Quality

User Guide

2001 Census Public Use Microdata File (PUMF)

Individuals File

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1. INTRODUCTION

In Chapter III of the Public Use Microdata Files (PUMFs) documentation, various ways of computing the coefficient of variation are proposed. One of them is the use the Quality application. This application is an Excel worksheet to which have been added controls such as command buttons, list boxes and text boxes. Consequently, a version of Excel is needed to use the Quality application. Quality measures the sampling error for estimates from Public Use Microdata Files.

The Quality application requires fewer calculations by the user than other methods of computing the coefficient of variation. The user simply selects the desired variables and geographic areas and provides other necessary information. The Quality application takes care of the calculations. The results are displayed in a dialogue box and an Excel worksheet.

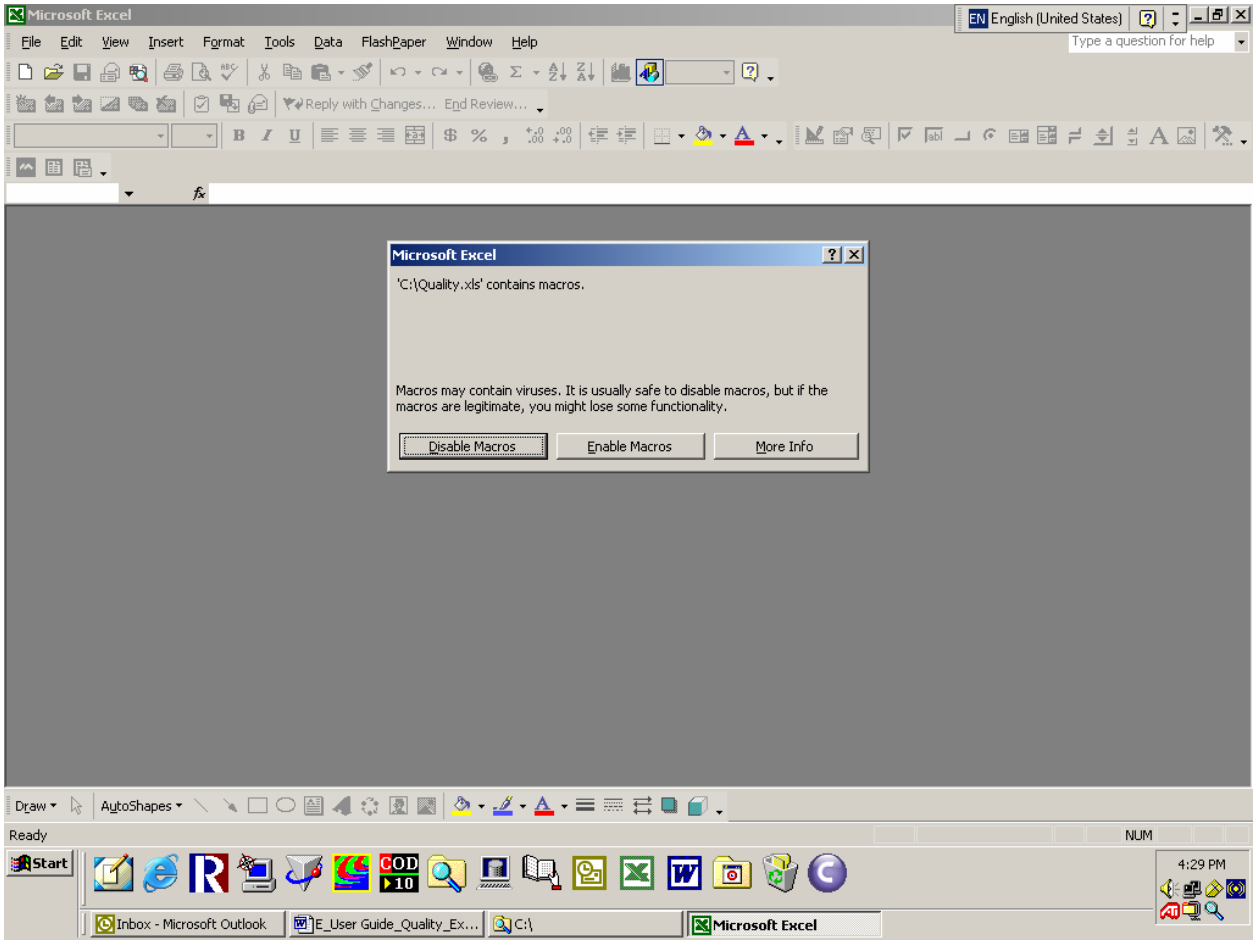
Note that this guide is specifically designed for users of the personal computer (PC) version of the Quality application. Since a Macintosh (Mac) version, very similar to the PC version, is available, this guide also provides directions for Mac users.

It provides step-by-step instructions on how to use the application. It explains how to insert geographic areas and variables and how to save the results. Moreover, Section 7 contains user information on the Mac version of Quality.

The application can only process one estimate at a time. In this guide, we go back to the Example 3 found in Chapter III of the PUMFs documentation. We will find the coefficient of variation associated with the proportion of men 20 to 45 years of age whose legal marital status is “divorced” and who live in the Vancouver census metropolitan area (CMA).

2. OPENING THE APPLICATION

The application is on the CD-ROM, in the “ENGLISH\Excel” directory. Copy the application on your hard disk. To open Quality, double-click the file named “Quality.xls”. Choose the “Enable Macros” option from the dialog box to enable the application’s functions.



