

Rome, 26 - 28 October 2022

UNECE Expert Meeting on Statistical Data Collection 2022

THE MULTI-TECHNIQUE APPROACH IN DATA COLLECTION PROCESSES: THE EXPERIENCE OF THE 7TH CENSUS OF AGRICULTURE 2021

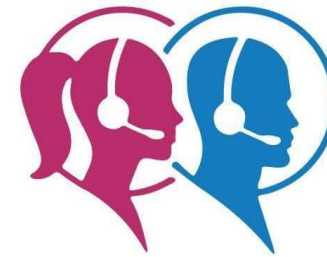
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Highlights on data collection design: DC techniques

The data collection design projected for the 7th General Census of Agriculture was based on an **integrated system**, entirely on **digital support**, which offered the possibility to adopt **three different survey techniques simultaneously**:

- **CATI** (Computer assisted telephone interviewing), in both «**inbound**» and «**outbound**» techniques;
- **CAWI** (Computer assisted web interviewing);
- **CAPI** (Computer assisted personal interviewing).



Highlights on data collection design: IT solutions

An **online acquisition system** was developed by Istat, with a large amount of features dedicated to the subjects that were involved in data collection process and in all the other activities needed to **monitor, follow and evaluate** the work in progress with respondents. These subjects were, mainly:


- **AACs** (Agriculture Assistance Centers) with their Offices and operators (nearly 5,000 people);
- **Regions**, with a role of local control network;
- **Agricultural holdings/farms** (responding units) who had a direct access to their online questionnaire for self compilation.

Contacts and interviews made by telephone were integrated in this online management system, through an IT tool, **asynchronously interfaced** with outsourced CATI systems.

This solution allowed to bring together, in a **single repository**, microdata (partially) and metadata coming from the three survey techniques and to manage and monitor the phases of the survey process, offering to all the subjects involved a range of tools suitable with their roles in the process.

The road towards the General Census

Between the end of 2018 and the beginning of 2019, **three experimental surveys** were carried out, with the aim of **evaluating the performance of each survey technique**, analyzing the quality of the results and to assess the general issues related to the survey itself, evaluating the estimated effort needed in technological, economic and human resources.




CAWI pilot survey

Technique already used during 2010 Agricultural Census, but with a **very low participation** (2.9%)

Sample: **19,818 farmers**

Average national participation rate (without reminders): **11.2%**

Digital data collection system and **internal** monitoring system (Gino++)




CAPI pilot survey

Technique **traditionally used** in previous editions, with interviewers provided by local authorities and **PAPI technique**

Importance of testing **AAC network** and **Computer Assisted** technique

Involvement of **4 provinces, 3 national AAC** providing each **3 local offices**

Heterogeneous results by territory and farm typology



CATI pilot survey

Absolute novelty for Agricultural Census

Sample: **10,734 farmers**; Target: **2,200 interviews** (1,000 long form, 1,200 short form)

