

## Article

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### **An Update on 'A Time to Interview'**

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## An Update on ‘A Time to Interview’<sup>1</sup>

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### Abstract

In 1992, a paper entitled ‘The Optimum Time at which to Conduct Survey Interviews’ sought to illustrate the economic benefits to market research organisations in structuring the calling pattern of interviewers in household surveys. The findings were based on the Welsh Inter Censal Survey in 1986. This paper now brings additional information on the calling patterns of interviewers from similar surveys in 1997 and 2006 to ascertain whether the calling patterns of interviewers have changed. The results also examine the importance of having a survey response that is representative of the population, and how efficient calling strategies can help achieve this.

Key Words: Call strategy, Interview, Survey, Response rate, Wales.

### 1. Introduction

It is widely known that interviewers can have a huge impact on survey response rates (Campanelli et al. 1997, Morton-Williams 1993). Most previous studies have focussed on the interpersonal skills required by an interviewer to increase response rates. However, it was the intention of Swires-Hennessy and Drake (1992) to investigate the calling pattern of interviewers (the time and day of the week that interviewers call), and examine whether this had any effect on response rate. Furthermore, this analysis was used to highlight the economic benefits to market research organisations in structuring the calling patterns of their interviewers; the theory being that discouraging any needless calls could lower costs. Considering that, at the time, market research companies paid their interviewers more for evening calls than for daytime calls and paid even more for weekend calls (Association of Marketing Survey Organisation field study group, 1990), the possibility of lowering costs was clear.

The main finding of Swires-Hennessy and Drake (1992) suggested that a greater probability of successful outcomes could be achieved by controlling an interviewer’s time of calling on any particular day, above what could be achieved by controlling the day of calling. They found that the highest probability of a successful outcome occurred in the evening, consistent with the findings of other researchers (Campanelli et al. 1999). A successful ‘outcome’ was defined as contact with a household, irrespective of whether an interview subsequently took place.

This paper investigates the additional information on the calling patterns of interviewers from similar household surveys undertaken in 1997 and 2006. Analysis of this information gives an indication of whether the calling patterns have changed since the original Swires-Hennessy and Drake paper was published. The focus also moves away from the economic benefit of structured calling patterns; here the idea is to evaluate interview calling patterns since 1986, and to investigate the importance of not only achieving the highest response rate, but also obtaining a sample that is representative of the population.

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## 1.1 Background to the surveys

The Welsh Inter Censal Survey 1986 was initially designed as the social survey part of the 1986 Welsh House Condition Survey. A sample size of 60,065 addresses was drawn from property lists held by the Inland Revenue Valuation Offices. The questionnaire covered social, demographic and economic variables both for the household and its occupants, with the average time taken to complete the face-to-face interview being 18 minutes.

The Welsh Household Interview Survey 1997 also formed the basis to the follow up 1998 Welsh House Condition Survey. The sample size of 58,971 addresses was derived from the Post Office's Postal Address File (PAF). The questionnaire was split into two sections: a section about the household and its accommodation; and a section to collect information about individuals within each household. The face-to-face interview was designed to last approximately 15 minutes.

The Living in Wales Survey 2006 was part of a continuous set of household surveys commissioned by the Welsh Assembly Government. A sample of around 12,000 addresses was randomly selected from the PAF file. The questionnaire provided similar information on households and their characteristics to the other two surveys. The face-to-face interview however was much longer in 2006; each interview lasted approximately 50 minutes.

For all of the surveys, interviewers were reminded of the importance of high response rates during detailed briefings. Interviewers were urged to complete a successful interview and to not easily accept refusals. In 1986, interviewers were instructed to make up to four attempts to obtain an interview at an address; in 1997 interviewers could make up to 8 attempts to obtain an interview; and in 2006 interviewers could make up to 10 attempts to obtain an interview. Common throughout all three surveys was the instruction that at least two of the calls made to a household should be in an evening or on a weekend before non-contact is recorded.