3. USING THE APPLICATION

To compute your estimates' coefficient of variation, you will first have to calculate the number of records that meet the characteristics required by the query. If your estimates involve a numerical variable, you will have to compute its mean and standard deviation[1] using a statistical application or a spreadsheet, then insert, in Quality, what geographic areas and variables were used in producing your estimates. Afterwards, the Quality application will take care of the calculations.

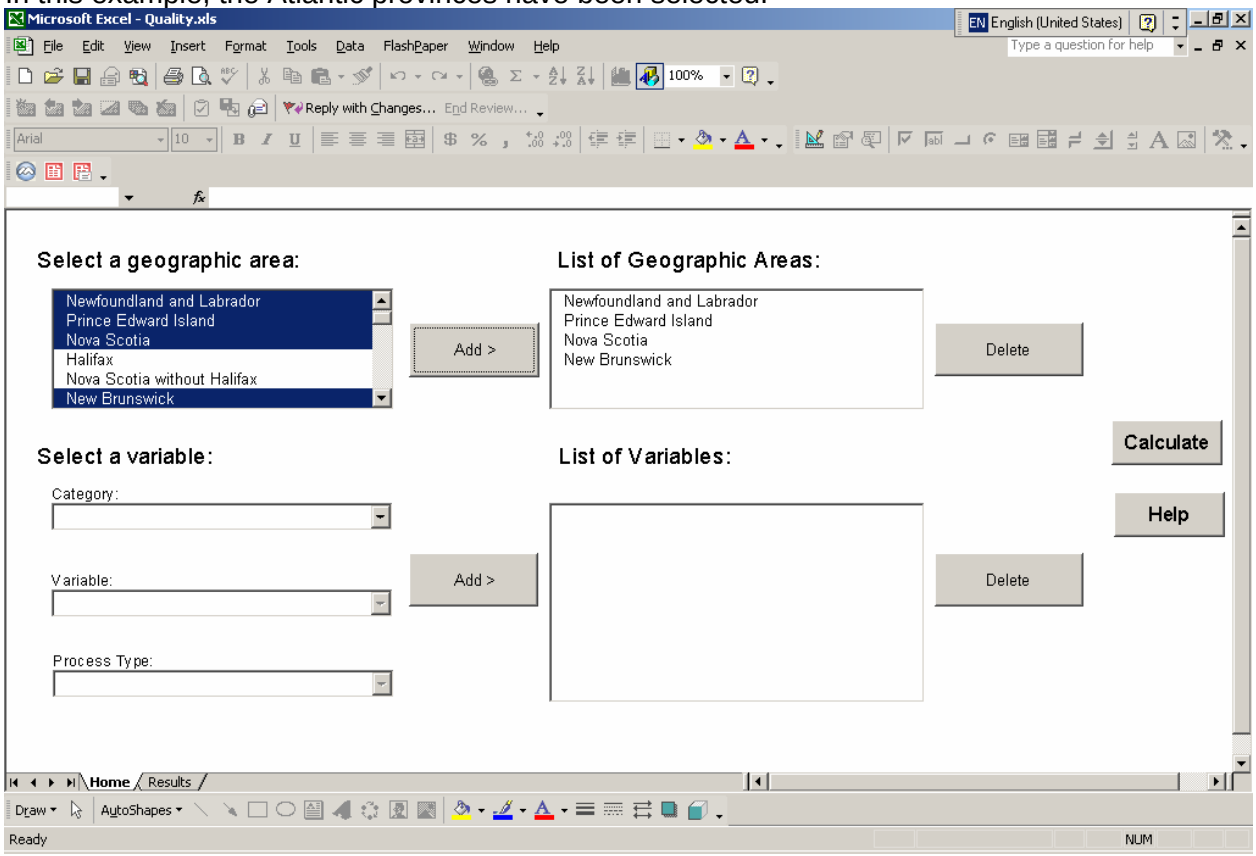
A. Geographic Area

Inserting a geographic area in the list

To insert a geographic area in the "List of Geographic Areas" box, select it in the dropdown list of the "Select a geographic area" box using the mouse or the keyboard. Then click "Add >". The geographic area will appear in the "List of Geographic Areas" box.

It is possible to insert more than one geographic area at a time. Using the mouse, select the first geographic area in the dropdown list of the "Select a geographic area" box. Then, while holding the "Control" key pressed down, select the other desired geographic areas. When all the desired geographic areas are highlighted, click the "Add >" button located at the right of the "Select a geographic area" box.

In this example, the Atlantic provinces have been selected.

