

ECLAC Statistical Briefings

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Lessons and challenges of the COVID-19 pandemic for household surveys in Latin America

Contents

1. Introduction	2
2. Characteristics of the suspension of statistical operations	2
3. Challenges in the transition from in-person to telephone interviews	3
4. Controlling for bias	5
5. Caveats about information use and the return to the new normal	6
6. Plans and recommendations for future emergencies	7
7. Annex	7

As a consequence of mobility restrictions aimed at containing coronavirus disease (COVID-19) infections, several national statistical offices (NSOs) suspended the collection of household survey data and struggled to continue publishing indicators derived from this type of statistical operation. This note presents a summary of the strategies implemented to continue the production of employment, income and poverty statistics during the health emergency. Lessons learned during the period may improve preparedness for future emergencies of this nature.



1. Introduction

Given the mobility restrictions adopted by governments to curb COVID-19 infections, most Latin American countries had to implement exceptional procedures to continue collecting household survey data. In several countries, data collection was conducted through telephone or virtual interviews, which meant limiting the household sample to units with telephone contact information available, as well as making a number of methodological and thematic adjustments.

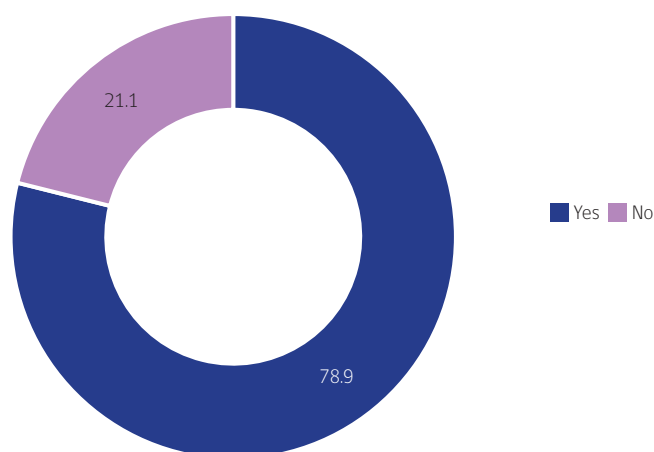
During 2020, the Statistics Division of ECLAC published a number of recommendations to ensure the quality of statistics given the changes in collection methodology and provided technical assistance for their implementation in several countries of the region. To consolidate the experience of the region's countries, NSOs were consulted in late 2021 on the various ways in which the COVID-19 pandemic had affected household surveys. Information was provided by 13 countries (Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Mexico, Panama, Paraguay, Peru, the Plurinational State of Bolivia and Uruguay), covering 18 statistical operations. This note summarizes the information gathered and sets out some lessons learned for the future.

2. Characteristics of the suspension of statistical operations

The health emergency led to 79% of statistical operations suspending face-to-face data collection at the onset of the pandemic. For most countries, the month in which normal collection activities were interrupted was March 2020; in Costa Rica and Cuba it was April and in Panama it was August that year.

» Figure 1. Latin America (13 countries): statistical offices suspending face-to-face information gathering

(Percentages)



Source: Prepared by the authors.

The suspension affected surveys with different publication periodicities (monthly, quarterly and annual). In 26% of the statistical operations, coverage levels were inadequate and so it was not possible to publish results; coverage levels were intermediate in 42%, so there were publications only for some indicators; and in 31% it was possible to publish all the planned indicators.

Of the statistical operations where indicators could not be fully or partially published, 93% chose not to use predictive models. This is consistent with the recommendations made by ECLAC at the beginning of the pandemic, which discouraged the use of imputation methods to complete the missing information, as this would mean assuming that the phenomenon under study behaved in the same way throughout the reference period and would not reflect its actual behaviour in the context of the pandemic. Despite the great efforts made by NSOs to continue disseminating their official statistics, 60% of the statistical operations reported that the timetable for publishing figures was affected in some or other of the months when there were restrictions on mobility, leading to delays in the dissemination of statistics.

