

Designing survey methods to evaluate the undeclared economy: a review of the options

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1 INTRODUCTION

This working paper is part of a series of deliverables within the project entitled ‘*Out of the shadows: developing capacities and capabilities for tackling undeclared work in Bulgaria, Croatia and FYR Macedonia*’ (‘GREY’), funded by the European Commission’s Framework 7 Industry-Academia Partnerships Programme (IAPP). The objective of this project is to provide concrete policy recommendations about what policies may work better in tackling the undeclared economy in two EU Member States (Bulgaria and Croatia) and a candidate country (FYR Macedonia). In particular, the objectives of our project are to:

- Conduct a comprehensive review of the policy approaches and measures being used to tackle undeclared work.
- Empirically evaluate the measures for facilitating the shift of undeclared work into the declared economy in the selected target region.
- Based on the results of the first two objectives, to recommend possible new policy approaches and measures (or endorse old ones) that will facilitate the shift of undeclared work into the declared economy.

The project outputs during the first phase of ‘GREY’ include three country reports on assessing the nature and extent of undeclared work in the three target countries (Dzhekova and Williams, 2014b; Dzhekova et al., 2014; Franic and Williams, 2014), a conceptual framework for understanding the policy approaches for tackling undeclared work (Williams, 2014b) and an evaluation of conceptual frameworks for assessing the cross-national transferability of policy measures (Williams et al., 2014). These working papers have resulted in numerous journal articles (Williams, 2015a,b; Williams and Dzhekova, 2014; Williams and Franic, 2015; Williams et al., 2014a,b, 2015).

Having provided this assessment, the project has begun to design survey methods to evaluate the measures for facilitating the shift of undeclared work into the declared economy in the selected target region. The first working paper has addressed the issue of designing focus groups for evaluating the policy measures for tackling undeclared work (Polak et al., 2015). In this working paper, we provide a review of the options available when designing survey methods for evaluating the undeclared economy.

In recent decades, an increasing number of scholars have used survey methods to evaluate the undeclared economy, not least because there has been a desire to understand the nature of undeclared work, the characteristics of the undeclared labour force and the motives of participants. However, a major criticism of survey methods is that they naively assume that people will reveal to them, or even know, about their participation in the undeclared economy. On the one hand, purchasers may not even know if the work is in the undeclared economy and on the other hand, sellers will be reticent about disclosing the extent of their undeclared work. The former point might well be valid. However, it is not necessarily the case that those supplying undeclared work will conceal this from researchers. As Bàculo (2001, p. 2) states regarding her face-to-face interviews in Naples, ‘they were curious and flattered that university researchers were interested in their problems’ and were more than willing to share their experiences. Pahl (1984) similarly found that when comparing the results from individuals as suppliers and purchasers on the Isle of Sheppey in the UK, the same level of undeclared work was discovered. The implication is that individuals are not secretive about their undeclared activities.

Similar conclusions are reached in Canada (Fortin et al., 1996) and the UK (Leonard, 1994; MacDonald, 1994; Williams, 2001, 2004). As MacDonald (1994) reveals in his study of the unemployed in a UK deprived region in the North of England, ‘fiddly work’ was not a

sensitive subject to participants. They happily talked about it in the same breath as discussing for instance their experiences of starting up in self-employment or of voluntary work. This willingness of people to talk openly about their undeclared labour was also found in Belfast (Leonard, 1994). Indeed, neither are there any grounds for assuming that businesses will not report their participation in the undeclared economy. In one of the few direct surveys of businesses about the extent of their use of undeclared labour, the 2002 EBRD/World Bank Business Environment and Enterprise Performance Survey implemented in 26 countries of East-Central Europe and the Commonwealth of Independent States (CIS), Fries et al. (2003) identify that it is wholly possible to collect such data. There have also been several qualitative surveys that again reveal the willingness of both employers and employees to openly talk about their participation in the undeclared economy (e.g., Jones et al., 2004; Ram et al., 2001, 2002a,b, 2003, 2007). This is perhaps because although undeclared work is illegal in terms of the laws and regulations of formal institutions, it is seen as legitimate endeavour from the perspective of informal institutions, namely the norms, values and beliefs of the population (Webb et al., 2009). Consequently, it is openly discussed which makes reliable data collection possible using survey methods.