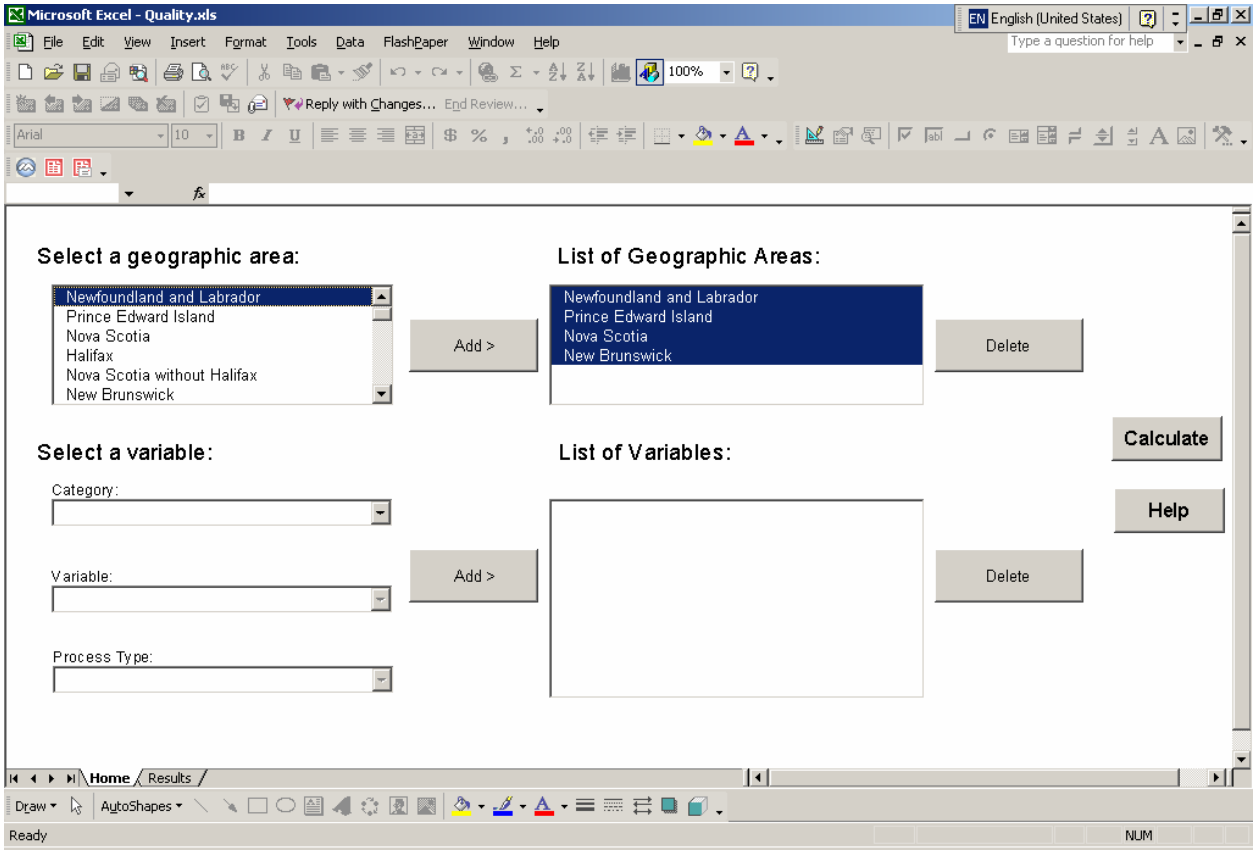


[1] For more information on the mean and standard deviation, see Chapter III of the 2001 Census PUMFs user documentation.

Deleting a geographic area from the list

To delete a geographic area from the “List of Geographic Areas” box, select it in the list using the mouse or the keyboard and click “Delete”. It will then disappear from the “List of Geographic Areas” box.

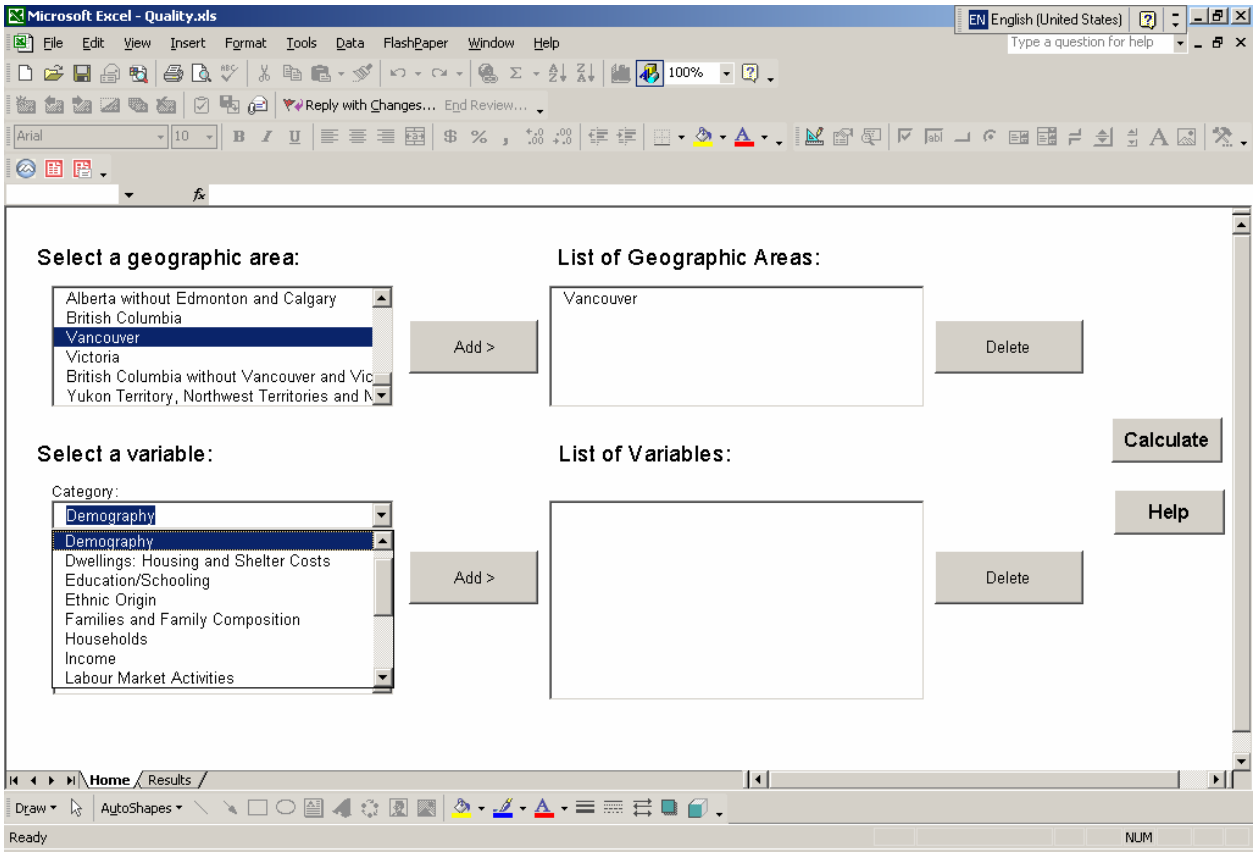
It is possible to delete more than one geographic area at a time. Using the mouse, select the first geographic area to be deleted in the “List of Geographic Areas” box. Then, while holding the “Control” key pressed down, select the other geographic areas to be deleted. When all the geographic areas to be deleted are highlighted, click the “Delete” button located at the right of the “List of Geographic Areas” box.



