MIMOD WP2 : main objectives and outcomes, useful definitions, orientations, recommendations for future research

[NB: in *italic blue*, direct citation of MIMOD WP2 report. Red frames are MIMOD WP2 recommendations for future work]

Within WP2 three main objectives have been pursued:

1. to provide an updated overview on methodologies for mode effect assessment and adjustment in mixed-mode designs, particularly those currently used in the ESS, with a discussion of assumptions, advantages and disadvantages of the various approaches. This review has been complemented with information on methods and strategies currently adopted in the ESS countries based on the MIMOD query which has been carried out in 2018;
2. to evaluate the suitability of selected statistical approaches and methods to deal with selection and measurement effects in mixed-mode data collection surveys based on practical applications and statistical analyses. In particular, the following methods have been applied on some current mixed-mode social surveys: 1) re-interview designs for mode effect estimation and adjustment, with a cost-benefit analysis for decomposing mode effects into selection and measurement components; 2) methods for treating mode bias/mode effects at the estimation stage;
3. to provide general guidance and assistance about methodological approaches which can be adopted to deal with mode effects in mixed-mode designs. Based on the results achieved through the analysis of recent literature, the MIMOD query outcomes and the practical application of selected methods, general operational and evidence-based advices and suggestions for the use of methodologies to deal with mode effects in mixed-mode surveys have been elaborated.

The results of WP2 provide all ESS countries not only with an updated overview about methodological solutions to improve the quality of estimates produced in mixed-mode surveys, but also with a tool - represented by a set of guidelines - that could support them in properly design methodological strategies to properly deal with mode effects.

Three technical deliverables have been produced by the partner countries involved in this work package (Istat and CBS): an updated literature review and current status of detection and adjustment methodology (Deliverable 1), a cost-benefit analysis of re-interviews based on two CBS case studies (Deliverable 2), and an application of a subset of these methods to an ISTAT case study (Deliverable 3).

Well designed mixed mode surveys may reduce costs and non-sampling errors (coverage, nonresponse and measurement errors). But possible mode selection effects (resulting from errors of non observation) and mode measurement effects (resulting from observation errors) can affect the survey results due to the combined use of different data collection modes.

MIMOD WP2 deals with the **statistical modelling** of mode effects. It gives definitions for “mode effect” seen as a combination of two separate terms: “selection effect” and “measurement effect”, advocating to define the “mode effect” as the combination of the two last selection or measurement effects.

The “**mode effect**” *is due to the use of one mode compared to another, or a combination of modes to a single mode or to a different combination of the same or other modes*.

"**Selection effects**" *are caused by the selection mechanism of a mixed-mode survey design which results in partitioning the sample into respondents and nonrespondents. They are a combination of coverage and nonrespsonse effects*.

Measurement effects *are caused by specifics of the modes employed in the survey and affect the recorded response to the survey questions. They arise from the same respondent potentially giving different answers to the same question in different modes*.

The MIMOD WP2 report points out that, in connection with these definitions, one should aim at disentangling the two previous components. Especially because the two effects should not considered the same way. On one side, *when detected, some effects may need to be corrected for, in particular Measurements effect. Since mixed-moded designs produce responses using a combination of modes, the individual responses may become incomparable* otherwise. On the other side, mixed-mode selection effect might be desirable per se if it is less selective and corresponds to an increase in participation rate.

It is also stressed that a "*separation of selection from measurements effects generally proceeds by explaining the selection using some covariates, and attributing remaining differences to measurements*". But this is true under a MAR assumption, otherwise the remaining difference may also be the signature of an NMAR problem revealed by multimode collection. We have observed such a phenomenon in a survey on Covid prevalence and symptom measurement conducted in May 2020 in general population (web and telephone). **This point should be studied further**.

=> Methods to disentangle measurement and selection mode effects are needed. .
A promising line of future research is the development of mixed-mode designs that allow for this, for example through embedded experiments. An example are re-interviews of respondents through alternative collection modes [WP2 D4 §3.4].

In several places, MIMOD WP2 report points out that *in order to correct the mode effect, a reference mode must be chosen* (WP2 Deleverable 4- §1.2 & 3.2).

In connection with the above definition of the mode effect, which is broken down into two components, this is obviously true for the measurement effect.

For the selection effect it is less obvious. Indeed, the selection mechanism exists, whether there is a single mode or several. The mode may affect participation (for example, if the household does not have access to the Internet, it does not participate in an online survey). However, non-response is the result of an individual decision facing the combination of modes offered to the respondent. It is therefore not always possible to define an ex-post reference mode. In particular, this will depend on the survey design and collection protocols chosen a priori. **This point should be studied further**.

It emerges from the MIMOD questionnaire that none of the NSIs have a research program on adjustment as such, while some are working at assessing mode effects.

The examples presented in MIMOD WP2 are related to the experience of Italy and the Netherlands which, although important, may not simply apply in another country. It would be beneficial to broaden the scope of experience to other European countries.

From the final report of WP2 we can conclude that the experiences of different countries could be shared at European level.

In this respect, maybe what could be proposed is to create a repository of documents and material shared by NSIs, or continue the review of the literature contained in the first deliverable of WP2.

=> At European level, it is recommended that suitable modes of collaboration could be identified in the future to proceed with developments in this area, e.g. through a network of countries interested in continuing the discussion on methodological issues. [WP2 D4 §4].