Study on using different modes as a new techniques in CAPMAS's economic census data quality

1. INTRODUCTION:

The growing use of smart phones is transforming how people communicate. It is now ordinary for people to interact while they are mobile and multitasking, using whatever mode-voice, text messaging, email, video calling, and social media-best suits their current purposes. People can no longer be assumed to be at home or at their work place when they are talking on the phone, if they are willing to talk on the phone at all as opposed to texting or using another asynchronous mode of communication. And they may well be doing other things while communicating more than they would have been even a few years ago.

From the other hand, the smart phones have proven its success worldwide in data collection. Based on that, Egyptian government decided to use smart phones as a new tool in economic census 2018, longstanding quality assurance and practices of data quality via telephone interviewing pre-test are being challenged.

2. METHODS & MATERIALS:

In the study reported here, 634 people who were the owners or the mangers of the 634 of establishments, they had agreed to participate in an interview on their Phones were randomly assigned to answer 32 questions from the main questionnaire of Egypt economic census 2018. Text messaging or speech, administered either by a human interviewer or by an automated interviewing system. 10 interviewers from the CAPMAS's quality control department administered voice and text interviews; automated systems launched parallel text and voice interviews at the same time as the human interviews were launched. The key question was how the interview mode affected the *quality* of the response data, in particular the precision of numerical answers (how many were not rounded), variation in answers to multiple questions with the same response scale (differentiation), and disclosure of socially undesirable information.

3. EXPERIMENTAL DESIGN:

The experimental design contrasted two factors, interviewing medium (voice vs. text) and interviewing agent (human vs. automated), creating four modes in a 2x2 design (see Fig 1). The four modes were implemented to be as comparable to each other as possible so as to allow clean comparisons between voice and text as well as between human and automated interviewing agents. And I believe that this experiment would provide us by clear evidence about the perfect method that would use it leter, from the other hand, it would helps us realize which data are more clear than others.

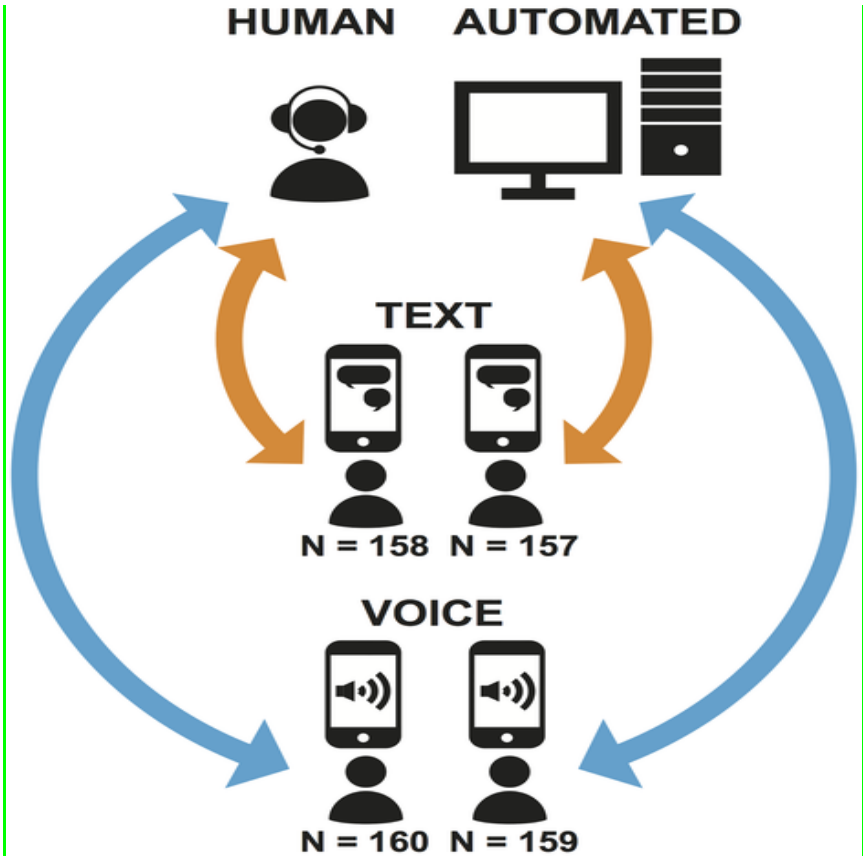

Fig 1. Experimental design and procedure.

4. RESULTS:

The findings suggest that people interviewed on mobile devices at a time and place that is convenient for them, even when they are multitasking, can give more trustworthy and accurate answers than those in more traditional spoken interviews. The findings also suggest that responses from text interviews, when aggregated across a sample, can tell a different story about a population than answers from voice interviews, potentially altering the policy implications from a survey.

Texting led to higher quality data-fewer rounded numerical answers (see fig2), more differentiated answers to a battery of questions, and more disclosure of sensitive information-than voice interviews, both with human and automated interviewers. Text respondents also reported a strong preference for future interviews by text.

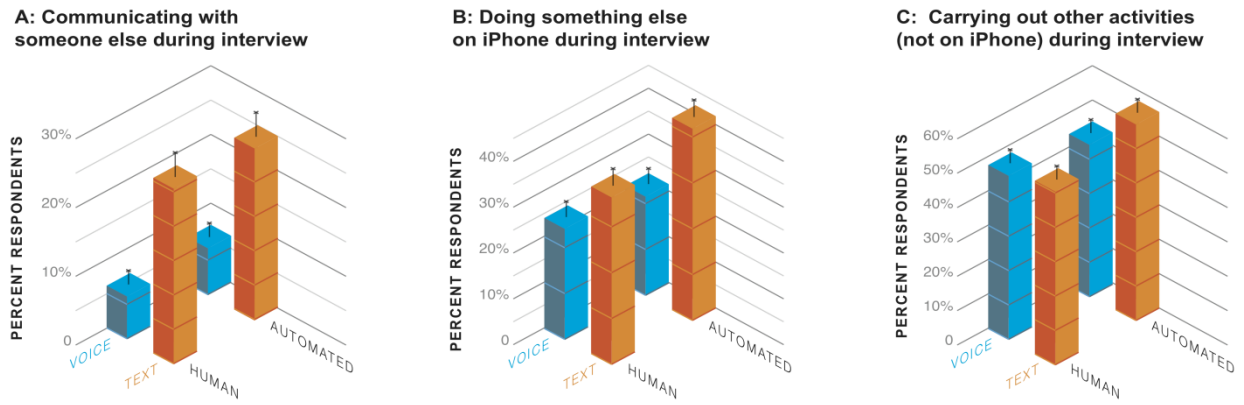

Fig 2. Data quality across the four modes: (A) rounding, (B) straight lining, and (C) disclosure.

5. CONCLUSIONS:

Our data do not lead us to argue that all interviews should now be carried out via text messaging or by automated systems. There are likely to be subgroups of the population who would rather not text, and who prefer to speak to a human. Good automated systems have serious development costs (particularly speech systems), which may make them better suited for longitudinal studies where the development costs are amortized, as opposed to one-off or underfunded surveys. But we *are* arguing that, as a larger percentage of the population relies on smart phones for daily communication and computing, people are increasingly likely to expect that they can participate in interviews in more than one mode on their Smart phones. As long as people's self-reports are needed to understand society, researchers should aim to contact and interact with members of the public in ways that best accommodate how they communicate.

6. REFERENCES:

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