

Elections BC Contract with BC Stats Population Section

What BC Stats did for the \$50,000

By
William Warren Munroe
December 23, 2009

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Executive Summary

The following journal excerpts provide detail regarding the non-statistical methods used by BC Stats in creating population numbers for Elections BC, and the consequent dismissal of a Population Analyst.

The Population Analyst was told to look at a map of BC Provincial Electoral Districts on the internet and guess the population numbers for each districts.

Alternatively, the Population Analyst developed an automated method using Geographic Information Systems software, resulting in an accusation of insubordination, a refusal of mediation, a requirement to grieve a “misuse of managerial authority” resulting in a determination that “no resolution” was required, and a dismissal while the matter was before the Deputy Minister.

Manager’s instructions of how to create population numbers for Elections BC

The following is drawn from a journal kept by a former Population Analyst for BC Stats, William Warren Munroe.

On the morning of July 20, 2005, the manager of the Population Section of BC Stats, David O’Neil, came to my office and told me to review the results of the model used to estimate and forecast the population in BC Provincial Electoral Districts (PEDs).

Mr O’Neil gave me five pages of tables with the results of the estimation / forecasting procedure. The tables showed rows with the PED names, and columns for the years, with the absolute population number estimated followed by the annual percent change between years from 1996 through to 2008.

Mr O’Neil told me to look on the internet and showed me where to find a map of the PEDs on the Elections BC website. The BC PEDs were displayed with different colors and there was a legend that showed the colors and the PED names.

Comment:

Here is the link to the most recent map posted on the internet...
<http://www.elections.bc.ca/index.php/voting/electoral-maps-profiles/ed-maps-2008-redist/>

Mr. O’Neil told me to look at the paper table and check the place name of each PED with the legend on the map on the internet, in order to find the corresponding color for each PED, then refer to the map to find the PED with the same color. Once I found the PED on the map corresponding to the PED on the table, I was to determine whether the population numbers on the table were justifiable.

Mr. O’Neil told me that if a number of the table did not look right, I was to draw an arrow, pointing up or down, to indicate that the population number should be

increased or decreased, followed by my guess of how much the number should increase or decrease. He also told me that this project was given the highest priority and was to be completed by the end of the day. I suggested that perhaps I should just write the number that should be in the table, which Mr. O'Neil agreed would be fine.

After Mr. O'Neil left my office, I began to follow his instructions but soon found that the colors on the legend of the map on the internet were very difficult to trace to the appropriate area on the map, particularly in the lower mainland, as many colors were very similar or the same for the different PEDs.

I went to ask the manager for the electronic version of the printed tables he had given me and for the map shapefile from a co-worker, but both were out of the office. A shapefile is an electronic version of a map of the administrative boundaries, in this case PEDs, which can be viewed in ArcView, Geographic Information Systems (GIS) software.

Results oriented solution

Since both the Manager and the Cartographer, as well as my other co-workers were out, I searched for and eventually found the Excel spreadsheet from which the paper tables were printed. Then I searched for and eventually found the PED boundary shapefile for ArcView(GIS), so that I could bring the source data into a database and then into ArcView.

I brought the Excel file into MS Access, the government standard for relational databases on PCs, which could then be brought into ArcView and joined with the shapefile. This means that anyone can look at a map and click on each PED and see the population numbers from the Excel file. It also allows anyone to see which PEDs had population increases or decreases in population and whether the population change was large or small by giving these variables a range of colors. Also, using GIS helps find and correct errors quickly.

I also brought into the GIS, the census results for Municipalities and for Census Divisions (also known as Regional Districts).

Comment:

When I first arrived at BC Stats, I created these files and kept them up dated so that I could study and understand migration. My role as Population Analyst was to be the provincial expert on migration. I also kept shapefiles joined with estimates and forecasted population numbers for Local Health Areas as well as other Administrative boundary sets such as School Districts. I brought the Local Health Area data into the GIS as well.

When I put the PED population numbers into the GIS to compare them with the census results by CDCSDs (aggregated unorganized areas), it was easy to see that the numbers were very different. Indeed, many of the PEDs in the Greater Vancouver Regional District showed a declined in population since 1996.

Comment:

The population decline generated by the model created by the manager and my co-worker(s?) was likely incorrect because of the use of Telus data. When I first started with BC Stats, the change in the number of landline telephone hook-ups was being incorporated as an indicator of population change. I asked many times for the write up on the testing of this variable, but it was never provided to me and it was not provided to the users of the population data from BC Stats. Concerns include co-linearity and the variation in the increased use of cell phones particularly between core and peripheral areas.