2 phases: 1st phase inbound only; 2nd phase both inbound and outbound

Outsourcing services acquired on **MePa**

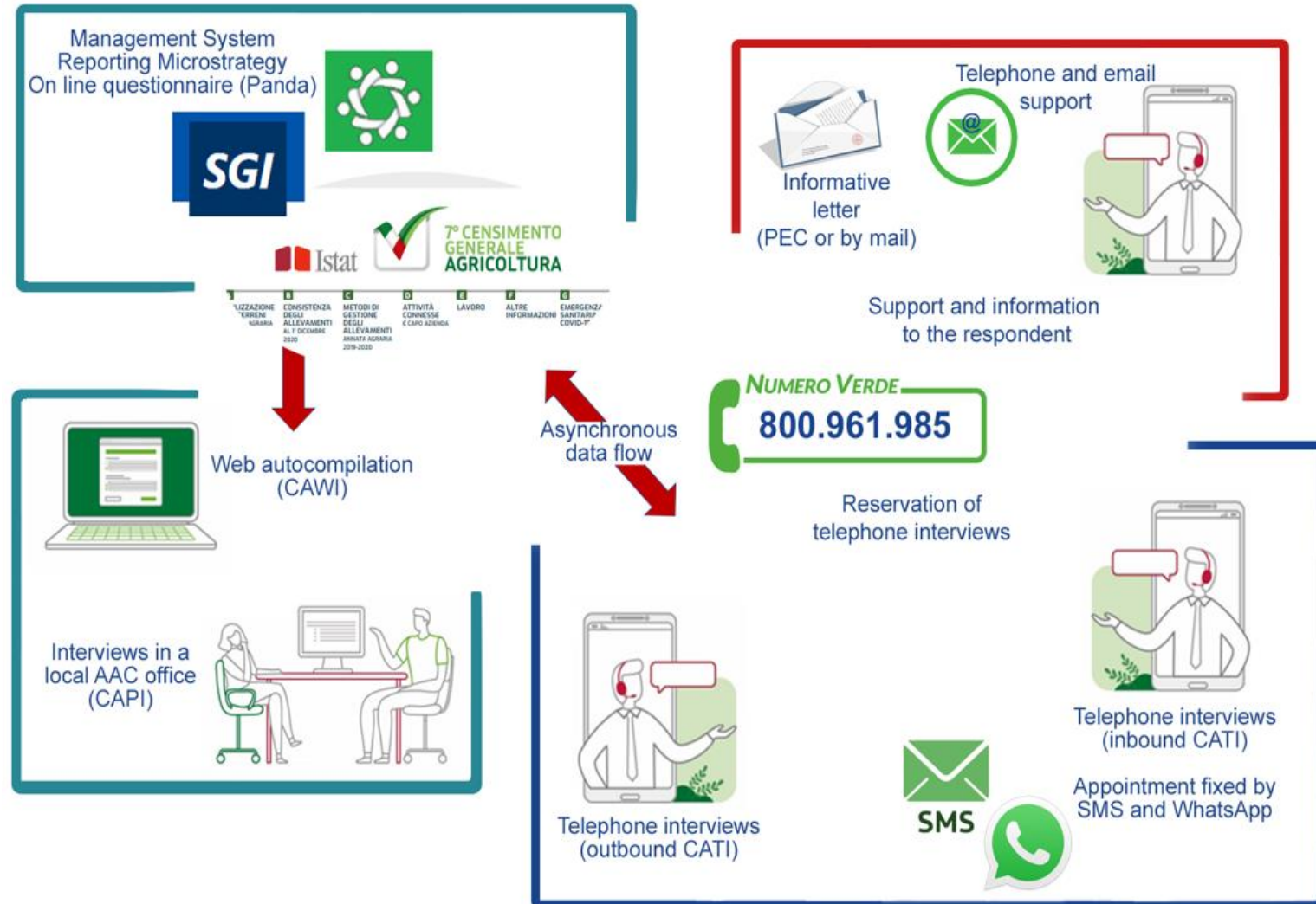
Outsourced data collection system and monitoring system

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Data collection design for the General Census

The results obtained from the pilot surveys allowed to identify more clearly the interconnections between data collection techniques and consequently to **project with greater awareness a survey design that included and maximized the contribution of each technique** to the overall plan.

As the three techniques tested during the pilots had shown promising results, managing to involve different targets of respondents, the optimal choice fell on keeping them all operational and, for the first time, **ensuring their coexistence**, from the beginning to the end of the survey period, assuring a certain degree of **flexibility, for the respondent**, to choose how to fill in the questionnaire.



Data collection design for the General Census

The census list, that is the frame specified for the survey, included approximately **1,700,000 units**, found through the use of Administrative Registers in the agricultural sector, including every potential subject operating in the agricultural and livestock sector with the requirements needed to be included in the field of observation of the Census ((*EU Regulation 2018/1091 (art.2 par. a)*)).

The entire list was divided, before the start of the survey, into **two subgroups intended for a pre-assigned survey technique: CATI or CAPI**.

However, the pre-assignment was **not strictly binding**, but of a preferential nature. The criteria for pre-assignment were mostly based on the presence or absence of one or more telephone numbers, and on some constraints of a territorial nature (e.g. proximity to an Agricultural Assistance office able to carry out CAPI interview). Infact, from the start of the fieldwork, all respondents were able to choose to participate also through the **two techniques available on individual initiative**:

- **CAWI**: through self compilation of the questionnaire on a website developed by Istat;
- **Inbound CATI**: making a reservation at the Istat toll-free number or (for the first time) sending an SMS or a WhatsApp message to a dedicated mobile number.

Data collection design for the General Census

	Schedule of data collection activities	
	<i>From 7th January 2021</i>	<i>To 30th July 2021</i>
Techniques available on individual initiative	CAWI	
	Inbound CATI	
Pre-assigned Techniques	CAPI	
	Outbound CATI	

Data collection design for the General Census

As mentioned before, the survey was attested on **two distinct IT architectures**, the first dedicated to CAPI and CAWI techniques developed by Istat, the second to CATI techniques developed by an external outsourcer.

Consequently, it was necessary to design a **communication channel** between the two IT systems that would allow the results and the status of the questionnaires' compilation to be kept updated, almost on a daily basis.

The **efficiency and punctuality of these operations** were the key for **the success of the field survey**, ensuring that the simultaneous data collection techniques could effectively be interchangeable with each other.

In multitechnical surveys, if it is not possible to develop a single IT architecture for all survey techniques, it is necessary to provide "near real time" alignment methods for the operations of data collection, to minimize the risks of for misalignment between techniques to the detriment of the respondents.

