

Commentary paper

Commenting on an international perspective on the undercount of young children in the U.S. Census (DOI: 10.3233/SJI-161008)

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There appears to be something special about young children when taking a census!

Dr. O'Hare's paper clearly demonstrates that young children are undercounted in the censuses of numerous countries, all of them conducting traditional censuses in one form or another. And for some of them he shows further that this undercount has been the case for decades. More specifically a net undercount for children under age 5 is common and it is typically higher than the net undercount for older children. These facts have seemed surprising and are certainly not well understood by the profession. He states "I am not aware of any published theories that attempt to explain the strong association between age and net undercount rates for children." Regarding the USA, he also poses the question "... why has there been consistently high net undercount rates for young children since 1950 while the net undercount rate for adults steadily improved?" I agree that more research in these areas is needed.

The paper focuses on net undercoverage, in part by necessity because as Dr. O'Hare well justifies for the USA, a study of coverage error for young children is better to proceed from the results of demographic analysis rather than the results of the post-enumeration survey. Which in turn means it is *net* undercoverage error that must be studied rather than undercoverage and overcoverage separately. This approach has indeed

Table 1

Estimated coverage error of children in Canada by age group and year

	Net Undercoverage (%)		Overcoverage (%)	
	0-4	5-14	0-4	5-14
2001	3.46	1.38	0.96	1.52
2006	2.72	0.86	1.35	2.24
2011	1.75	-0.18	1.61	2.79

produced useful and interesting insights and information.

Nonetheless, I think separate study of undercoverage and overcoverage would be useful because of their differing patterns and their very likely differing underlying reasons. For example (Table 1), in Canada the higher rate of net undercoverage for children aged 0-4 has been in part explained by lower overcoverage in each census since at least 2001. This phenomenon itself merits study and validation if it occurs for other countries as well.

Coverage studies as conducted in Canada using the Reverse Record Check (RRC) methodology [1,3] provide an opportunity to examine undercoverage independent of overcoverage effects. In my Joint Statistical Meetings presentation in 2013 [2] I presented some findings on this topic which I will briefly review here. They were based upon the results of the 2011 Census coverage studies and proceeded from the premise that it might be more useful to focus research not on the children themselves but rather on the parents or care-

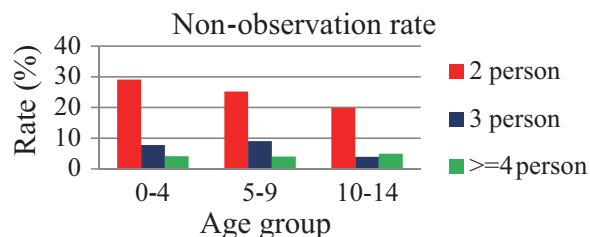


Fig. 1. Non-observation rate for children by household size and age group 2011.

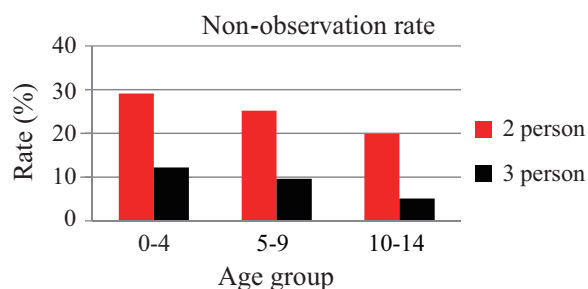


Fig. 2. Non-observation rate for children in one parent households by household size and age 2011.

givers who are the proxies responsible for the inclusion of these children in the census.

Given the RRC methodology, it was convenient to consider non-observation of children which would arise from both nonresponse and undercoverage. Simply stated, the RRC is a multiple frame survey of persons who “should” be enumerated in the Census. Each sampled person is classified as enumerated, not enumerated (not observed) or out of scope (e.g. dead, emigrated) and estimates of undercoverage can be derived. Importantly for this research, in 2011 for the first time, not only was each person in the RRC sample classified but also all household members as well.

The first important finding (Fig. 1) is that the non-observation rate for children in 2 person households is much higher than for children in larger households. Further, in 2 person households this rate is higher for young children than older ones.

In three person households, the non-observation rates are higher when there is only one parent present rather than two. And the rates are higher for younger children.