Areas that were exactly the same for the Census and PED boundary sets had very different estimates of population change. For example, the New Westminster PED had exactly the same boundaries as the New Westminster CSD (municipality) but the population numbers were very different..

Around 2 pm, upon their return, I asked Dave O'Neil and Jennifer Hansen (Jennifer was given responsibility over the project) to come and see the results of my comparisons between Statistics Canada's and the Election BC's population numbers using GIS.

When Dave O'Neil saw how I had done the comparison (using GIS instead of the paper copy method), he became very agitated and critical. He said that he would "never do the project this way". He then said that "the map has too many colors" and that I needed to redo the map with fewer colors. Mr. O'Neil insisted on just two colors, one for an increase in population and another for a decrease in population. Loosing detail by generalization, is referred to as dumbing down.

I pointed out that the detail is easy to understand as the colors were graded (for example, light red to dark red) and that this provided better diagnostics...we can see errors, and the magnitude of the errors more easily. Also, I pointed out to Dave and Jennifer that because the Elections BC model results were wrong, the model would have to be fixed and rerun before another map needed to be created.

I showed them that the boundaries for many of the Census SubDivisions (CSD are used for the census numbers from Statistics Canada) were the same as the PEDs by comparing the map layers on the GIS. I showed them New Westminster PED and CSD and stressed the fact that if New Westminster had to change, then all areas would change; therefore, it would be a waste of time to redo the maps until the model had been adjusted.

Mr. O'Neil asked whether the PED and census boundary (municipality) for New Westminster were the same. Mr. O'Neil had Ms. Hansen go and check a concordance file that they use to compare areas. Ms. Hansen returned saying that the boundaries were the same according to the concordance file.

I again stated that if New Westminster numbers changed then all PED numbers would change. Regardless Mr. O'Neil wanted the map redone to his specifications and a full report on a co-workers (Frank Ip) desk in the morning. Mr. O'Neil was very adamant that a new map be done with just two colors. Only growth and decline were to be shown.

Since the map was done in ArcView, it was very easy to change the colors to Mr. O'Neil specifications. The next day July 21, 2005, I went to Mr. O'Neil's office. I told

him that I had redone a map as per his specifications but that it lost valuable information which reduces our ability to diagnose errors. I also restated that the method used to create PED numbers for Elections BC had produced wrong results, and would have to be fixed. Indeed by changing New Westminster, for example, all the PED populations in the province would change. Also a map showing the errors was no longer necessary. Mr. O'Neil agreed that the map would not be used.

Since comparing population estimates for different administrative areas is a geographic exercise, I developed a model that utilizes geographic software. I asked one of the programmers (Keith Morris) to write a simple routine in VB (it took less than 5 minutes to write the macro) for ArcView to compare attributes between different boundary files. This would utilize the existing population databases and the spatial comparison capabilities of GIS software.

For example, by pushing a button anyone could automatically check for differences in population estimates between the PEDs and the Census boundary file. Therefore, instead of having a human who is not familiar with the boundaries (e.g. Elections BC PEDs) check a paper copy of a table of the results of the estimation procedure against a map on the internet, comparisons could be done in seconds by a computer.

Also, ArcView could be used to create a table of what the PED population numbers should be, based on census results, and BC Stats' inter and post censal sub-provincial numbers (which unfortunately use telephone landline data). There are many ways to draw information from one geographically referenced dataset to populate a database for a different administrative boundary set, with varying degrees of reliability; nonetheless, using GIS provides another way of refining our ability to provide Elections BC with reliable population numbers.

At around 10:00 am, I went to see Jennifer, to show her how the Elections BC modelling problem was solved. When I described the automated routine to Jennifer and explained how this would take care of the problem with the current methods, she said loudly, expressing irritation "There are always problems! Get over it!" (where upon she shouted to Dave O'Neil who was walking by) "Right Dave". I said that I don't agree, but rather that improvements should be considered. Mr. O'Neil did not say anything, but instead, left immediately, not so much as to attend to something outside the area that needed to be done, but more as though the conversation was not appreciated and he wanted to get away at the same time as showing some displeasure. A colloquialism would be that he left in a huff.

That evening, after everyone else had left, I stopped by Mr. O'Neil's office to say that I can not help but come up with improvements to the methods and the models as this was an important part of providing reliable information. Mr. O'Neil adamantly shook his head side to side, indicating NO! Mr. O'Neil gave me the clear impression, improvements are not wanted.