## 2. Is it getting harder to make contact with a household?

Each interviewer was instructed to record the day, date and time of each call attempt at a particular household. Across all three surveys there were five main reasons why an interviewer would stop trying to contact a household:

1. A successful interview with an eligible person;
2. The address was abandoned because it was an ineligible address (e.g. residential home for the elderly, business only premises, derelict or suchlike);
3. The address was abandoned because it could not be found;
4. No one was contacted at the address after the allocated number of attempts had been made; and
5. A refusal by an eligible person was recorded.

It is commonly known that during the last two decades survey response rates have declined (De Leeuw and De Heer 2002). The response rates shown in Table 2-1 support this theory: the proportion of the sample yielding a successful interview has dropped six percentage points between each decade.

**Table 2-1**

**Response rates - percentage of total sample providing a successful interview**

Year	Percent
1986	74
1997	68
2006	62

On the surface, the data suggests that Wales is struggling with a steadily declining response rate. However, in 2006, interviewers could make an extra six attempts to obtain an interview compared to 1986. Without these extra attempts, perhaps response rates in Wales would be seen to be falling much faster than displayed here.

**Table 2-2**  
**Average number of calls required to obtain a successful interview**

Year	Average calls
1986	1.6
1997	1.8
2006	3.2

The fall in response rates brings underlying problems for interviewers. Table 2-2 reflects how much harder interviewers had to work in 2006 to achieve a successful interview than their counterparts in 1986. The average number of calls required to obtain a successful interview doubled from 1.6 to 3.2. Interviewers also had to deal with a higher percentage of refusals in 2006; the refusal rate in 1986 was 7.4 per cent compared to 17.1 per cent in 2006. It may be fair to offer the contrasting lengths of the questionnaires between the two survey years as a rational explanation for the difference in refusal rates but it is unlikely to explain the whole of the difference.

By solely concentrating on first calls to an address, a different problem for interviewers emerges. Figure 2-1 shows that only 16 per cent of first calls to an address resulted in a successful interview in 2006; when the same statistic is 45 per cent in 1986 it is clear something has changed over the twenty-year period.

**Figure 2-1**  
**Percentage of first calls providing a successful interview**

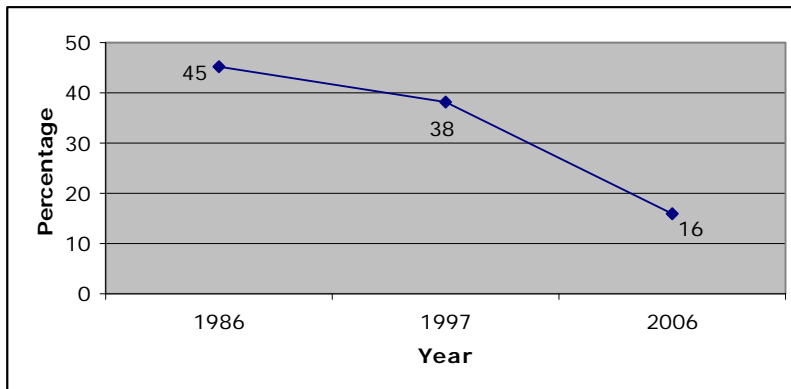
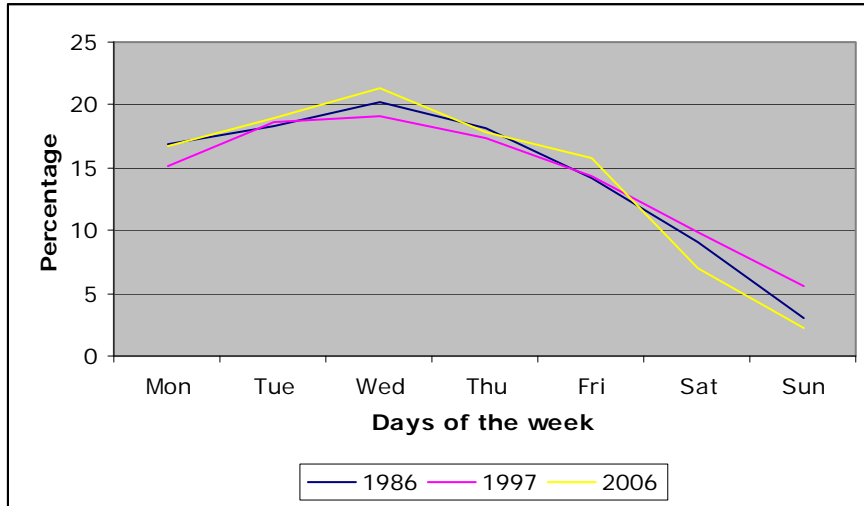