As such, surveys have been conducted in Belgium (Kesteloot and Meert, 1999), Canada (Fortin et al., 1996), Denmark (Mogensen et al., 1995; Pedersen, 2003), Germany (Buehn, 2012; Feld and Larsen, 2005, 2008, 2009, 2012; Feld et al., 2007), Italy (Bàculo, 2001), Norway (Isachsen and Strom, 1985), the Netherlands (van Eck and Kazemier, 1988; Renooy, 1990), the UK (e.g., Brill, 2011; Leonard, 1994; Pahl, 1984; Williams, 2004, 2006a; Williams and Windebank, 2003; Williams et al., 2012), Sweden (Jönsson, 2001) and the USA (Jensen et al., 1996; Nelson and Smith, 1999). There have also been cross-national direct surveys of participation in the undeclared economy that use the same definition and survey methodology in all member states of the European Union (European Commission, 2007, 2014). Here therefore, these survey methods available are reviewed by firstly, analysing some key variations in their design and secondly, reporting the results of a Netherlands study which sought to evaluate the pros and cons of different survey methods.

2. VARIATIONS IN THE DESIGN OF DIRECT SURVEYS

To review the key variations in the design of surveys of undeclared work, we here discuss the variations in firstly, the unit of analysis examined, secondly, the data collection methodology used, thirdly, a range of questionnaire design issues, fourthly, the sample size, fifthly, the sampled populations and sixth and finally, the sampling method used.

2.1 Unit of analysis

Researchers can take either the enterprise or the household as the unit of analysis when conducting direct surveys. Most studies take the household as the unit of analysis and request information from participants as both purchasers and suppliers of work in the undeclared economy (e.g., European Commission, 2014; Leonard, 1994; Pahl, 1984; Warde, 1990; Williams, 2004; Williams and Round, 2009). The advantage is that these survey home-based businesses, which constitute over one-third of all businesses (Mason et al., 2008). They also often analyse undeclared work as part of the wider coping strategies used by households in their daily lives which makes it easier for participants to talk about their undeclared work. Fewer have used the enterprise as a unit of analysis (for exceptions, see Fries et al., 2003; Ram et al., 2001, 2002a,b, 2003; Williams, 2006c,d; Williams et al., 2012). When they do, they often confine questions to either the impacts that the undeclared economy has had on the enterprises of the participants or their perceptions of the size of the undeclared economy in

their sector (Meriküll et al., 2013; Putniņš and Sauka, 2015; Sauka and Putniņš, 2011) or whether they started-up unregistered (Williams and Shahid, 2015; Williams and Martinez-Perez, 2015a,b). They do not generally ask enterprises about the proportion of their transactions or turnover that is in the undeclared economy.

2.2 Data collection methodology

Data can be collected about participants' undeclared labour through either mail-shot questionnaires (e.g., Fortin et al., 1996), internet surveys (Kazemeier, 2014), telephone interviews (e.g., Bajada, 2011; Jönsson, 2001) or face-to-face interviews of the unstructured (e.g., Báculo, 2001; Howe, 1988) or structured variety (e.g., Pahl, 1984; Williams, 2004) using either mostly open- or closed-ended questions. Most direct surveys use face-to-face interviews (e.g. Leonard, 1994; Pahl, 1984). Until now, besides some experimental work in the Netherlands (Kazemeier, 2014), online surveys are relatively undeveloped in this field of enquiry. Neither has 'big data' been used, such as from social media sites or eBay. Here, therefore, we provide a brief review of the alternative methods available for collecting data on undeclared labour and following this, provide a review of a limited number of studies which have sought to provide a comparative evaluation of these different methods.

2.2.1 *Mail-shot questionnaires*

Postal surveys are relatively cheaper than in-home face-to-face surveys and self-completion methods yield higher reporting levels of socially undesirable behaviour and attitudes than interviewer-administered methods. This is because the presence of the interviewer in the latter may encourage participants to provide socially desirable answers to sensitive questions. Self-completion methods might therefore be expected to identify actors in the undeclared economy at a higher rate than interviewer-administered methods. However, postal surveys have a number of shortcomings. They yield somewhat lower response rates than face-to-face surveys and are susceptible to high levels of non-response bias which are hard to mitigate. Even if monetary incentives are used to increase the response rate, there remains little or no incentive for participants to report activities in the undeclared economy. Postal surveys are also susceptible to respondent selection bias because the researcher is reliant on participants adhering to rules about which household member should complete the survey. They are also unsuitable for participants who have difficulty reading, and are very poorly suited to long and complex questionnaires. Overall, therefore, the risk of non-response bias and constraints on questionnaire design outweigh the potential advantages of a postal survey approach when seeking to evaluate the undeclared labour force.