3. Challenges in the transition from in-person to telephone interviews

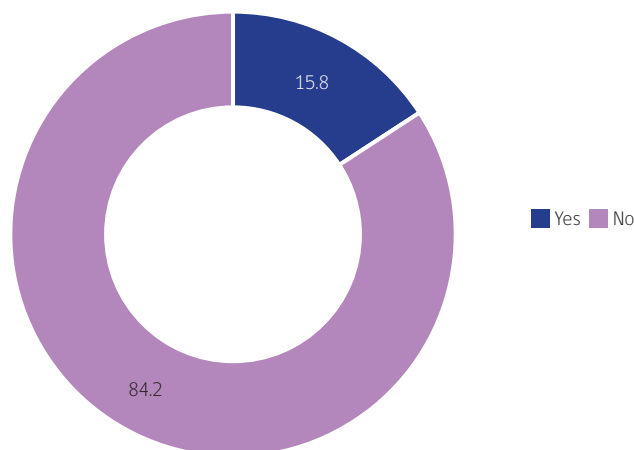
Prior to the COVID-19 emergency, 95% of statistical operations were conducted through face-to-face data collection. Peru's Permanent Employment Survey (EPE) was the only statistical operation that reported having a mixed collection scheme from before the pandemic. Given the restrictions on mobility, telephone data collection emerged as the best solution for obtaining the necessary information. The switch from face-to-face to telephone or digital collection posed a number of logistical and methodological challenges, such as a lack of information for contacting households in the sample, the need to adapt questionnaires, a lack of installed capacity for collecting information by telephone or the absence of data capture applications for secure data transfer.

Since most of the surveys have a rotating design, it was possible to obtain contact information collected in the previous periods. However, this information was subject to contingencies such as households' contact information being missing or out of date, or households declining to participate in a telephone interview.

Some NSOs made agreements with telephone service operators to obtain as many telephone numbers as possible for households located in the primary sampling units (PSUs) of interest, and then took a sample of those with contact numbers. Strategies such as sending advertising materials, sending personalized messages via WhatsApp or social networks, offering informants mobile phone top-ups or working with local authorities to locate and reassure selected households were adopted to achieve a better response from informants.

Several countries that continued with the collection process implemented teleworking policies whereby interviewers conducted interviews from their own homes. This involved adapting computer systems so that data could be captured securely. Interviewers used the mobile capture devices employed in face-to-face surveys or in some instances completed the survey on paper to be digitized later.

Despite the efforts made, in the month following the one in which statistical operations were interrupted, i.e., the first month in which it was necessary to use a sample from a previous period, the rate of non-response due to contact information being unavailable (or wrong, or due to households not answering the telephone call) was more than 20% in 42% of statistical operations.

» Figure 2. Latin America (13 countries): rate of non-response due to households not being contactable*(Percentages)*

Source: Prepared by the authors.

Questionnaires were modified in 58% of statistical operations to adapt them to the requirements of a telephone or digital survey, in view of the shorter interview time available compared to a face-to-face visit. This meant removing some of the usual questions or modules from the survey, but also adding questions relating to the impact of the pandemic. New questions about the impact of COVID-19 on employment, income or poverty were included in 79% of statistical operations.

Because respondents had been part of a recent sample, the questions that were removed generally concerned undynamic aspects such as the characteristics of the dwelling or household equipment. Other questions that were discarded dealt with fertility preferences, spousal information, the consumer confidence index, road safety, air quality and citizen participation in information technology, among other things. These adjustments brought down the time needed to complete the questionnaire, in some cases by more than half compared to the original questionnaire.

As reported by the respondent countries, the non-response rate of contactable households was below 10% in 74% of statistical operations, which shows a willingness to respond to surveys. Also, the proportion of incomplete surveys, i.e., those that were started but had to be suspended during implementation, was less than 10% in 89% of statistical operations. This shows that remote data collection is a viable alternative when household contact details are available.

In the months following the introduction of telephone interviewing, 47% of statistical operations continued with the same sample, which meant adopting a panel approach during mobility restrictions. In continuous surveys, the most common approach was for countries to maintain the sample for three periods. The percentage of households that could be contacted but declined to take the survey was less than 10% in 89% of statistical operations in the last month the panel sample was used.