Figure 2-2 would rule out the suggestion that the calling pattern of interviewers is a reason for the disparity in the percentage of first call successful interviews. The graphic shows a strikingly similar calling pattern to all first calls made to an address in all three survey years. The first calls are not spread evenly across the days; Wednesday is the modal day and, not surprisingly, the weekend has significantly fewer first calls.

**Figure 2-2**  
**Calling pattern of all first calls made, by day of the week**



Further analysis of all first calls made in 2006 shows that where contact could not be made at an address on the first call, 56 per cent of addresses later provided a successful interview. This suggests that the biggest problem facing interviewers in 2006 was making initial contact with an address. There are possibly both social and economic reasons why initial contact is declining: the number of single occupants in a household is much higher today than it has ever been. Since the 1986 survey, many more households now have two working adults; partly because house prices require this and partly because of the increase in job opportunities for women.

### 3. Call analysis

Technological advances over the past two decades have brought much benefit to surveys. One of these has been the advance of E-progress data collection. E-progress is essentially an electronic version of the contact sheet. At the end of each day's fieldwork, the interviewers on the 2006 survey opened the E-progress form on their Computer Assisted Personal Interviewing machine and entered the outcome of each visit made. The main purpose of this was to provide the field office with up-to-date information about each interviewer's progress throughout the fieldwork period. It also brings with it other benefits; the rich supply of calling pattern information being available for electronic manipulation.

E-progress forms were made available from both the 1997 and 2006 surveys. Due to the somewhat erroneous nature of a few forms, intense quality assurance work was carried out. Only addresses that contained both a definitive outcome and a complete account of call history were included in the research. Naturally, complete datasets were already available for all successful interviews carried out during both surveys. This meant it was feasible to match up the E-progress forms with the completed interview datasets, thus opening up the possibility of investigating the household characteristics of an address alongside the respective call history.

#### 3.1 Day of the week

Turning to Table 3.1-1, it is possible to analyse all calls made to an address. A variety of factors are incorporated into the probabilities of obtaining a successful interview by day of the week. The first few calls to an address will reflect the interviewer preference for working mostly during the week. After a period of non-contact, subsequent calls will then start to see the increased proportion of weekend calls as interviewer requirements start to take effect and as different techniques are employed to try to capture a successful interview. The data reiterates the contrast between 1997 and 2006 in obtaining a successful interview, with 2006 having a much lower conversion rate.

**Table 3.1-1**  
**Probability of obtaining a successful interview, by day of the week**

Day of the week	1997	2006
	Probability	
Monday	0.34	0.19
Tuesday	0.35	0.18
Wednesday	0.34	0.18
Thursday	0.34	0.18
Friday	0.33	0.18
Saturday	0.32	0.13
Sunday	0.32	0.13

Looking specifically at 1997, only marginal differences can be seen throughout all days of the week. The weekends do have a slightly lower rate of success, but all are around 33 per cent (i.e. one in three calls to a house obtaining a successful interview). Moving to 2006, each weekday has a similar probability of a successful interview. However, there is now a significantly lower probability of obtaining a successful interview on the weekend.