In one parent households (Fig. 2), non-observation rates of children are much higher in 2 person households than 3 person households. And the rates are higher for younger children in both household sizes.

Similarly, if we ignore household size and compare one parent households to other household types we

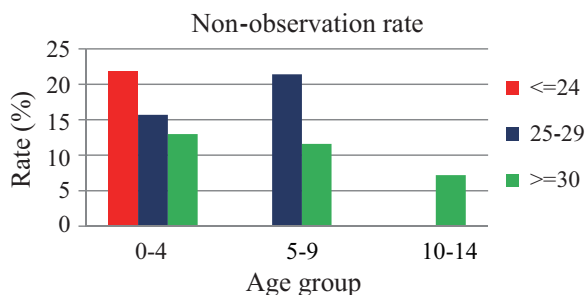


Fig. 3. Non-observation rate for children in one parent households by parent age and child age.

again observe higher rates for younger children in the one parent households. This pattern does not hold for other household types where the non-observed rate is roughly constant for all three age groups of children.

If we consider the age of the parent in one parent households Fig. 3 makes it clear that the younger the age of the single parent, the higher the non-observation rate of the children.

Last, amongst these single parents marital status appears to matter. The non-observation rate of the children of never married single parents was 14.3% while that for all other marital statuses was 9.5%. This is closely related to the fact that never married parents tend to be younger and so have higher non-observation rates ... and hence their children also.

In summary, in Canada in 2011, children in 2 person households were not observed much more often than others. In these households young children were missed more often than older children. Children in 1 parent households were missed much more often than others. In these households young children were missed more often than older children. The children of younger single parents have higher missed rates than children of older parents. And so this analysis suggests that an important factor in the higher rates for young children is those in one parent households, especially: those in 2 person households, those whose parent is younger and where the parent is never married. As well, younger children tend to have younger parents who, when not living with a partner, tend to be not observed more often than older such persons resulting in the pattern of higher missed rates for younger children.

The conclusion in the above paragraph applies in the present; it does not on its own help explain why net missed rates for young children in the USA. have remained high while aggregate net missed rates have improved. A question this conclusion suggests is: has the proportion of children living in one parent households increased over the years in a fashion that might off-

set, for those demographic group, benefits of improving census methodologies? How have net missed rates of young single parents evolved over time?

This conclusion, I think, also suggests research avenues to pursue to help address the absence of theories explaining the missing rates of young children. Unfortunately this phenomenon cannot be studied with earlier censuses in Canada. However, it will be possible to again examine it with the data from the 2016 Canadian Census coverage studies. It would be worthwhile for researchers to validate whether these findings might apply elsewhere as well. The U.S. Census Bureau has done some related work, examining the coverage of young mothers [4].

Other research questions might include some of the following. Amongst missed children, what kind of households do they live in? How does this differ by age group of the child? How does this differ from enumerated children? For missed children in one parent households, what is the probability that the parent is also missed? In households with more than one child where one child is missed what about the rest of the family, especially other children? In what kind of housing do these missed children live? Does this differ by age group – of the child, of the parent? How does this differ from enumerated children? Do missed children tend to be missed in missed dwellings or in enumerated dwellings?

So, this discussion suggests some specific research avenues to pursue to expand our understanding of why young children have high net undercounts. It will of course also be important to research census strategies that, within the broader context of census priorities and coverage concerns, could help reduce this problem.

References

- [1] D. Dolson, Errors of Non-observation: Dwelling Non-response and Coverage Error in Traditional Censuses. Proceedings of the Section on Survey Research Methods, American Statistical Association. 2012.
- [2] D. Dolson, Differential Coverage Error for Young Children in the Canadian Census. Presentation at Joint Statistical Meetings, 2013.
- [3] Statistics Canada, 2011 Census Technical Report: Coverage. Catalog 92-567-X. available at <http://www12.statcan.gc.ca/census-recensement/2011/ref/guides/98-303-x/index-eng.cfm>.
- [4] U.S. Census Bureau, 2020 Census Research and Testing, Investigating the 2010 Undercount of Young children – Examining the Coverage of Young Mothers. Prepared by Decennial Statistical Studies Division. Issued June 7, 2016.