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November 4, 2016

Gord Johns
Member of Parliament, Courtenay-Alberni
1209 Island Hwy,
Parksville BC V9P 2E5

Regarding: How BC Statistics' Officials Deceived Statistics Canada and Finance Canada regarding Canada's Equalization Program.

Dear Mr. Johns,

For many years, I have been advocating the science of demography including the verification and reproduction of population numbers being used to guide public policy, such as the methods and data to be used to justify opening and closing of public facilities and to determine Canada's Equalization Payments.

Although I have written about this many times, this topic came up recently again in my correspondence with the Canadian Population Society Board of Directors, the Canadian Taxpayer Federation, and Statistics Canada regarding questions about the quality of population estimates.

Herein is a description of how BC Statistics' Officials deceived Statistics Canada and Finance Canada regarding a feasibility study of Canada's Equalization Program. This example should not be considered to be an isolated event - it can happen again. Rather, we should be looking at ways to safeguard the integrity of analytic products (correct methods and data to accompany findings) used for public policy and programs.

BC Statistics 1998 Method Unacceptably Inaccurate - Answering the Call

How do I know about this topic? I served as a Population Analyst for BC Statistics from 2002 to 2006, during which Statistics Canada did a study for Finance Canada regarding methods and data to determine equalization payments, a study that included methods to estimate population.

In 2002, there was a problem with BC Statistics' population estimates - the numbers were wrong. Developed in 1998, BC Stats' method and data generated municipal population estimates for 2001 that were very different compared to the 2001 Census of Population results.

The Director of the Population Section of the Provincial Government of British Columbia's Statistical Agency, Don McRae, had tried to lower the error by kicking out outliers for over 2 months, to no avail. So he asked members of the Population Section to try and figure out why BC Stats' population estimates were so different from the census results.

This was fairly easy to figure out. I had the luxury of looking to the past for clues - indicators that showed a change between 1996 and 2001 that could possibly explain the

difference between BC Stats ' 2001 estimates (created by the 1998 method) and the actual 2001 Census of Population and Dwellings results.

BC Stats ' 1998 method used 2 indicators, electric hookups and Old Age Security (OAS) to estimate municipal population. Since OAS contributed little to explain the change in population, I did not use this indicator in my hypothesis testing.

Given that electric landline hookups counted dwellings and not people, I tested the assumption that the change in the number of people per electrical meter (per dwelling) did not effect the population estimates.

I simply looked at the 2001 Census of Population and Dwellings results for the change in the number of people per dwelling between 1996 to 2001 and found that most municipalities saw a decline in the number of people per dwelling but 22 stayed the same or increased, and some increased substantially in particular Surrey.

Rerunning BC Statistics' population estimation method with this additional information (the change in the number of people per dwelling), produced population numbers that were almost exactly the same as the 2001 Census of Population and Dwellings results (~ 2% error). Hind sight is 20/20.

The Director along with the Chief Demographer decided to use this additional information to change the 1998 method and data to create BC Statistics 2001 census population estimates. To do this, the Chief Demographer, Dave O'Neil, decided to run 2 different population estimates - one for the municipalities with a decreasing number of people per dwelling between 1996 and 2001, and another for the municipalities with the same or increasing number of people per dwelling between 1996 and 2001.

I adamantly advocated that we not split the data to run 2 different population estimates – this would lead to many problems. This method was to be used for estimating population for the coming years. How could we be sure that the changes in the number of people per dwelling between 1996 and 2001 would be the same between 2002 and 2007 when the next census would be released?

I stated clearly many times to the Director and the Chief Demographer, we needed to do more study, in particular to look for indicators that would help us see the change in the number of people per household, for example, BC Care card registrations per municipality.

As well as splitting the data into 2 groups, Director McRae imposed compounding (exponential) growth on the municipalities that had an increase in the number of people per dwelling between 1996 and 2001. I advocated that this not be done either by showing how this would effect the projections. Nonetheless, compound growth was implemented. Two years later I was able convince Mr. McRae to stop this practice.

Also, Mr. McRae implemented the use of the change in the number of telephone landlines (Telus). I pointed out that this indicator was not acceptable because it was too similar to electrical hookups and because of the rapid adoption of cellular phones. I asked the Mr. O'Neil to see the write up of the testing of this indicator but was not allowed. According to Mr. O'Neil, the person testing the use of telephone hookup data

was much more capable than I. Many years later, I asked the Canadian Population Society and Statistics Canada if BC Statistics had presented the new data for peer review. Neither were asked. Statistics Canada has formal policies and clear accountabilities to ensure peer review. This standard should be agreed upon by BC Statistics.

Hiding the Answer

Over six years after I was dismissed for insubordination (I advocated the publication of the correct methods and data to accompany population estimates), I found out that in 2005 (while serving as Population Analyst), Statistics Canada concluded a study for Finance Canada regarding methods and data used to determine equalization payments.¹ Statistics Canada asked for input from Canada's three other statistical agencies: BC, Quebec, and the Northwest Territories.