**Table 3.1-2**  
**Probability of obtaining a successful interview, by time of the day**

Year	Morning				Afternoon				Evening			
	9am	10am	11am	12pm	1pm	2pm	3pm	4pm	5pm	6pm	7pm	8pm
Probability												
1997	0.22	0.28	0.31	0.32	0.33	0.32	0.33	0.37	0.39	0.38	0.35	0.31
2006	0.31	0.22	0.18	0.16	0.17	0.19	0.17	0.17	0.18	0.16	0.18	0.13

A similar variety of factors apply to the probabilities of obtaining a successful interview by time of the day. The first few calls to an address will reflect the interviewer preference for working mostly during the morning and afternoon. After a period of non-contact, interviewers will then start to increase their number of evening calls to try to capture a successful interview. Table 3.1-2 shows that for 1997, it is clear that calls between 5pm and 7pm are the most likely to result in an interview. The definition of 'evening' can be blurred and often subjective, but 5pm to 7pm can generally be classed as evening calls. This is not exactly unexpected; 5pm to 7pm being the time period most employed people are home from work. This also echoes the findings of the 1986 survey; the highest probability of a successful outcome occurs between 5pm and 10pm.

However, 2006 suggests a different pattern; the most productive time for obtaining a successful interview occurred between 9am and 11am. Evening calls fared worse, but on par with the success of afternoon calls. This is certainly an interesting development and perhaps slightly contradictory; the difficulties interviewers faced in 2006 with non-contact has already been highlighted. This raises the thought: in 2006 there was more chance of a successful interview during the morning, but what type of respondent were they?

#### 4. Household characteristics

It is worth revisiting the strict conditions interviewers in 2006 had to adhere to. The contracted number of calls made to an address was at least six, but more calls were often made in an attempt to secure a successful interview. Furthermore, all soft refusals, and non-contact addresses after six calls were re-issued to supervisors and the most experienced interviewers. There were occasional instances of addresses that needed more than ten calls to secure a successful interview; for this analysis these addresses have been discounted, with ten calls to an address considered the maximum.

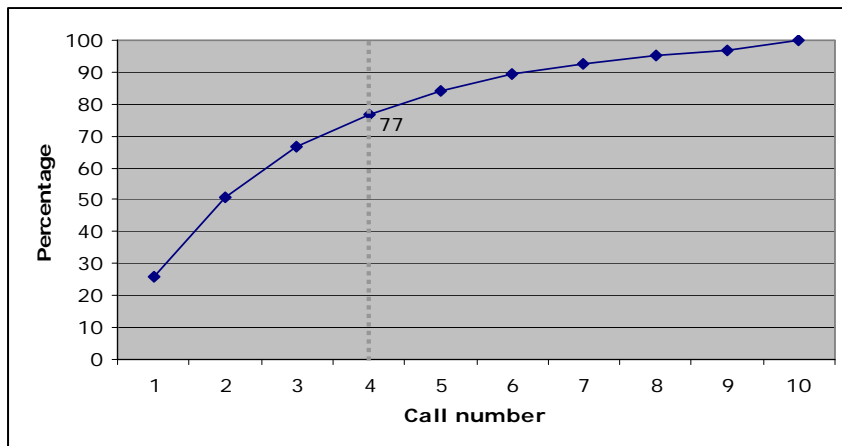
Considering the response rate achieved in the 1986 survey was better than the response rate achieved in the 2006 survey, it could be a legitimate question to ask why interviewers are asked to make more than four calls to an

address. Analysis was carried out using the 2006 household datasets to investigate the composition of all successful interviews achieved at each call number.

#### 4.1 Why make more than four calls to an address?

Thinking about the maximum of four calls to an address in 1986, it would seem a sensible option to explore the data available to the 2006 survey at four calls. Figure 4.1-1 shows that only three-quarters of the successful total sample was achieved by call four. After the contracted six calls, 89 per cent of the successful total sample had been achieved. Instinctively, stopping at 77 per cent of a required total sample size may ring alarm bells, but perhaps 89 per cent of a total required sample size could be more plausible.

**Figure 4.1-1**  
Cumulative chart showing the percentage of successful interviews achieved, by call number (2006)



It is fair to express a word of caution about analysing the achieved sample after only four calls; interviewers in 1986 had to complete their interviews by four calls, interviewers in 2006 did not work under the same circumstances. Knowledge that they could make further calls to an address may have affected their desire to push ahead and achieve interviews at earlier calls. Nevertheless, more than four calls to an address assumes non-contact for the majority of addresses in the first four calls; non-contact is customarily out of the hands of an interviewer.