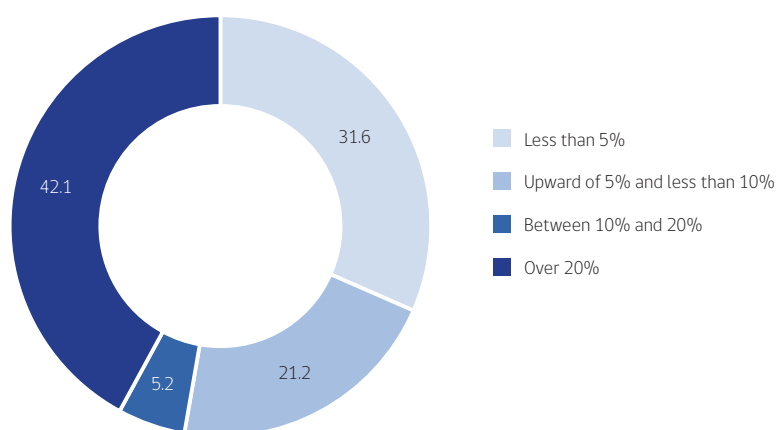
4. Controlling for bias

Because of the difficulty of contacting the households chosen in the sample, it is highly likely that the households actually responding do not have similar characteristics to non-respondent households and uncovered households, and that the factors causing non-response by households in the survey are associated with the phenomenon being measured. For example, non-respondent households may have more employed persons, or there may be coverage problems in rural areas, where there are usually more poor households. Without some form of correction, therefore, the indicators may be biased.

In this situation, a data quality assessment is needed for any increase in bias to be considered and identified. Among the adjustments made to control for bias, longer reference periods were opted for in 16% of statistical operations in order to capture information from the periods originally planned for, and adjustments to expansion factors were necessary in 53% of statistical operations while mobility restrictions remained in place in order to correct for possible bias due to non-response or non-coverage.

» Figure 3. Latin America (13 countries): statistical operations using longer recall or reference periods in questionnaires

(Percentages)



Source: Prepared by the authors.

Setting out from the responses obtained, propensity score matching was reported to have been used in 60% of the statistical operations where adjustments were made to the expansion factor, complemented by weighting mechanisms such as raking, an iterative procedure that operates on the marginal distributions of the auxiliary variables and ensures that the weighted results match up with the target distributions. Other countries reported using two-stage calibration methods with a simulation approach to correct for possible selection bias in non-face-to-face household survey rounds using these methods.

5. Caveats about information use and the return to the new normal

The comparability of estimates generated during the exceptional period of the pandemic poses a particular challenge. Because the change in collection methodology and the pandemic occurred at the same time, it is not easy to distinguish between the effect of the methodological change on the data series and the impact of the pandemic itself on labour market participation, earnings or other indicators of interest. In cases such as Mexico, the figures generated during this period were assumed to be non-comparable: because the operating strategy and statistical design were different, it was considered that figures produced by telephone surveys were not strictly comparable with indicators derived from the face-to-face survey, even if both surveys had the same conceptual design. Likewise, Panama's National Institute of Statistics and Census (INEC) warned that the Labour Force Survey series prior to 2020 could only be considered for reference purposes.

In the months since the pandemic began, surveys have gradually gone back to being conducted wholly or partially in person. Although the risk of COVID-19 infection remains latent, it was necessary to resume face-to-face interviewing, especially in the segments where data collection was most difficult. According to the information reported by the countries, face-to-face data collection was resumed for 14 statistical operations in 2020 and for 5 in 2021.

As of November 2021, all information was being collected face to face in 58% of the statistical operations reported by the countries, while a mixed methodology involving some combination of face-to-face, telephone and web surveys was used in 37%. Regarding the latter, 86% of statistical operations are considering the possibility of continuing to use a mixed methodology to collect information in the long term.