Astoundingly for statisticians, but not surprisingly in light of the poor judgment, the BC Statistics' Director and the Chief Demographer told Statistics Canada's statisticians that they used the 1998 population estimation method to come up with the wonderfully accurate 2001 population estimates.

"BC Stats produces its CSD-level population estimates using regression methods with specific symptomatic indicators (number of residential electrical connections and Old Age Security (OAS) recipients). For more details on the methodology, see Generalized Estimation System (GES), Small Area Population Estimation Methodology published by BC Stats in 1998 and available on their website." (The Equalization Program and the Property Tax Base Feasibility Study Conducted by Statistics Canada, Feasibility Report to Finance Canada, February 28, 2005, p. 63)

This was not true. BC Stats' Director and the Chief Demographer left out the fact that they used information from the 2001 Census of Population and Dwellings counts (the number of people per dwelling) to reduce the error between BC Stats' 2001 estimate and Canada's 2001 Census of Population and Dwellings results.

Having been deceived, Statistics Canada's statisticians endorsed BC Stats claiming the 1998 methods and data produced population estimates of "better quality" than Statistics Canada's

"CSD-level population estimates produced by three provincial/territorial statistical agencies (Quebec, British Columbia and the Northwest Territories) were all found to be of better quality when compared with those based on any of the three STC methods." (The Equalization Program and the Property Tax Base Feasibility Study Conducted by Statistics Canada, Feasibility Report to Finance Canada, February 28, 2005, p. 66)

After Statistics Canada endorsed BC Stats' 1998 method, I became the subject of increasing antagonism - aggressive yelling (see "In the Loop"), removed from the contacts list, accused of making my female co-workers fear for their (job?) safety, not allowed mediation, given more and more of my coworkers menial tasks with shorter and shorter time limits. Shortly after forwarding my grievance to the Deputy Minister, I was ordered to turn in my security pass and "escorted" out of the BC Statistics' building.

¹ While serving as Population Analyst, I was not informed about this study; however, shortly after it was published, I was accused of having made a personal attack on a co-worker followed by increasing antagonism and eventually a wrongful dismissal.

A week later, I was ordered to return to work and required to have a psychological assessment as a condition of continued employment because Mr. McRae and Mr. O'Neil claimed they "believed" I had "personal problems" effecting my work. For refusing this inappropriate assessment and insisting on mediation I was dismissed for insubordination. For going down the "wrong channel" (following the directions of Human Resources – requesting a course for the "team"), I was not allowed arbitration regarding the real matters in dispute, namely the real methods and data used to create population estimates.²

Revealing Part of the Answer

Again, astoundingly for statisticians, but not surprisingly in light of the examples of poor judgment, the Director and the Chief Demographer did not explain to anyone the changes to the method and data. They continued to point people to the method and data described in the 1998 population estimation method paper (electrical hookups and OAS as indicators) for over 10 years. In 2011, BC Stats revised the population estimation paper revealing the use of telephone landline data and some of the other changes:

"After extensive analyses it was later determined that telephone line data (Telus) was a suitable indicator and was subsequently added to the model in 2000. With the availability of the 2001 census and further model development it was indicated that the OAS data were no longer statistically significant and were dropped from the model in 2003." P. 8 GENERALIZATION ESTIMATION SYSTEM (GES) Small Area Population Estimation, Method and Error Evaluation, August 2011, (GES 2011)

In 2011, I contacted BC Stats to offer additions to this statement to no avail. Not only were the people of British Columbia misled (with sub provincial consequences), Canadians were also misled regarding methods used to determine equalization payments.

Retaliation for Helping Improve Reliability

Although BC Statistics Officials focused their attention on discrediting me personally thereby deflecting attention away from their deceit, the problem was not about me. Anyone who took up the Population Analysis position for the Provincial Government of British Columbia, who answered the call for assistance, who figured out why BC Stats' 2001 population estimates were so far off the 2001 Census of Population results would have been subject to a wrongful dismissal. Anyone in the Population Analyst position who knew how the 2001 estimates were created would be targeted for removal for fear that Statistics Canada would discover Mr. McRae' and Mr. O'Neil's deception. To be clear, for answering the call to help figure out why the 1998 method did not work, for figuring out why BC Stats' population estimates were so far off, I was discredited and fired with dismissed for insubordination on my employment record.

A solution to safeguard against the intrinsic risks and dangers of monopoly would be to verify that correct methods and data accompany "findings" by reproducing the numbers; therefore, I continue to advocate that public policy makers agree to Statistics Canada's formal policies and clear accountabilities as laid out in Ivan Fellegi's presentation to the European Council in 1999.

² Documents are posted on line at www.wminfomatics.com/WP/home.html

Fellegi reminds us of “the virtuous circle of conceptual work leading to data development, testing of existing hypotheses and formulation of new ones, and refinement of conceptual frameworks whose validation leads to further data development” What would the world look like now if the integrity of analytic products from Official Statistical Agencies (from BC Stats to EuroStats), were safe from deceit?

Anyone planning a career in Population Studies should be aware of the potential of being discredited for promoting the development of the science of demography.

Your truly,



William Warren Munroe