**Table 4.1-1**  
Cumulative percentage of total achieved successful interviews, by certain household type

	Pensioners	Non-pensioners
	Cumulative percentage	
After four calls	86.7	70.6
After six calls	94.9	85.3
After ten calls	100.0	100.0

Analysis was carried out on the household characteristics of the respondents who completed a successful interview. Table 4.1-1 compares the individual cumulative percentages for 'pensioners' and 'non-pensioners' (pensionable age being defined as women aged 60 and over, and men aged 65 and over). After four calls there has certainly been much more success in achieving a successful interview in 'pensioner' households. Assuming 'non-pensioners' would be more difficult to contact due to work commitments, the result is not surprising. One must remember, however, that after four calls only 77 per cent of the successful total sample had been achieved and the table clearly highlights the bias towards 'pensioners' that exists in the breakdown of the successful sample after four calls. After six calls the percentage of 'non-pensioners' has still not reached the percentage of 'pensioners' achieved by four calls. This is despite best interviewer attempts at securing a successful interview by stepping up their evening and weekend calls.

**Table 4.1-2**  
**Cumulative percentage of total achieved successful interviews, by certain household type**

	Married couple (not pensioners)		Single non-pensioners
	without children	with children	
	Cumulative percentage		
After four calls	74.0	75.5	64.3
After six calls	88.3	89.3	79.8
After ten calls	100.0	100.0	100.0

It is perhaps self-evident that ‘pensioners’ are most likely to be at home and, hence, more likely to be contacted and in a position to provide a successful interview during the first four calls to an address. Table 4.1-2 therefore overlooks ‘pensioner’ households, and further breaks down ‘non-pensioner’ households into ‘married couple’ (with and without children) households and ‘single person’ households. ‘Married couple’ households are now acting more in line with the total achieved sample of successful interviews after four calls, both not much below the 77 per cent mark. Having children does not seem to make that much of a difference to the likelihood of achieving a successful interview during the first four calls. However, a distinct difference between the percentages of ‘single person’ households and ‘married couple’ households can be seen. There is a plain dearth of successful interviews from the ‘single person’ households; 13 per cent less than the total achieved sample of successful interviews after four calls. There are still a fifth of all achieved ‘single person’ household interviews outstanding even after the impetus of more evening and weekend calls in the six contracted calls.

**Table 4.1-3**  
**Cumulative percentage of total achieved successful interviews, by certain household type**

	Working household	Workless household
	Cumulative percentage	
After four calls	69.5	79.2
After six calls	85.8	88.9
After ten calls	100.0	100.0

The definition of a ‘working’ household is where all members of a household of working age (aged 16 to 59 for women, and aged 16 to 64 for men) are in full or part-time employment. A ‘workless’ household is where all members of a household of working age are not in full or part-time employment. Table 4.1-3 reveals a similar effect for ‘working’ households as ‘single person’ households, but the impact is not so great. The percentage of achieved interviews by ‘working’ households after four calls matches the percentage of achieved interviews by ‘non-pensioner’ households. This is not wholly unexpected; the data implies that perhaps the majority of ‘non-pensioners’ are employed rather than unemployed. As the definition of ‘workless’ household means it contains at least one unemployed person or person with a long standing disability or illness, and may be more, it may be prudent to suggest that the percentage of ‘workless’ households who achieved a successful interview after four calls is lower than could be predicted.

## 4.2 Why make evening and weekend calls to an address?

It has already been acknowledged that market research companies will pay their interviewers more money for evening and weekend calls to addresses. It was also shown that in 2006, morning calls were most likely to result in a successful interview. It would therefore seem an obvious notion to suggest interviewers should concentrate less on evening and weekend calls, and more on morning calls. The total number of successful interviews achieved in 2006, irrespective of call number, were broken down by time and day of the successful call, and further looked at by type of household.