As reported by the respondent countries, 64% of statistical operations have increased the percentage of the face-to-face sample by more than 20%, while in 18% of statistical operations this increase has been more gradual, in line with ECLAC suggestions regarding the return to face-to-face collection. On this point, the countries reported having made calculations in 50% of statistical operations to compare certain indicators obtained through face-to-face data collection methods with those obtained through non-face-to-face methods.

The countries also reported having incorporated strategies to improve or increase the collection of contact and basic household data during the mapping update process. Despite the pandemic emergency, however, only 33% of statistical operations have started to implement special procedures different from those regularly applied in order to mitigate biases.

6. Plans and recommendations for future emergencies

Telephone operations have proved a useful option when there are mobility constraints and can be reconciled with face-to-face operations. Mixed operations provide greater flexibility in the current context. With the risk of a resurgence of COVID-19 cases or another emergency where mobility restrictions need to be re-established, these types of operations provide continuity in information gathering. They also increase the efficiency of operations and reduce their costs.

In general, mixed operations will continue to be contingent on the probabilistic selection of PSUs with corresponding subsampling of dwellings, households and individuals. This means that contact information for the selected households, together with their sociodemographic information, needs to be exhaustively collected

so that households can be contacted in the event of new restrictions and the information used to implement methodologies that correct for possible biases.

Drawing on the many lessons learned from the countries' experiences, a stated plan for 78% of statistical operations was to enhance contact data collection strategies, while the countries also intended to maintain a proportion of the sample for the purposes of non-face-to-face data collection in 39% of statistical operations and likewise to continue using expansion factor adjustment models to correct for bias in 28% of statistical operations.

For its National Occupation and Employment Survey (ENOE), for example, Mexico decided to use a separate sample for telephone interviews, with the same statistical design as the sample for face-to-face interviews. In Paraguay, the Continuous Permanent Household Survey (EPHC) will continue with telephone collection to support in-person visits, especially to complete interviews with direct informants who are not at home when the interviewer visits. In Chile, there are plans to migrate the National Employment Survey (ENE) towards a mixed collection methodology, with face-to-face and telephone interviews, and to maintain the strategy of obtaining contact telephone numbers.

It is also advisable to have alternative shorter questionnaires available and to explore the possibility of splicing series, so that the effect of the methodology is known and it can thus be used in any situation where it is necessary to reapply a sample with a 100% telephone collection methodology.

Although the use of remote methods developed rapidly and saw high levels of growth during the pandemic, there are still challenges to be overcome in the collection of information by these means. The literature contains techniques for data integration to combine a probability sample with a non-probability sample, with calibration methods, response probabilities or doubly robust estimation methods that are highly relevant and useful in this context.

Annex

» **Table A1. Latin America (13 countries): characterization of surveys based on some of the responses received (1)**

Country	Survey	Acronym	Survey type	Contact information only available for earlier panels and not for fresh sample	Data collected during COVID-19 mobility restrictions	Non-response rate where contact made	Prior experience with telephone interviewing ^a
Bolivia (Plurinational State of)	Continuous Employment Survey	ECE	Panel	Yes	Yes	10% to 20%	Yes
Chile	National Employment Survey	ENE	Panel	Yes	Yes	Upward of 5% and less than 10%	No
Colombia	Large-scale Integrated Household Survey	GEIH	Cross-sectional		Yes	Upward of 5% and less than 10%	No
Costa Rica	Continuous Employment Survey	ECE	Panel	Yes	Yes	10% to 20%	No
Costa Rica	National Household Survey	ENAHO	Panel	Yes	Yes	10% to 20%	No
Cuba	National Occupation Survey	ENO	Cross-sectional		No	Less than 5%	
Dominican Republic	National Multipurpose Household Survey	ENHOGAR	Cross-sectional		No		No