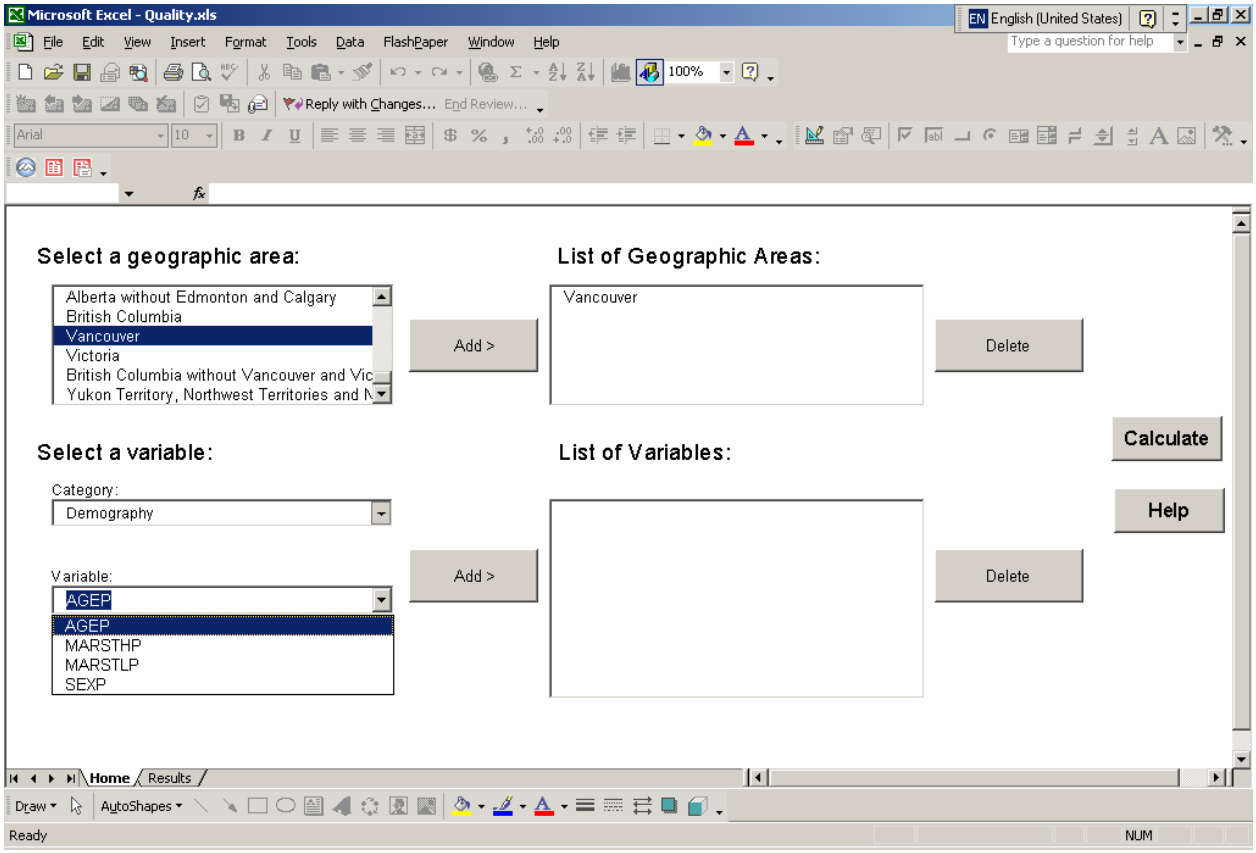
B. Variable

Inserting a variable in the list

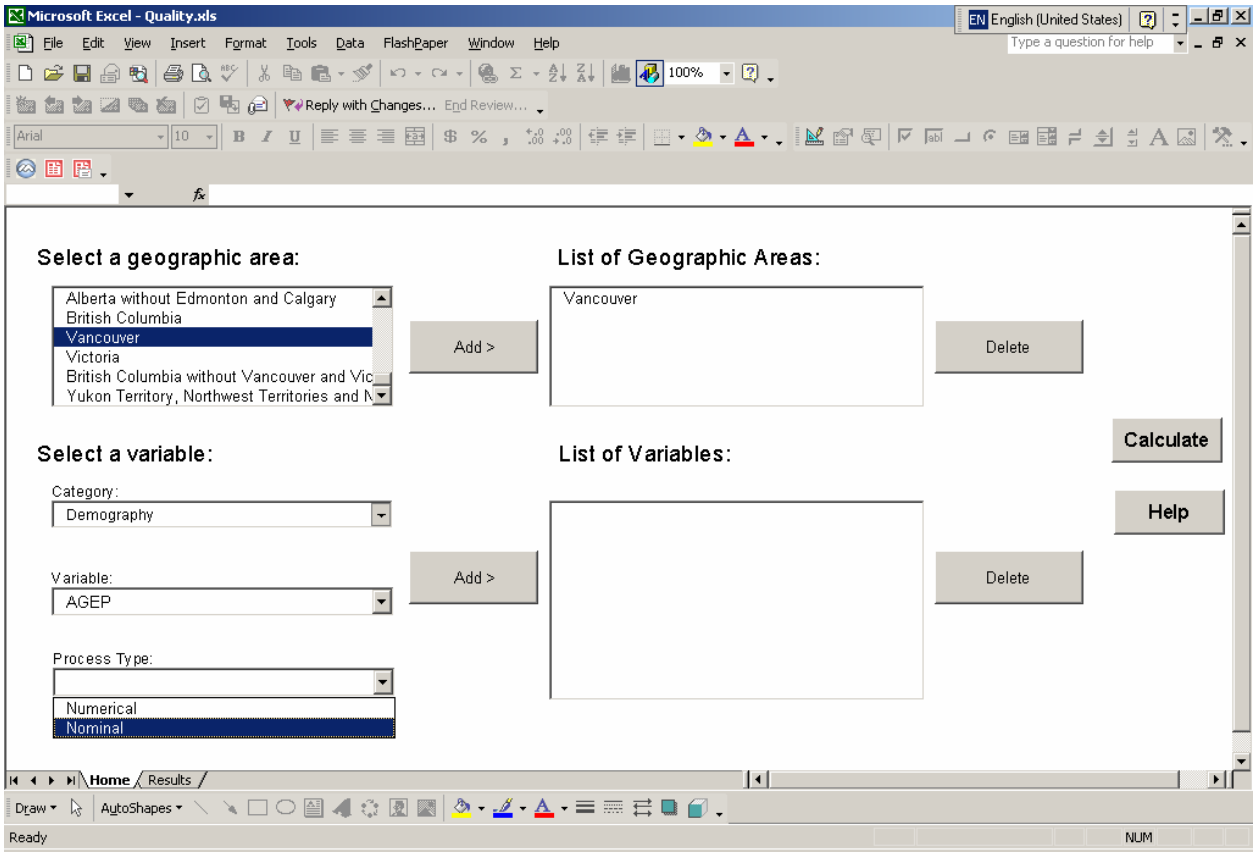
To insert a variable in the “List of Variables” box, first select the variable’s category from the “Category” dropdown list. For example, the “Demography” category was chosen here.



Then select the mnemonic of the desired variable. To illustrate this, we have chosen the age (mnemonic AGEP).



If the variable is numerical, select its process type: either numerical or nominal. The type of treatment