**Table 4.2-1**  
**Percentage of total successful interviews, by day of call and certain type of household**

	Weekday	Weekend	Total
	Percent		
Single pensioner	90.3	9.7	100.0
Other single person	84.0	16.0	100.0
Married couple (not pensioners)	87.8	12.2	100.0
Married couple with children	88.0	12.0	100.0
Non-working age households	90.4	9.6	100.0
Workless households	91.2	8.8	100.0
Working households	86.1	13.9	100.0

Table 4.2-1 shows ‘single pensioner’ household interviews are most likely to be completed during the week. ‘Single non-pensioner’ household interviews were more often achieved at weekends than for other household types. Households containing working adults were more likely to be contacted during the weekends than those households containing non-working adults.

**Table 4.2-2**  
**Percentage of total successful interviews, by time of call and certain type of household**

	Morning (08-12 hours)	Afternoon (13-17 hours)	Evening (18-22 hours)	Total
	Percent			
Single pensioner	33.4	60.0	6.6	100.0
Other single person	22.9	54.6	22.5	100.0
Married couple (not pensioners)	31.5	59.2	9.3	100.0
Married couple with children	27.6	54.2	18.2	100.0
Non-working age households	32.8	59.2	8.0	100.0
Workless households	28.3	62.8	8.9	100.0
Working households	25.1	52.1	22.8	100.0

Table 4.2-2 considers the time of day of all achieved successful interviews. A third of all successful ‘single pensioner’ household interviews were completed during the morning, the highest proportion of all the household types. A higher proportion of successful interviews were also completed in the morning with a ‘workless’ household rather than a ‘working’ household.

It is the household type of evening calls where a difference in the proportions becomes most apparent. The proportion of successful interviews achieved in the evening in a ‘single non-pensioner’ household is three times more than it is in a ‘single pensioner’ household. It is interesting to note that ‘married couple with children’ households have similar proportions to ‘working’ households, and ‘married couple without children’ have similar proportions to ‘workless’ households. Investigating further reveals only 8 per cent of ‘married couple with children’ households who achieved a successful interview were also ‘workless’ households. This is in comparison to 21 per cent of ‘married couple without children’ households who were also a ‘workless’ household. Perhaps, in this day and age, there is a greater need for both parents to contribute to the household income than ever before.

## 5. Conclusion

The motivation for this paper originated from a desire to discover whether the calling patterns of interviewers have changed since the original Swires-Hennessy and Drake 1992 paper. Dwindling response rates year-on-year allude to it being much harder to achieve a successful interview in surveys in Wales. This is in spite of increased attempts to

achieve a successful interview through methods such as increasing the number of contracted calls to a house. Overall, individual interviewer calling patterns have changed very little in Wales; weekdays are still by far the most popular days to work, and interviewers wait until the last moment to do weekend and evening calls. The biggest change since the original paper has been the transformation in the time of day that is most likely to result in a successful interview; in 2006 morning calls supersede evening calls as the best time of day to call.

It has been shown that limiting the 2006 survey to only four calls to an address, and to a lesser degree six calls, results in a serious under-representation in the achieved sample of 'non-pensioner' and 'working' households. An identical under-representation would exist in our achieved sample if evening calls were withdrawn; this is alongside an unexpected reduction in the number of 'married couple with children' households. It may not be economically beneficial to market research companies to preach to interviewers the importance of weekend and evening calls, and weekend and evening calls are not necessarily more likely to produce an interview. However, the results presented here suggest that they are essential in reducing respondent bias in achieved survey samples, and ensuring the sample is the correct representation of the current population.

This paper concludes that all contact data by interviewers is very important and useful, and should be used to influence the calling strategy of interviewers when planning future surveys. It is evidently unrealistic to expect interviewers to know the background of an address before they visit but, armed with knowledge of success rates of different types of household, it is a very useful tool to have, especially, for example, when visiting well known 'deprived' or 'retirement' areas. Only household interview surveys have been considered here, but similar information can easily be gathered for all CAPI, Computer Assisted Telephone Interviews and Internet surveys. Using such information will pay dividends in the improved quality of all results and will potentially reduce unnecessary interviewer calls to an address.

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