2.2.2 *Telephone interviews*

In terms of interviewer-administered methods, telephone interviewing is one approach that has been used. Telephone surveys provide a lower cost method of obtaining general population samples than face-to-face surveys. However, telephone surveys have a number of disadvantages relative to face-to-face surveys, both generally and in relation to studying undeclared labour in particular. First, there is no satisfactory population list of individuals or households in many countries that includes telephone numbers. As a result, telephone surveys of the general population tend to use variants of an approach loosely termed random digit dialling (RDD), whereby samples of telephone numbers are generated either from all possible numbers or using a 'list-assisted' approach such as from directories. These methods are usually based on residential land-line numbers only and therefore exclude the population of 'mobile-only' households, which in the UK for example accounts for some 15 per cent of households. Critically, these households differ significantly in profile from households with access to a fixed line in important respects for this study, notably in relation to age and social

class. For example, a quarter (26 per cent) of 25-34 year olds in the UK are mobile-only compared with 6 per cent of 55-64s, 5 per cent of 65-74 year-olds and 1 per cent of those aged 75 and over (Ofcom, 2012). Although weighting can remove the bias caused by the omission of mobile-only respondents in fixed-line surveys, the differences in behaviour between the mobile-only and landline populations cannot be controlled by weighting. The inclusion of mobile phone numbers in the sampling frame can be used to address this coverage issue, but this increases costs significantly and results in lower co-operation rates. Both probability and quota sampling methods can be used as a basis for respondent selection, but achievable response rates for probability-based surveys (typically 25-35 per cent) are around half those achievable for equivalent face-to-face surveys, and lower still if a dual frame approach is used. As a result the benefits of using probability rather than quota sampling in telephone surveys are questionable. Indeed, these coverage and response rate issues explain the decline in use of this method in social surveys in recent years. Moreover, while computer-aided telephone interview (CATI) surveys can handle complex questionnaire structures, they are unsuitable for interviews longer than 25-30 minutes. In this respect, they offer less flexibility than a bespoke face-to-face approach.

In addition to these generic shortcomings, telephone surveys have weaknesses relative to other data collection methods when asking sensitive questions. While it is possible to ask sensitive questions in telephone surveys, the fact that the interviewer must read out both questions and responses is likely to increase the risk that participants will give socially desirable answers. In contrast, face-to-face surveys can use self-completion and ‘concealed response’ techniques (whereby responses are numbered/lettered and randomly ordered on a show card and respondents only give their response as a number/letter) as a means of eliciting honest responses to sensitive questions. Indeed, Pedersen (2003) found that a pilot telephone survey in Germany yielded an unrealistically low incidence of undeclared economy activities, and that, when the pilot was re-run using a face-to-face approach, respondents were more likely to divulge undeclared economy activities. The researchers hypothesized that this might be because the face-to-face environment was more conducive to establishing the level of trust in the interviewer necessary for the participant to volunteer this information.

2.2.3 *Internet surveys*

Online access panels provide a very low cost method of identifying low prevalence groups in the population, and offer the same benefits as postal surveys in terms of their relative anonymity. Unlike postal surveys, complex questionnaire structures are possible because the questionnaire is computer-assisted, although single topic interview lengths beyond 15-20 minutes are not recommended. Like postal surveys, online surveys are unsuitable for respondents who have difficulty reading. However, the main disadvantages of using an online panel as a sampling frame are that (a) coverage is restricted to the online population and (b) panellists tend to be unrepresentative of the population even if they have the same demographic profile.

Multiple methods are used for recruitment to online panels, with controls put in place to boost representation of under-represented population groups. Nonetheless some groups (notably the youngest and oldest age groups) are heavily under-represented and significant concerns remain about the representativeness of those joining panels. Online panels are also heavily used resulting in low response rates and low levels of respondent engagement. This can lead to a tendency for some panellists to use short-cuts such as ‘straight-lining’ (i.e., selecting the same response option for a set of items, particularly in batteries of attitude statements, rather than discriminating between individual statements, as a means of ‘speeding’ through the interview) when responding. While quality control measures can be put in place to identify and remove offenders, these issues remain an ongoing concern for online access panels.

2.2.4 *Face-to-face interviews*

Face-to-face approaches can include street interviewing although these generally do not provide sufficiently robust and representative samples. Here, therefore, this option is not discussed further. In-home (household) data collection provides a high quality design option for most survey work and offers specific benefits when studying the undeclared economy. The availability of a comprehensive sampling frame of residential addresses in many countries means that in-home surveys provide full coverage of the population that lives in private residential accommodation. In-home surveys permit longer interviews than other data collection methods (at least in bespoke surveys) and can handle complex questionnaire structures with the use of computer-aided personal interviewing (CAPI). While the presence of an interviewer can deter honest responses to sensitive questions, self-completion and ‘concealed response’ techniques can be used to mitigate this problem.