depends on the chosen estimate. If it is the mean or another statistic that must be computed using the value of the variable, the numerical process is chosen. In Example 3, the nominal process has been selected because only the records of persons 20 to 45 years of age have been chosen. If the variable is nominal, do not select a process type. The value n/a will be assigned automatically.



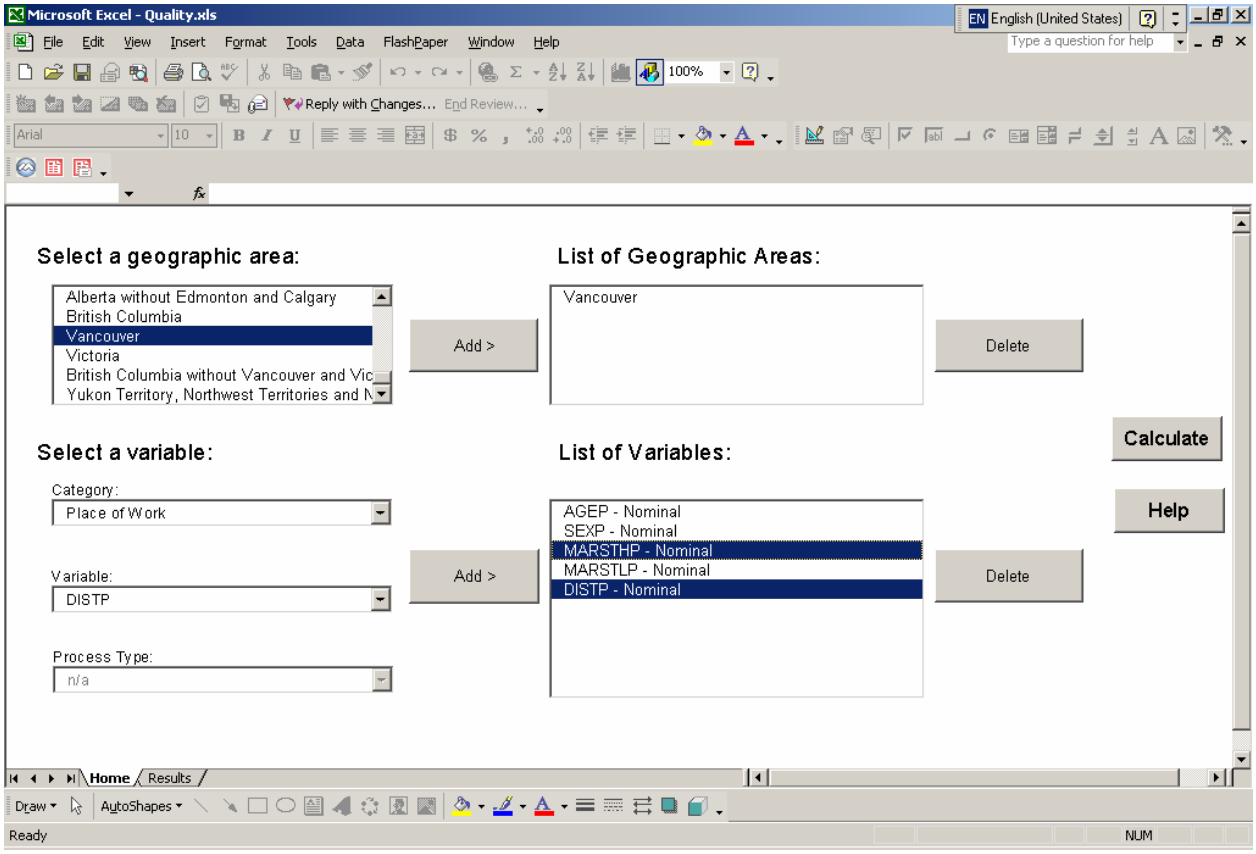
Click “Add >” to add the variable to the list. It will appear in the “List of Variables” box.

