

Final Reports of the 2012 Census Revision Commissions

The International Commission determined that the last census process of 2012, although imperfect, is within acceptable levels of international standards and that all the work undertaken should not be discarded. Furthermore, they claim that a minimum of five years of planning work is required for a future census, and they recommend taking the next one in 2019.

Between April and July 2012, the National Statistics Institute (INE, in Spanish) carried out field surveys for the 2012 Population and Housing Census. The preparations and planning thereof started in 2007, and the results were released during the first days of April of the present year.

Immediately after publishing these results, a wave of intensive questionings began in relation to the processing and presentation of the figures. Specifically, criticism pointed out at the lack of clarity regarding the inclusion in the results of certain missing data imputations, both for repeatedly visited non-responding housing units and unobserved housing units, but which should have existed according to the estimates. These questionings escalated quickly, even doubting the entire census process, culminating with the resignation of INE's Director, Francisco Labbé, the removal of published data from the institutional web site and the summons to an External Revision Commission, whose mandate would be to "evaluate the process and results of the 2012 Census, and give recommendations to the INE regarding the course of action for the current census and better practices for the future."ⁱ

Three months later, in early August, the Commission composed by five membersⁱⁱ published the document called *Final Report External Revision Commission of the 2012 Census*, which "analyzed the existing documents and databases, requested

the INE to develop additional documentation and information, interviewed different persons who directly or indirectly participated in the census process and relied on the support of different INE professionals when they were requested to do so”.

In addition to methodological decisions and the organizational environment inside the INE – which will be discussed in details in the following section and according to the members of the Commission could have led to the errors - this report brought up, through a series of arguments referred to the census process, including planning, execution, resources and budget matters, the recommendation of not using the results of the 2012 Census and the need to make an abbreviated Census as soon as possible, thereby proposing the year 2015.

As the Institute’s new Director, Juan Eduardo Coeymans, had anticipated before receiving the External Commission report, and in addition to the radical solution of their recommendation and the high cost of following it, the INE decided to ask for a second international opinion. Therefore, it requested Eurostat, the European Union statistics agency, to recommend a list of experts with proven international experience in the making of censuses, who would undertake a second revision (see Table 1).

Table 1
PUBLIC SPENDING ALLOCATED TO THE 2012 CENSUS PROCESS
IN BUDGET LAWS

	2008	2009	2010	2011	2012	2013	Total
Million Chilean \$	\$411	\$1,489	\$1,927	\$9,121	\$17,041	\$1,630	\$31,618
US \$	\$788,056	\$2,660,318	\$3,776,206	\$18,868,959	\$35,008,937	\$3,313,271	\$64,415,747

Source: External Revision Commission of the 2012 Census, based on Budget laws.

In this manner, the International Commission composed of three independent expertsⁱⁱⁱ began working on 2 September and concluded on 22 November 2013 with the dissemination and presentation to the citizens of the *Report of the International Commission on the 2012 Population and Housing Census of Chile*. The report makes an intensive and detailed scrutiny of the field operations and data processing, with special emphasis on identifying the origin of the apparently anomalous or extreme results in different communes (*comunas*) of the country, and on ensuring that the development and presentation of the data is made according to the best international practices recommended by the United Nations. The second commission concluded that, although the census process contained some errors, they do not justify at all throwing away the 2012 Census’ results and that the census data, accompanied with the corresponding procedural and methodological reports, should be “disseminated and used as soon as the necessary methodological documentation is ready for publication”.^{iv}

Both independent reports, despite presenting similarities in some of their conclusions, offer totally opposing recommendations. It is necessary to analyze these arguments with greater detail in order to justify those conclusions, especially while waiting for the INE to decide on its future course of action, the funds that it will require and the usefulness of the census data.

Approaches, Differences and Similarities

When comparing the reports, the first thing is to consider the differences in the approach of the commissions' work.