In-home surveys also provide the opportunity to ask respondents to access documentary evidence to verify information, although this relies on participants being able and willing to access the information in advance of the interview, or to retrieve it quickly during the interview itself, and is not always practical or cost-effective.

The main disadvantage of in-home interviews is that they are expensive and can take a long time to complete, although an omnibus approach can eliminate both of these disadvantages, particularly when the incidence of the target population is very low. Overall, an in-home approach has been the most widely used direct survey approach adopted when studying undeclared labour.

2.2.5 *Comparative evaluation of data collection techniques*

One study compares the impacts of various data collection techniques used during 1983 and 1984 in the Netherlands. Kazemier and van Eck (1992) compare the outcomes of several data collection methodologies (face-to-face, mail and telephone) and gradual and direct approaches (considered below). Among the different variants tested, the face-to-face data collection method combined with a gradual approach produced the highest levels of participation in undeclared labour of all direct survey methods. Isachsen and Strom (1989) however, identify that in Norway survey participants were almost twice as likely to admit participation in undeclared labour when they responded to an anonymous mail-in written questionnaire as when they participated in a face-to-face interview. There is thus no clear-cut conclusion that can be reached from the experiments with different data collection techniques so far conducted, about which is most effective to use. Nonetheless, the tendency has been for most data collection to adopt an in-home face-to-face data collection technique. This will be returned to below.

2.3 Questionnaire design issues

2.3.1 *Defining the undeclared economy*

A first issue regarding questionnaire design is whether to explicitly communicate to the participant what is meant by the undeclared economy. Conventionally, few direct surveys did so. The resultant problem was that one had no way of knowing whether participants were defining their work in the undeclared economy in the same way, or in the manner intended by the researchers. Following in the path of Pedersen (1998, 2003), recent studies, notably the cross-national surveys of undeclared work in the member states of the European Union (European Commission, 2007, 2014), have included an explicit definition of the undeclared economy which they communicate to participants during the interview.

2.3.2 *The reference period*

In most surveys, questions about participation in the undeclared economy use a time limit. The most common is the past 12 months (e.g., European Commission, 2014; Round and Williams, 2010; Williams and Windebank, 2001). This is in line with standard survey research practice which seeks to maximize recall while controlling for potential seasonal effects. Importantly, it also enables comparison of results over time if the study is repeated at a later point in time. Some also ask questions about undeclared work without imposing a time limit, which obviously leads to higher results. Hanousek and Palda (2003) meanwhile, ask about engagement in undeclared activities in three different reference years (2000, 1999, 1995) so as to try to obtain longitudinal data.

2.3.3 *Direct versus gradual approach*

Given that activity in the undeclared economy is a sensitive topic because it is by definition illegal (even if socially legitimate), direct survey methods use a range of techniques in their survey design to elicit such information. In early surveys, this involved a household work practices approach. A range of everyday tasks was listed and then participants were asked about the form of work last used to get each task completed, and following this, whether they had undertaken any of these tasks for others and if so, whether they had been paid cash-in-hand for doing so (e.g., Pahl, 1984; Williams, 2004). In recent years however, another type of gradual approach has come to the fore. This firstly asks respondents about less sensitive issues (e.g., general opinions on the undeclared economy), then turns to asking them about instances where they have purchased work in the undeclared economy before addressing whether they have supplied work in the undeclared economy (European Commission, 2007, 2014). In a study comparing the impacts of using gradual approaches versus direct approaches in the Netherlands, Kazemier and van Eck (1992) find that the gradual approach produced much higher rates of participation in undeclared work than the direct approach during structured face-to-face interviews, but not in the case of mail and telephone surveys. Indeed, the lengthier the set of ‘priming’ questions, the higher are the eventual rates of participation in the undeclared economy. Pedersen (1998, 2003) who used lengthier priming questions elicited higher response rates than the Eurobarometer survey (European Commission, 2007) that used a shorter lead-in prior to asking questions about participation in the undeclared economy.

2.3.4 *Supply- and/or demand-side*

Household surveys mostly ask about both the demand and supply side (European Commission, 2007, 2014; Fortin et al., 1996; Isachsen et al., 1982; Lemieux et al., 1994; Williams, 2004), although some examine respondents only as purchasers (e.g., McCrohan et al., 1991; Smith, 1985). Surveys using businesses as the unit of analysis however, have so far largely avoided asking questions of whether businesses engage in off-the-books transactions (Williams, 2006b). Instead, business surveys have tended to explore only the impacts of the undeclared economy on the business under investigation (e.g., World Bank, 2014).