Country	Survey	Acronym	Survey type	Contact information only available for earlier panels and not for fresh sample	Data collected during COVID-19 mobility restrictions	Non-response rate where contact made	Prior experience with telephone interviewing ^a
Ecuador	National Survey of Urban Employment, Unemployment and Underemployment	ENEMDU	Panel	Yes	Yes	Upward of 5% and less than 10%	No
El Salvador	Multipurpose Household Survey	EHPM	Panel		No	Less than 5%	No
Mexico	National Occupation and Employment Survey	ENOE	Panel	Yes	Yes	Upward of 5% and less than 10%	Yes
Panama	Labour Force Survey	EML	Panel	Yes	Yes	Upward of 5% and less than 10%	No
Paraguay	Continuous Permanent Household Survey	EPHC	Panel	Yes	Yes	Upward of 5% and less than 10%	Yes
Peru	National Household Survey	ENAHO	Panel	No	Yes	Upward of 5% and less than 10%	Yes
Peru	Permanent Employment Survey	EPE	Panel	No	Yes	Upward of 5% and less than 10%	Yes
Peru	Demographic and Family Health Survey (monthly)	ENDES	Cluster panel	No	Yes	Less than 5%	Yes
Peru	Demographic and Family Health Survey (annual)	ENDES	Primary sampling unit panel	No	Yes	10% to 20%	Yes
Peru	National Budget Programmes Survey	ENAPRES	Cross-sectional		Yes	Upward of 5% and less than 10%	Yes
Uruguay	Continuous Household Survey	ECH	Panel	Yes	Yes	Less than 5%	No

Source: Prepared by the authors.

^a Design of questionnaires, collection system, call centre or secure data transfer.

» Table A2. Latin America (13 countries): characterization of surveys based on some of the responses received (2)

Country	Survey	CAPI/PAPI questionnaire converted to CATI ^a	Telephone interview collection system	The sample previously interviewed was reused	Switch from face-to-face to telephone (or web) interviews	Redesign of survey questions	Difficulty obtaining quality data ^b	The recollection mode effects have been reviewed
Bolivia (Plurinational State of)	Continuous Employment Survey	Yes	Yes	Yes	Yes	Yes	S, A, Q	No
Chile	National Employment Survey	Yes	Yes	Yes	Yes	No	C	No
Colombia	Large-scale Integrated Household Survey	No	Yes	No	Yes	No	C	No
Costa Rica	Continuous Employment Survey	No	Yes	No	Yes	No	C	Yes
Costa Rica	National Household Survey	No	Yes	No	Yes	No	C	Yes
Cuba	National Occupation Survey							

Country	Survey	CAPI/PAPI questionnaire converted to CATI ^a	Telephone interview collection system	The sample previously interviewed was reused	Switch from face-to-face to telephone (or web) interviews	Redesign of survey questions	Difficulty obtaining quality data ^b	The recollection mode effects have been reviewed
Dominican Republic	National Multipurpose Household Survey	No	No	No	No	No		
Ecuador	National Survey of Urban Employment, Unemployment and Underemployment	Yes	Yes	Yes	Yes	Yes	C	No
El Salvador	Multipurpose Household Survey	No	No		No	Yes		
Mexico	National Occupation and Employment Survey	Yes	Yes	Yes	Yes	No	Q	No
Panama	Labour Force Survey	Yes	Yes	Yes	Yes	No	S, A, C	No
Paraguay	Continuous Permanent Household Survey	Yes	Yes	Yes	Yes	Yes	C	No
Peru	National Household Survey	Yes	Yes	No	Yes	No	C	Yes
Peru	Permanent Employment Survey	No	Yes	No	No	No	C	No
Peru	Demographic and Family Health Survey (monthly)	Yes	Yes	Yes	Yes	Yes	C	No
Peru	Demographic and Family Health Survey (annual)	Yes	Yes	Yes	Yes	Yes	C	Yes
Peru	National Budget Programmes Survey	Yes	Yes	Yes	Yes	Yes	S, A, C	Yes
Uruguay	Continuous Household Survey	No	Yes	Yes	Yes	No	C	No

Source: Prepared by the authors.

^a CAPI: computer-assisted personal interviewing; PAPI: paper and pencil interviewing; CATI: computer-assisted telephone interviewing.

^b C: compilation/lack of contact data; Q: questionnaire redesigned from CAPI/PAPI to CATI; S: coverage of sample framework; A: attrition.

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