The External Commission put the emphasis on detecting possible factors that could have affected the quality of the census, as for example the urgency of the decision to change the 2012 Census from a de facto census to a de jure census.^v The budgetary difficulties declared by members of the INE, the perverse incentives for the interviewers and the Institute's organizational climate were later related to potential discrepancies in comparing the 2012 Census results with other data sources, such as demographic equations and even the distribution of the responses to some questions of the CASEN Survey.

Meanwhile, the International Commission concentrated his work in evaluating if the census process, concerning both the operations and results, were in agreement with the United Nations "Principles and Recommendations for Population and Housing Censuses".^{vi} Later on, the Commission evaluated if the results showed extreme values –distant from the international experience or not in agreement with the rest of the country- and then revised the causes of these deviations, both in field visits and at centralized level.

Having said the above, a first discrepancy point is planning and field work. The External Commission named a number of cases (budgetary, incentive to interviewers, questionnaire layout, lack of supervision, and the questionnaire) that suggest that the quality of the census process is far from enough. Instead, the International Commission, after following the stages and procedures of the Census –from field data capture to computer assisted coding of questionnaires-, was clear to establish that, although the process was not perfect, it does not present major irregularities that might affect the results. It pointed out that other countries with similar processes make use of the captured data.

A second element which triggered criticism to the 2012 Census is the imputation of non-responding housing units ("*viviendas particulares con personas ausentes*") and unobserved housing units, a process that follows the field data capture to include (impute) the persons that might have been

in the inhabited and visited housing units, but which were not able to be interviewed, and housing units that should exist according to the estimates, but were not visited. In this point, both commissions agreed that data presentation, including the imputation of unobserved housing units, was an inadequate practice which does not seem reasonable and does not respond to the best international practices; therefore, it should not be carried out. Enumerators must include all housing units not contained in the pre-census^{vii} when doing the data capture, which limits the omission of new housing units. Instead, concerning the inclusion of absent residents imputed in the results, the External Commission rejected its inclusion – since it would conceal the incapacity of interviewing the families whose housing units were classified as inhabited and would create a bias-, since they do not necessarily have the same characteristics as the effectively interviewed ones; meanwhile, the International Commission made it clear that there is no international protocol in this respect and that different countries do choose to consider this substitution as, for example, the United States, Canada and the United Kingdom, leaving the incorporation of this imputation to the discretion of the INE.

A third key element that would justify the repetition of the Census, in the opinion of the External Commission, is the high omission rate that, according to their estimates, is present in the 2012 Census and which would make it impossible to make a proper interpretation of the results.

The omission rate, national or local, refers to the percentage of people who were not enumerated, either because their housing unit was not interviewed or because of incorrect reporting of the number of persons living in the actually interviewed housing units, compared to a reference population obtained by another method.^{viii}

In this point, the posture of the commissions was diametrically opposed, because beyond the assumptions and examples provided by the External Commission with regard to situations that might have increased the omission (incentives to declare the housing units unoccupied, incorrect reporting of working-age men, first-time introduction of the usual residence concept), a proper reference is needed to effectively measure the omission. In other words, an alternative population estimate is needed to be able to calculate the real coverage of the Census, and that is precisely where the discrepancy was generated.

In this matter, the External Commission considered that a valid reference was the demographic estimate of INE-CELADE, which based on the 2002 Census, and the population flows (births and deaths) of the vital statistics system, situates the omission (not considering the imputation of absent residents) around 9.3% at national level, which was considered relatively high. Furthermore, the External Commission listed at least six indicators of

communal omission,^{ix} both at the level of housing units and persons, concluding that the omission rate was unacceptable in many communes. However, the International Commission, following the United Nations “*Principles and Recommendations for Vital Statistics System*”, dismissed the possibility of using this estimate as calculation reference for the omission rate, because, although there is consensus in the fact that Chilean vital statistics actually register most of the births and deaths, there is no empirical work available that assesses the coverage of these registers and, therefore, it would be inadequate to obtain a national omission rate from them. Concerning the communal omission, the International Commission claimed that, at the population level, it would be impossible to obtain a reliable estimate to compare it with the 2012 Census, and thus obtain a communal omission rate, due to unavailable internal migration registers in the country. Thus, calculating the omission through a demographic estimate would not be a proper solution according to the guidelines of the United Nations, still less at communal level.