2.3.5 *Relationship between purchasers and sellers*

In recent decades, investigations have taken place on the relationship between the clients and providers of undeclared labour. This arises out of recognition in qualitative studies that a large proportion of undeclared labour is by and for kin, friends and neighbours (Cornuel and Duriez, 1984; Jensen et al., 1995). This then resulted in some national surveys investigating the relationship between the buyers and sellers of undeclared work (Persson and Malmer, 2006; Williams, 2004) and eventually its inclusion in cross-national comparative surveys (European Commission, 2007, 2014). When combined with their reasons for engaging in such work both as customers and suppliers, the social relations and motives underpinning the heterogeneous forms of undeclared labour can be unpacked (European Commission, 2007,

2014; Howe, 1990; Williams, 2004).

2.3.6. *Encouraging honest reporting*

Minimising the risk of social desirability bias is a key challenge for studies of undeclared labour. An example is that participants may assert that the undeclared work was conducted for closer social relations and perhaps for redistributive reasons and/or to help them out. This is because undeclared work conducted by individuals for other households tends to be deemed more socially acceptable than work conducted by firms or work conducted by individuals for firms (see Williams, 2014a). Several strategies can be used, however, to reduce such social desirability bias in responses. A first tactic is to use an omnibus survey whose key advantage is that participants are recruited on the basis of a general mixed-topic interview, and therefore the survey subject does not need to be flagged up to respondents, and will simply follow a previous section in the questionnaire with an appropriate lead in. A second tactic relates to question ordering, putting more sensitive questions later after a rapport with the interviewer has been built up. A third strategy is to use self-completion/concealed response techniques where respondents report a coded letter or number to indicate their response. A fourth approach is to use ‘face-saving’ techniques. The Rockwool and Eurobarometer questionnaires frame questions as non-judgementally as possible, for example by stating that this type of activity is relatively common/within social norms, thus helping to ‘legitimise’ admission to certain behaviours. Other typical ‘face-saving’ techniques are to acknowledge in the question wording that we do not all always behave as we feel we should. A fifth and final approach is to give repeated reassurances of anonymity to remind respondents of the commitment to confidentiality. In practice of course, a mix of all these measures can be used in the same questionnaire.

2.3.7. *Using appropriate terminology*

It is important to communicate concepts to research participants in a way which is clear and unambiguous. This requires the avoidance of overly-complex terminologies which can act as a barrier to engagement, as well as lead to inaccurate measures and high levels of ‘don’t know’ responses. Cognitive testing and question assessment helps identify any words, phrases and concepts which are subject to misunderstanding or misinterpretation, and helps ensure the question wording is suitable across all audiences. A first step therefore, is to examine questions by considering specific criteria (such as clarity, assumptions, instructions, knowledge/recall, task difficulty, sensitivity and social desirability bias) in order to decide whether the question exhibits features that are likely to cause problems.

A second step is then to engage in cognitive testing. Cognitive testing is used as a question development tool to understand the thought processes that a respondent uses in trying to answer a survey question. The aim is to see whether the respondent understands both the question as a whole and any key specific words and phrases it might contain, what sort of information the participant needs to retrieve in order to answer the question, and what decision processes the respondent uses in coming to an answer. The technique enables the wording and format of survey questions to be fine-tuned, with a view to ensuring that participants understand the questions, interpret them in the same way and are able to answer them without ambiguity. In cognitive pilot tests, therefore, a number of cognitive techniques such as concurrent and retrospective thinking aloud, verbal probing, observation and paraphrasing are used. The researcher observes the respondent to identify and note areas of apparent doubt, misunderstanding or incomprehension. In this way, the researcher is able to witness not only the verbal communication that takes place, but also the non-verbal reactions of the respondent. This allows instances where the respondent feels uncomfortable answering a question to be identified, and to assess what can be done to alleviate the sensitivity of the question and/or provide added reassurance.

2.3.8 Validating responses

To ensure that responses are honest and accurate, most surveys build in some means of validating responses. For example, responses on the amounts of undeclared income earned can be compared with the total spent by purchasers of undeclared work. Alternatively, interviewers can be asked to record their assessment of the respondent, as was the case in the Eurobarometer surveys (European Commission, 2007, 2014).

2.4 Sample size

For qualitative studies, there have been studies reported on a single person (Woolfson, 2007). For extensive quantitative surveys meanwhile, the sample size has ranged from a 100 or so (Williams and Windebank, 2001d) to nearly 27,000 interviews (European Commission, 2007, 2014). The majority are in the range of about 400-1000 interviews per country. Given the small proportion of participants engaging in undeclared labour, this often leads to relatively small numbers of undeclared workers being analysed.