Note: Only one numerical variable can be processed as numerical per query. You will have to process the other variables of a query as nominal variables.

Deleting a variable from the list

To delete a variable from the “List of Variables” box, select it in the list using the mouse or the keyboard and click “Delete”. It will then disappear from the “List of Variables” box.

It is possible to delete more than one variable at a time. Using the mouse, select the first variable to be deleted in the “List of Variables” box. Then, while holding the “Control” key pressed down, select the other variables to be deleted. When all the variables to be deleted are highlighted, click the “Delete” button located at the right of the “List of Variables” box.

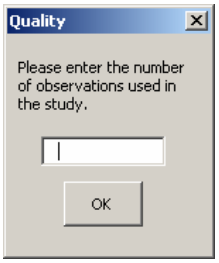


C. Calculations

After selecting the geographic areas and variables, click “Calculate”. Various dialog boxes will appear, depending on the selected variables.

Nominal variables

If you selected only nominal variables or variables treated as nominal variables, enter the number of observations in the text box of the dialog box and click “OK”.

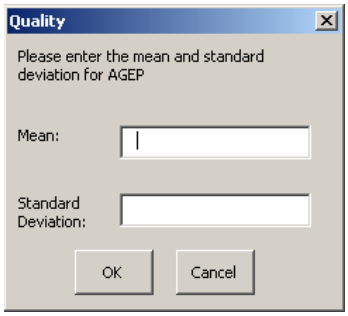


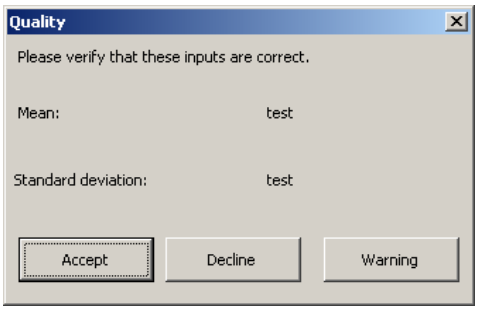
Numerical variables

If you selected a numerical variable, enter its mean in the first text box and its standard deviation in the second box. Click “OK”.

Another dialog box will appear, asking you to verify the mean and standard deviation you entered. Click “Accept” if the inputs are correct. Click “Decline” if the mean and standard deviation are incorrect. The previous dialog box will reappear. You can then make the necessary changes.

Next, enter the number of observations in the text box of the new dialog box and click “OK”.





For Example 3, two queries must be made. First, for the numerator, only the Vancouver CMA must appear in the “List of Geographic Areas” box. Next, only the following mnemonics must be found in the “List of Variables” box:

AGEP – Nominal
SEXP – Nominal
MARSTLP – Nominal

For the number of observations, the number of records of persons 20 to 45 years of age whose legal marital status is “divorced” and who live in the Vancouver CMA is entered, that is, 481.

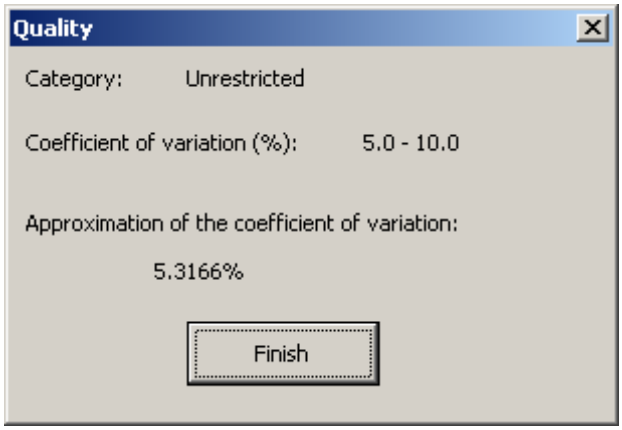
For the denominator, the MARSTLP (legal marital status) variable is deleted, and for the number of observations, the number of records of men 20 to 45 years of age living in the Vancouver CMA is entered, that is, 10,701.