One of the alternatives to estimate the omission rate, that is widely spread around the world and does not depend on vital statistics, is denominated Post-Census Survey (PCS). It consists in re-interviewing a sample taken immediately after the Census and whose results are compared with those produced by the Census. This PCS must have total independence, and a valid reference to calculate the omission rate could be obtained from it. Unfortunately, according to the International Commission, the PCS carried out after the 2012 Census does not fulfill the basic criteria that allow properly determining which persons have been effectively considered in both samples and which have been effectively omitted, so it could hardly allow getting an omission rate estimate.

A fourth element, on which the External Commission built its case, is the distribution of some key variables (sex, age, etc.), which are not consistent with other studies like the 2012 CASEN Survey, thus reflecting some type of omission that could introduce a systematic bias in the responses of the 2012 Census. As for this criticism, the International Commission limited itself to properly determine, and considering that some questions are filters for the next ones, the non-response rates in the variables registered for persons (age, sex, and birthplace), concluding that in general these rates are within acceptable international standards, with the exception of those referring to persons born outside Chile, recommending that other instruments be used to study this population.

Finally, the International Commission recommended a minimum of five years for properly planning the next Census, which should incorporate the best available practices and technologies. Therefore, it suggested taking the next Census, either de facto or de jure, not before 2019 when other countries of the region will also update their respective censuses, thus

favoring data comparability. This practical recommendation questions the proposals of the External Commission of taking a de facto “Abbreviated Census” in 2015, which would have a shorter questionnaire, limiting the number of questions to the strictly necessary, but that does not mean that it requires less planning time.

Final Observations

Each commission presented different approaches and alternative work methodologies. However, the biggest difference explaining the antagonist recommendations lies in the impossibility of properly calculating the omission rate. The International Commission determined that, although the census process was imperfect, it is within acceptable international standards and finds no justification to discard all the work done, while the External Commission considered that the omission measurement was adequate, justifying it by their observations and perceptions of the census process.

Although the INE has not yet determined the course of action, the facts provided by the International Commission seem to exclude the possibility of discarding the 2012 Census, since it complies with international standards and also because taking an Abbreviated Census in the short-run would be very expensive and quite unfeasible in technical terms.

ⁱ *Informe Final Comisión Externa Revisora del Censo 2012*, available in www.ine.cl

ⁱⁱ David Bravo, Osvaldo Larrañaga, Isabel Millán, Magda Ruiz and Felipe Zamorano.

ⁱⁱⁱ Roberto Bianchini, Griffith Feeney and Rajendra Singh.

^{iv} Report of the International Commission on the 2012 Population and Housing Census of Chile, available in www.ine.cl

^v A de facto census enumerates persons at their place of enumeration (where they slept the night before), while a de jure census enumerates persons at their usual place of residence. A de jure census can be taken in a very short period, even a day, but given its nature it can be taken in several days unlike a de facto census.

^{vi} It refers to a set of documents published by the United Nations, whose references can be found in section 2.11 of the final document of the International Commission.

^{vii} “The objective is to enumerate 100% of the housing units at national level, identify them accurately by location, make a preliminary and draft definition of its use and number of persons living in them”. Executive Decree N° 36 of the Ministry of Economy, Development and Tourism, February 2011 (Regulations of the Census).

^{viii} In the first case, three types of situations are distinguished (absent residents, incorrect qualification of housing units as unoccupied and housing units that were simply not visited), while the second one considers two situations (problems with the new concept of usual resident and incorrect reporting of working-age men by –unjustified- fear of losing social benefits).

^{ix} a - Percentage of private occupied housing units with absent residents.

b - Percentage of unoccupied housing units in 2012 and compared with 2002.

c - Average number of persons in occupied private housing units with present residents and compared with 2002.

d – Growth rate of private housing units 2002-2012.

e - Relative difference of total private housing units between the 2011 pre-census and the 2012 Census.

f – Deviation of the population growth rate with respect to the expected figure.