2.5 Sampled populations

Most studies of the undeclared economy have been conducted on populations in particular localities (e.g., Fortin et al., 1996; Leonard, 1994; Pahl, 1984; Renooy, 1990; Warde, 1990; Williams, 2004), socio-economic groups such as home-workers (e.g., Phizacklea and Wolkowitz, 1995) or industrial sectors such as garment manufacturing (e.g., Lin, 1995). Until recently, few nationally representative direct surveys had been conducted (an exception is Williams, 2006d) and even fewer cross-national comparative surveys (a notable exception is Pedersen, 2003). This has changed in recent years. In Europe, the 2007 and 2013 Eurobarometer surveys have conducted nationally representative samples (European Commission, 2007, 2014), the International Labour Organization (ILO) have used common questionnaires in some 40 countries (ILO, 2013) and the World Bank Enterprise Surveys have conducted common harmonized questionnaires on the impact of undeclared work on businesses in over 130 countries (World Bank, 2014).

2.6 Sampling method

Various sampling methods have been used in studies of undeclared labour. Here, we review a range of possible sampling methods.

2.6.1 Maximum variation sampling

One technique is to use maximum variation sampling, especially with small qualitative sample sizes. This seeks to continuously look for cases which display maximum diversity according to certain variables. For example, an affluent and deprived urban and rural locality may be chosen for study, as was the case in a UK localities study (Williams, 2004). Within each locality, a spatially-stratified sampling procedure was then used by estimating the number of households in the locality and then calling at every *n*th household. Although not a representative national sample, this provides data on the spatial variations in the extent and nature of work in the undeclared economy. Similar sampling strategies could be applied starting with other variables such as age, gender, sector or occupation.

2.6.2 Random probability sampling

Random sampling is usually used in social surveys where the absolute measurement of prevalence is a core objective. The value of random sampling is, however, contingent on the

ability to achieve high response rates to minimize the risk of non-response bias, and to achieve this within a given budget and timetable. Where this is not possible, quota sampling provides a practical alternative. In home interviewing using a probability sampling approach would yield the highest response rates of all the available methods. It enables advance notification of respondents about the survey, although it is arguable that prior notification of the subject matter might deter the target population from taking part in the survey rather than encourage them to do so. However, the costs associated with adopting a bespoke probability sample approach are prohibitive. An alternative is an omnibus survey approach using probability sampling.

2.6.3. *Quota sampling*

There are two main drawbacks of quota samples relative to random samples. The first is that the quoted margins of error for quota samples rest on more assumptions than those required for random samples. Principally, the assumption is made that the sample variance for a quota sample is roughly equal to a random sample of the same scale. This seems to be borne out empirically and Bethlehem (2009) provides some statistical support for this assumption as part of his coverage of random samples with low response rates. Second, the risk of systematic bias in quota samples is usually ignored, even though this risk is greater than with random samples with high response rates. However, because quota samples have a lower per interview cost than random samples, a small degree of systematic bias can be absorbed without reducing the value of a quota sample to the point where it is no better than a smaller random probability sample. It should be noted that these drawbacks mainly pertain to cross-sectional estimates. So long as real life change is properly reflected in both random and quota samples, estimates of change should be equally accurate for both methods.

Despite the drawbacks of quota samples relative to random samples, a number of features of the undeclared economy mean that a quota sampling method should be considered. First, whilst robust measurement of participation in the undeclared labour force is usually a critical objective, perfect measurement is not expected. It is accepted that activity will in all likelihood be under-measured and this source of error will dwarf any non-response bias (as measurement error usually does when the topic is a sensitive one). A proportion of those active in the undeclared labour force will be unwilling to admit to this activity, while other activity may be under-reported because participants do not think of or recall it in the context of the questioning. The degree of under-reporting can be mitigated through good questionnaire design, but it cannot be eliminated altogether. In this respect, it can be argued that the advantages of probability over quota sampling are less convincing than in studies where participation is more straightforward to measure.

Second, direct surveys of undeclared labour are often particularly concerned with understanding the attitudes and motivations of people active in the undeclared economy, and how these vary between different segments. Whilst sizing of the individual segments is important, understanding how the segments differ in their attitudes and motivations is arguably more important. The key to this is to maximize the sample size. The cost per completed interview of a quota sample design is much lower than for a probability sample design so this is a substantial advantage.

