the case of proxy respondents, almost 1 in 5 (19%) of those responding via telephone do not provide a valid response to the union coverage question. This is compared to 12% of proxy respondents who are interviewed face to face. Among those interviewed face to face, 10% of proxy respondents and 5% of personal respondents do not provide a response to this question. Once again, for questions related to trade union coverage, the effects of mode interview on non-response appear as large as the effects attributable to being a proxy as opposed to a personal respondent.

The bottom panel of Table 2 shows how the responses to the questions in the LFS are utilised to derive official estimates of trade union membership, presence and coverage. The relatively small proportion of non-responses to the trade union membership question means that official estimates of trade union membership align relatively closely to the actual proportion of

respondents who report being a member of a trade union. Whilst the overall average level of trade union membership within the LFS among employees over the period 2006-2014 is estimated to be 26%, this figure is as high as 31% among personal respondents who were interviewed via telephone. The relatively high proportion of missing cases for trade union presence among proxy respondents is important, as those who do not provide a valid response for union presence are still included in the population of employees upon which estimates of union presence are based. Whilst the overall average level of trade union presence within the LFS is estimated to be 45%, this figure increases to 53% among personal respondents who were interviewed via telephone. Excluding those people who did not provide a response to the trade union presence question, estimates of trade union presence among employees would increase to 62%. Finally, official estimates of trade union coverage do exclude those people who did not provide a valid response to the question from the derivation of official estimates. This does have the effect of preventing the higher levels of non-response to this question having a dampening effect on estimated rates of coverage derived from proxy respondents. Nonetheless, levels of trade union coverage derived from proxy respondents are estimated to be 5-6 percentage points lower than those derived from personal respondents. Unlike estimates of trade union membership and presence, interviews conducted face to face are associated with comparable levels of trade union coverage compared to those conducted by telephone. It is interesting to note that this question does not relate to the individuals own membership status.

The problem with making simple comparisons in the overall levels of trade union membership according to respondent type or interview mode is that the observed differences may not necessarily be caused by respondent type or interview mode. The likelihood of being a proxy respondent will be associated with a variety of personal, job and workplace characteristics which may themselves also be correlated with trade union membership; thereby confounding comparisons in rates of trade union membership by respondent type or interview mode. A good example of this is gender, where over 40% of responses for male employees are provided by proxy compared to just 27% for female employees. Given that women are more likely to be members of unions than men, the lower levels of membership reported by proxy respondents could simply reflect that this group will contain a higher proportion of responses that are provided by the partners or spouses of males who are not present in the household at the time of the LFS interview. The most straightforward approach to overcoming such difficulties is to make comparisons of membership rates by response type and mode for specific population sub-groups. For example, if comparisons between personal and proxy respondents is being confounded by differences in the gender composition of these two

groups as described above, then this can be accounted for by making comparisons separately for male and female respondents. This approach is taken in Table 3.

Table 3: Estimates of Trade Union Membership by Response Type and Selected Characteristics

	Personal Response		Proxy Response		Total
	Face to	Telephone	Face to	Telephone	
	Face		Face		
Union Membership					
Gender					
Male	23.3	28.6	18.3	21.3	23.9
Female	27.0	32.6	21.8	25.0	28.6
Age					
16-29 yrs	15.3	17.4	10.3	10.1	13.4
30-49 yrs	26.7	31.5	24.1	27.1	28.5
50+ yrs	31.7	36.3	29.7	31.7	33.8
Sector					
Private	13.8	16.0	11.1	13.2	14.1
Public	48.5	52.9	46.0	48.9	50.5
All	25.2	30.9	19.8	22.8	26.3
Union Presence					
Gender					
Male	42.0	49.8	31.7	36.0	41.7
Female	48.1	54.7	38.3	42.3	49.1
Age					
16-29 yrs	35.3	39.2	23.9	24.7	31.0
30-49 yrs	47.2	54.1	39.4	43.0	48.5
50+ yrs	50.6	56.4	45.4	48.9	52.6
Sector					
Private	28.8	32.5	22.3	25.5	28.4
Public	78.7	82.3	71.7	74.1	79.0
All	45.2	52.5	34.5	38.5	45.4
Union Coverage					
Gender					
Male	29.7	32.5	24.7	23.3	28.5
Female	35.3	32.6	32.6	31.3	33.2
Age					
16-29 yrs	23.6	20.1	19.5	17.5	20.3
30-49 yrs	34.2	33.5	31.5	28.6	32.6
50+ yrs	37.6	36.7	37.3	33.0	36.4
Sector					
Private	17.5	17.2	15.6	14.8	16.6
Public	63.5	56.1	64.4	57.1	59.1
All	32.6	32.6	28.0	26.4	30.8