4. RESULTS

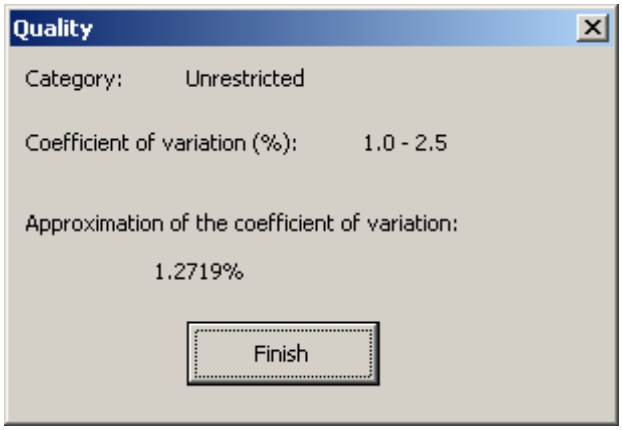
A. Dialogue Box

After the calculation is done, a dialog box will appear with the results. The category, the interval containing the coefficient of variation and an approximation of the coefficient of variation will be displayed. Click “Finish” to return to the “Home” worksheet.

For the numerator, the result is:



For the denominator, the result is:



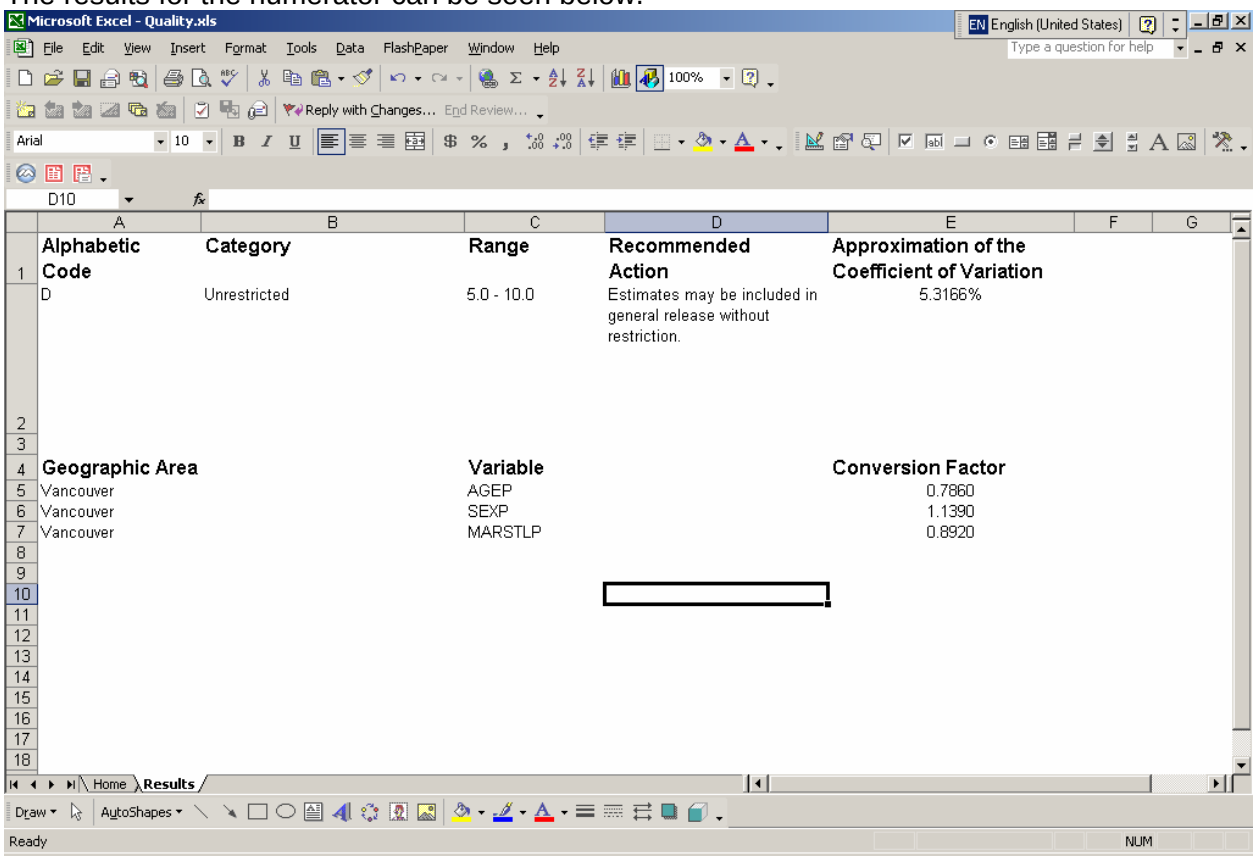
The highest of the two results, that is, the result obtained for the numerator, must be selected.

The Quality application uses the Excel worksheet method. If the results obtained with the Excel worksheet method are compared to those obtained with the Table 1 method, slight differences can be observed.

B. Excel Worksheet

To view the detailed results, select the "Results" tab at the bottom of the screen. The "Results" Excel worksheet will appear. In addition to the results provided in the dialogue box, this worksheet will show the quality factors associated with the selected variables for each geographic area in the "List of Geographic Areas" box. The worksheet also enables you to copy the results of the query to a file.

The results for the numerator can be seen below.



Note: When a variable is degenerate, that is, when all the records have the same value, the conversion factor shown is -1. In Appendix B, the code for a degenerate variable is indicated by the XXX value.

C. Saving Your Results

If you want to save the query results shown on screen, select them with the mouse and copy the selection. Open another Excel workbook, and paste the data into a new worksheet. Save the new workbook. Then select the "Home" tab to run another query.