2.6.4 *Random location sampling*

A well-established hybrid of the random/quota sampling method is random location sampling. This eliminates the more unsatisfactory features of quota sampling without incurring the cost and other penalties involved in conducting surveys according to strict probability methods. The principal characteristic of the method that distinguishes it from other quota sample methods is that interviewers are given very little choice in the selection of participants. Random location uses a two-stage sampling method. The first stage replicates probability

sampling approaches, whereby a stratified random sample of areas (primary sampling units) is drawn. The second stage deviates from probability sampling, insofar as the interviewer is free to call on any address within the primary sampling unit to achieve a set number of interviews. The underlying premise of random location sampling is that the quota controls and rules that govern when, where and with whom interviewers carry out their work replace the measures employed in probability sample surveys to maximize response rates. For this reason interviewers working on random location surveys do not record the outcome of the contacts they make at each address in their assignment and, as is conventional in quota-based survey designs, response rates are not measured.

Sample composition is controlled via setting quotas defined by for example gender, age and working status, which are designed to combat the natural variation in response propensity (both contact and cooperation) among the local population. Combined with the area stratification, this method produces robust representative samples.

3. COMPARING SURVEY METHODS: A CASE STUDY OF THE NETHERLANDS

In 1982 the Netherlands Central Bureau of Statistics started large-scale survey research on the supply of undeclared labour. Given that it was unknown what type of survey would yield the best results (by which is meant the highest level of self-reporting by participants of their participation), eight survey variants were tested. They differed in the medium of communication between the researcher and respondent (face-to-face, mail and telephone) and in interview design (direct approach, gradual approach and ‘free-form’ conversation). Several criteria were used to assess the survey variants on their suitability for obtaining statistical information on the extent and nature of the undeclared labour force. The finding was that in terms of preventing non-response and item non-response, face-to-face methods yielded the best results. In preventing incorrect responses, a gradual introduction to the more sensitive questions was better (Kazemier and van Eck, 1992). This section reports a more recent follow-up comparative evaluation of the effectiveness of different survey methods (Kazemier, 2014).

In 2006, and to enable the character of undeclared work to be more fully understood, Statistics Netherlands decided to do research into what type of direct survey method should be used to provide such information. Similar to the research conducted by Statistics Netherlands during the 1980s, the decision was taken to investigate respondents both as suppliers and purchasers of undeclared work. The research started in 2006 with an experiment to evaluate whether a mixed-mode survey would yield satisfactory results. In a mixed-mode survey, respondents are approached in a way that best suits the interviewee (internet, telephone, mail or face-to-face). In the tested mixed-mode survey, a random sample of people over 16 years old were sent a letter in which they were invited to complete an internet survey. Participants who did not have access to the internet and those not wanting to complete the survey online could ask for a questionnaire on paper. Non-respondents were phoned and asked to complete the online or paper questionnaire. They could also opt to be interviewed by phone. For a control, traditional random face-to-face survey research was also conducted. The numbers of responses and respondents who reported participation in undeclared labour are presented in Table 1. This reveals that many opted to use the online survey with the majority of those not doing so selecting a telephone survey rather than a paper questionnaire. The finding however, was that the face-to-face interviews not only yielded a higher response rate but also a higher participation rate in undeclared labour than the mixed mode approach using the internet, paper and telephone interviews.

Table 1 Response and incidence by survey mode 2006.

Mode	Number	Response rate	Respondents who admitted shadow economic activity, % (standard error)
Face-to-face	1133	61%	9.1 (0.9)
Mixed mode	980	51%	5.7 (0.7)
- Internet	550		7.1 (1.1)
- Paper	127		3.1 (1.6)
- Telephone	303		4.3 (1.2)

Source: abridged version of Kazemier (2014: Table 1)

The finding, moreover, is that there is a statistically significant difference between the different modes. The participation rate in undeclared labour identified in the face-to-face survey was significantly higher than in the mixed mode survey: $\chi^2 = 6.85$ ($\chi^2_{0.95}$ per cent; $df=1 = 3.84$). Without the written or telephone variant in the mixed-mode, the differences are not significant at a 95 per cent confidence level, but they are at a 90 per cent confidence level.

Despite these findings regarding the higher response rate and also higher incidence of undeclared work being identified in face-to-face interviews, Statistics Netherlands continued to experiment with trying to develop online survey methods in the period 2007 to 2010, not least because it was seen as a cheaper option. Indeed, there is now a considerable literature on online surveys (Bethlehem, 2009; Couper, 2001, 2008; Dillman et al., 2009; Roberts, 2007; Sue and Ritter, 2007). One of the issues to be carefully considered is representativeness. Not everyone has access to the internet, and not everyone who has access is proficient in the use of the internet. This is especially the case for older people. Table 2 displays that there is a clear relationship between the age of the participants and response rates in the online survey of undeclared work conducted in 2006. Moreover, no respondents over 65 admitted to working in the undeclared economy. To further cut research costs therefore, it was decided to focus future research on people aged 16–65, despite evidence in other surveys that people aged over 65 years commonly engage in undeclared labour (European Commission, 2007). Similarly, there is also a relationship between internet access and the level of education and income. In 2006, 76 per cent of all people with only primary education had access to the internet, compared to 88 per cent of all people with secondary education and 95 per cent of higher educated people. Moreover, the higher the income, the higher the internet access: ranging from 76 per cent for the poorest 20 per cent to 93 per cent for the richest 20 per cent. Moreover, not everyone who has internet access can make adequate use of it.