The analysis in Table 3 reveals that differentials in membership rates and rates of union presence by response type and mode appear to persist after accounting for gender, age and sector of employment. In terms of union coverage, comparisons reveal that the effect of type of respondent and mode of response on levels of union coverage is less pronounced. Interestingly, the analysis reveals that public sector workers who are being interviewed face to face are more likely to report that collective agreements affect their pay and conditions compared to public sector workers who are interviewed by telephone. This result is observed among both personal respondents and proxy respondents.

Finally, to examine the effect of response type and response mode on trade union membership more formally, multivariate statistical analysis has been undertaken in order to determine the separate and additional effect that the response characteristics of participants in the LFS has on their likelihood of reporting that they are 1) a union member, 2) in a workplace where unions are present or 3) in a workplace that is covered by a union. Such statistical models allow us to identify the separate contribution that response characteristics make to the observed patterns of trade union membership, coverage and presence after simultaneously taking into account the effect of a wide range of characteristics describing individuals, their workplaces and their jobs. In addition to response characteristics, the statistical models control for gender, age, marital status, dependent children, ethnicity, sector, workplace size, tenure, occupation, industry, contractual status, hours, year and region. Analysis reveals that:

- Compared to a personal response, proxy response reduces the likelihood of union membership by 11%, union presence by 30% and union coverage by 5%;
- Compared to interviews conducted by telephone, face to face interviews reduce the likelihood of union membership by 13% and union presence by 16%;
- Compared to interviews conducted by telephone, face to face interviews increase the likelihood of union coverage by 30%.

The analysis of proxy response confirms that conducted by BIS which also estimated that rates of membership among proxy respondents were approximately 11% lower than those of personal respondents. Given that only a third of responses are achieved by proxy, the overall effect of proxy response on depressing rates of union membership will not be large (BIS estimates suggest less than 1%). However, this analysis demonstrates that the effects on estimates of union presence will be larger – possibly 4 to 5 percentage points.

The analysis above made separate pairwise comparisons regarding the effects response type and response mode on union membership. It is also possible to consider the effects of interactions between respondent type and response mode by examining the relative likelihood

of trade union membership among the four response type/mode categories shown in Table 2. The analysis reveals that:

- Compared to face to face interviews with the target respondent, telephone interviews conducted with the target respondent increases the likelihood of union membership by 15%. Proxy interviews uniformly reduce the likelihood of trade union membership among both face to face and telephone respondents; i.e. the effect of mode of response does not vary by respondent type.
- Compared to face to face interviews with the target respondent, telephone interviews conducted with the target respondent increase the likelihood of union presence by 20%. Proxy interviews reduce the likelihood of trade union presence among both face to face and telephone respondents. Compared to face to face interviews with a proxy respondent, telephone interviews conducted with a proxy respondent increase the likelihood of union presence by 15%.
- Compared to face to face interviews with the target respondent, telephone interviews conducted with the target respondent decrease the likelihood of union coverage by 24%. Mode effects among proxy respondents were found to be similar (reduction in coverage of 21%) Proxy response has a relatively small negative effect on union coverage compared to mode of response; 7% among face to face interviews and 4% among telephone interviews.

To conclude, the analysis reveals that, in terms of understanding response to questions on trade union membership and union presence contained within the LFS, the mode through which an interview is conducted appears to be just as important as the more commonly cited issue of proxy response. Indeed, in the case of union coverage, mode effects appear to be more important and act in the opposite direction to those estimated for union membership and union presence. The effects of response mode and proxy response appears to be independent of each other; i.e. the size of the mode effect does not vary greatly between personal and proxy respondents. It is not clear why mode effects should be so important to understanding responses to questions on union membership. Do face to face respondents underreport union membership because of a worry of how that may be regarded in an 'anti-union' climate? The different effects estimated for union coverage could reflect that whilst membership is a personal issue, the coverage question simply asks for an assessment of whether unions effect pay and conditions at the workplace. Further investigation also needs to be undertaken to consider in more detail the context under which face to face interviews are conducted and the characteristics of those who are interviewed in this way in order to understand why mode of interview appears to have an effect on responses to union membership. This is particularly with reference to the post Wave 1 first contact interviews.