Comment:

The Ministry's Vision and Mission Statement includes encouraging creative results oriented solutions (<http://www.wminformatics.com/WP/petition/Exhibit19.pdf>)

What Elections BC paid for

Instead of using the macro, I was told to provide Frank Ip with the paper table with my guesses as to what the population should be for the PEDs. Mr. Ip then typed in the numbers that I had guessed into the excel spreadsheet. These numbers were given to Elections BC in exchange for \$50,000. Clearly, the model used was useless, and all Mr. O'Neil needed to do was to give me a blank table and tell me to write in the numbers I thought were justifiable. This method of me guessing at what the numbers should be and writing them down so that Mr. Ip can type them into the spreadsheet was used for other projects including the annual population estimates.

Having an employee guess at numbers generated by faulty models was not restricted to BC Stats. The Ministry of Education also used this method which had disastrous results, leading the Ministry of Education to ask BC Stats to take over their work. After many months of trying to figure out how the Ministry of Education did their population numbers, Keith told me that they finally figured out that the numbers were different from the model results because an employee had been asked to adjust the numbers. From my experience with BC Stats, I would not be surprised if BC Stats did not tell the Ministry of Education of the weaknesses in BC Stats methods.

Negative Recognition for Creative Solution

Prior to this incident, I had asked for assistance to find ways to encourage innovation in the work place, since my improvements had been met with hostility including yelling. My requests resulted in me being directed to Carol Gore from Human Resources. At a meeting, October 13, 2005, with Ms. Gore and Ms. McCallum, the BCGEU staff representative, Mr. O'Neil accused me of having a psychological disorder he referred to as "passive aggressive" which, he claimed, made a co-worker feel unsafe. He claimed that my co-workers had tried to work with me, but it didn't work out, and now they all wanted to quit.

After this meeting, I was removed from the contacts list, no longer invited to meetings, refused courses designed to improve harmony, given my co-workers menial tasks, stripped of all responsibility, and refused mediation. I complained to the Director, Mr. McRae, and was told to file a grievance, December 1, 2005.

Mr. McRae concluded that there was no need for a resolution. I asked for the write up of the investigation but was informed... "I asked Mr. McRae if the results of the investigation would be put in writing. He said they would not." Marvin Paxman, Shop Steward.

It was only after being told to go through a grievance procedure (resulting in me being fired and several years of procedural violations by the BCPSA and the BCGEU including a threat by the BCPSA at a preliminary hearing, June 22 2007, that I would be financially responsible for my co-workers suffering if I pursued arbitration,) that I finally received the write up of the investigation through a freedom of information request (October 23, 2009).

The report from the Privacy Office revealed that during the investigation into my grievance of discrimination and harassment (for having been accused of having a mental disorder), Mr. McRae stated, Mr. Munroe made an “overly complex map” which he was told to change but, Mr. McRae said, Mr. Munroe refused. Mr. McRae went on to say that Mr. O’Neil had to make the map himself, and that Mr. O’Neil had to treat Mr. Munroe with “kid gloves”. Raising issues regarding quality of work without including the accused employee is in contravention of the Master Agreement

Conclusion

I contend that BC Stats violated the Minister’s decree, stated in the Ministry Vision and Mission Statement:

“The Ministry plays a leadership role in transforming service delivery to British Columbians. Fulfilling this role depends on a committed and skilled work force operating in a customer-focused, innovative and results-oriented culture.”

Also BC Stats violated it’s own role “to serve the needs of a variety of clients in the public and private sectors for timely and reliable statistical information and analytical services”

The Minister’s of Labour and Citizens’ Services have a right and responsibility to investigate (BC Public Service Act, Section 5 (1) and (4) and (3)(n), thereby including, but not limited to (3)(j) “carrying out research on ... working conditions”; BC Labour Code, Section 3 (1), (a) “... evaluation of the manner in which the legislation is functioning and to identify problems that may have arisen under its provisions” including an investigation into the use of coercion while a grievance is proceeding, in contravention of Section 5 (1).

As well, Elections BC, along with other clients such as BC Hydro and the Ministries of Education and Health, and the Union of BC Municipalities, to name a few, have a right to know how population numbers are created.

It may be helpful for the reader to know that Mr. O’Neil had been a shop steward for many years before being appointed Manager. Mr. O’Neil represented the Union in Article 29 – Joint Committee – meetings regarding the preservation of jobs in the face of improving technology.

Comment

Transitions presents challenges. In this case, results oriented innovative creative solutions were handled in a manner contrary to the Vision and also in a manner violating the procedures set out in the Master Agreement between the BCGEU and the BCPSA.

PS. I kept a copy of the “overly complex” map, and the VB script written by Keith Morris.