Table 2 Response, incidence and internet access by age, internet survey 2006

Age	Access to the internet	% of population	% of responses	Participation rate in shadow labour, % (st.error)
16–25 years	95	16	19	19.3 (3.8)
26–35 years	90	18	22	5.9 (2.2)
36–45 years	92	21	19	1.9 (1.4)
46–55 years	90	19	21	7.6 (2.4)
56–65 years	73	16	14	0.0
66–75 years	50	10	5	0.0
		100	100	7.1 (1.1)

Source: abridged version of Kazemier (2014: Table 2)

By repeated weighting (Houbiers et al., 2003; Knottnerus and van Duin, 2006; Gouweneel and Knottnerus, 2008), the outcomes of the surveys were at least partly corrected for selectivity. Variables used to calculate the weights were gender by age, ethnic origin by generation, level of education, socio-economic category, household type and monthly income. The average weight is 1.00; 90 per cent of the weights are between 0.35 (5 per cent quantile) and 1.95 (95 per cent quantile). Another disadvantage of online surveys is that one can never be certain that the questionnaire is completed by the participant. This is also a problem with paper surveys sent by post. It is not known to what extent this affects the outcomes.

The internet, therefore, is not the best mode for surveys on undeclared work. Assuming that the best surveys are those with the highest number of respondents admitting to working in the undeclared economy, face-to-face surveys are preferable. Indeed, the 2006 face-to-face surveys, as Table 3.1 reveals, reported a significantly higher participation rate in undeclared labour than the 2006 internet surveys. To what extent this difference is because undeclared workers refused to co-operate (non-response) or because they did not admit these activities in the survey, remains unknown. If non-response is due to a refusal to co-operate however, the response rate should be lower than with other survey research. This was not the case. The non-response rates of the online surveys on undeclared work are in the range of the non-response rates of other online surveys conducted by Statistics Netherlands, albeit at the lower end. A comparison with response rates of other surveys, however, can be misleading. A few percentage points less response because undeclared workers refused cooperation may not lead to suspect differences in the response rates, while it does lead to a significantly lower incidence in the response. Attempts to increase the response rate by improving the questionnaire were unsuccessful.

The total amount earned by undeclared workers is also significantly underestimated in the online surveys. According to the 2006 face-to-face survey and the 2006/07 online surveys, the total amount paid for undeclared activities is 3–10 times higher than the amount received for undeclared work. Given that they should match, one can only conclude that the online surveys in this experiment did not provide reliable estimates of participation rates in the undeclared economy nor the size (in monetary terms) of the undeclared economy. Nevertheless, for some activities they seem reliable. The estimates of the amounts paid by households for cleaning and home maintenance, however, seem remarkably reliable. The results arrived at by face-to-face surveys and by online surveys are almost the same and matched by the results of research conducted by others. The main reason for this is that paying off-the-books is not against the law, and there is no obligation or incentive to report the payments to the tax authorities or social security authorities. Therefore, there is little reason to hide the payments from the survey. This is also a way forward. Asking questions about the demand for undeclared labour may be more successful than asking about the supply.

4. CONCLUSIONS

This working paper has reviewed the various survey methods that can be used to conduct research on the undeclared economy along with the issues that need to be addressed when designing a direct survey of participation in undeclared work. This has revealed that decisions are required on firstly, the unit of analysis to be examined, secondly, the data collection methodology used, thirdly, a multifarious variety of questionnaire design issues, fourthly, the sample size, fifthly, the sampled populations and sixth and finally, the sampling method used.

To reveal the results of using different types of survey method, evidence has been reported from the Netherlands on the different results produced when using different mediums of communication between the researcher and respondent (face-to-face, mail and telephone). This has displayed that the face-to-face interviews not only yielded a higher response rate but

also a higher incidence of undeclared work being conducted than the mixed mode approach using the internet, paper and telephone interviews. It is to be hoped that this paper will enable others in future who are designing direct surveys of participation in undeclared work not to repeat some mistakes of the past and will reduce the need for researchers to ‘reinvent the wheel’ when conducting research. If it fulfils this function, then it will have met its primary intention.

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