The "near real time" synchronization, even if it constitutes an important technological and organizational innovation for census surveys in Istat, represents a necessary approximation to what would be the optimal approach of surveys with synchronous multitechnique design, i.e. **the centralization of management, both technical and operational, in a single computerized tool**, developed by Istat, which probably represents the future scenario of data collection strategies for both census and sample based surveys.

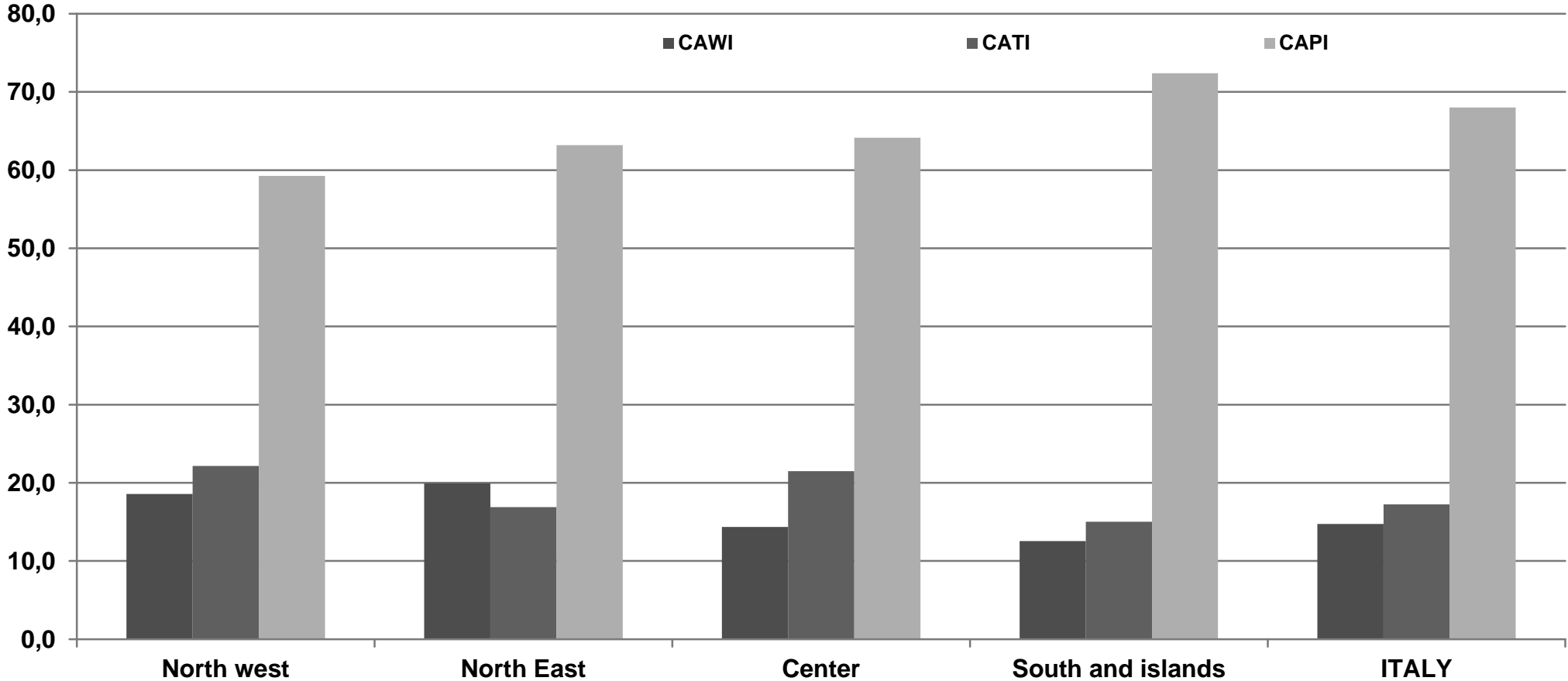
General Census of Agriculture: final outcome by technique

FINAL OUTCOME, ABSOLUTE VALUES AND PERCENTAGE BY TECHNIQUE

DC Technique		Final outcomes (absolute values)	Final outcomes (%)
CAWI		207,473	14.7
CATI	Outbound	203,684	14.5
	Inbound	38,797	2.8
CAPI	Face to face	648,257	46.1
	By phone (due to COVID restrictions)	308,650	21.9
TOTAL		1,406,861	100.0

(provisional results)

General Census of Agriculture : territorial distribution by technique



Conclusions

THE MULTI-TECHNIQUE APPROACH IN DATA COLLECTION is aimed at finding the ideal combination to contain the decrease in response rates and various non-sampling errors, offering the opportunity to compensate for the weaknesses to each technique with the strengths to the others.

INNOVATIONS INTRODUCED BY ISTAT, the strong commitment shown by the survey network and, above all, the remarkable participation shown by farms made it possible to overcome significant obstacles to the full operation of the census and to collect up-to-date and quality information.

Thanks!

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