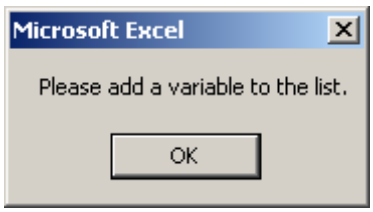
If you run another query before saving the results shown in the "Results" worksheet on the screen, they will be replaced by the results of the new query.

5. ERROR MESSAGES

When you run a query, the following error messages may appear on the screen:

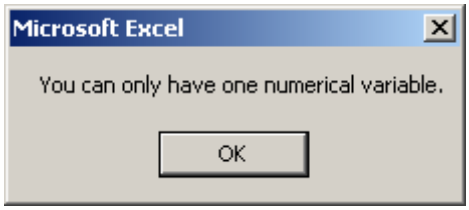
This message appears when you click "Calculate" without entering a geographic area in the "List of Geographic Areas" box. Click "OK" to return to the "Home" worksheet and select a geographic area.

This message appears when you click "Calculate" without entering a variable in the "List of Variables" box. Click "OK" to return to the "Home" worksheet and select the variables of interest.



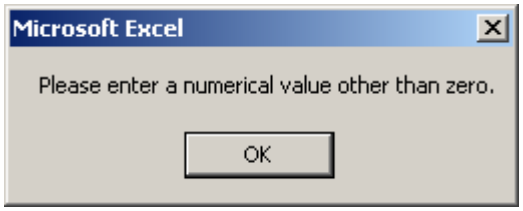
This message appears when you click "Add >" while one or more of the variable fields are still blank. Click "OK" to return to the "Home" worksheet and fill in the blank fields.

This message appears when you select more than one numerical variable and click "Calculate". Click "OK" to return to the "Home" worksheet and delete the excess numerical variables.



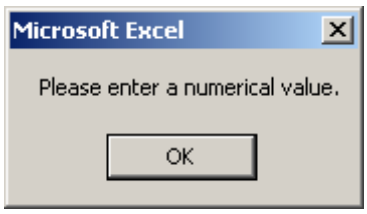
This message appears when you enter non-numerical characters or "0" in the spaces provided for the capture of the mean. Click "OK" to return to the input window and enter the proper value.

Note: Operations (e.g. 124*36) are not considered numerical.

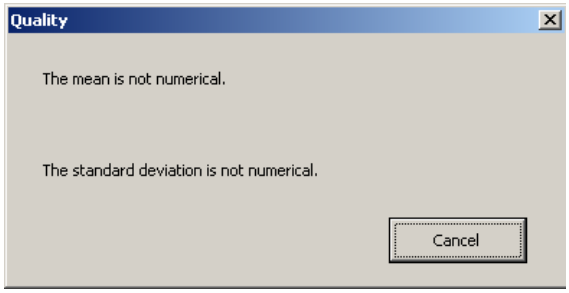


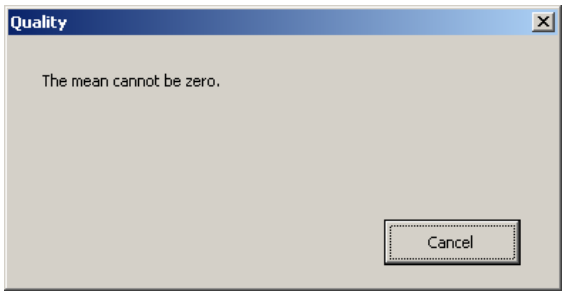
This message appears when you enter non-numerical characters in the spaces provided for the capture of the mean. Click "OK" to return to the input window and enter the proper value.

Note: Operations (e.g. 124*36) are not considered numerical.

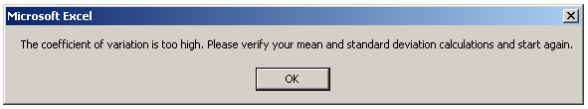


One of these messages appears when you click the active "Warning" button in the mean and standard deviation confirmation window. It means that there are non-numerical characters in the spaces for the mean or the standard deviation or that the mean entered is null. Click "Cancel" to return to the confirmation window. Then click "Decline" and enter the proper data in the window that appears.





This message will appear if the coefficient of variation is greater than 10 (1,000%). Click "OK" to return to the "Home" worksheet and enter the mean and standard deviation values again.



This message will appear if all the variables in the list are degenerate; i.e., each variable has only one value. Click "OK" to return to the "Home" worksheet and add other variables to the list.

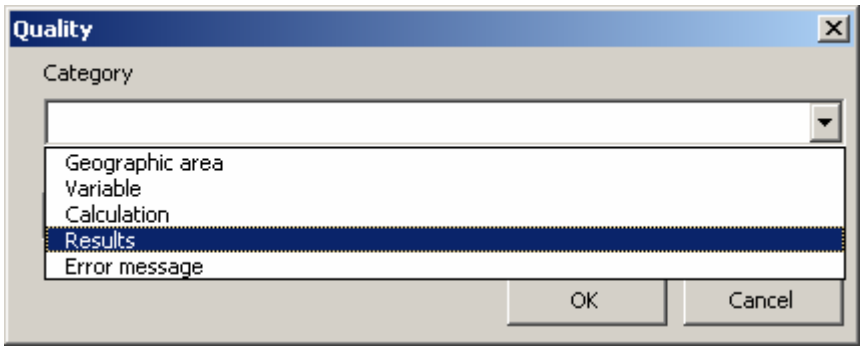
6. HELP

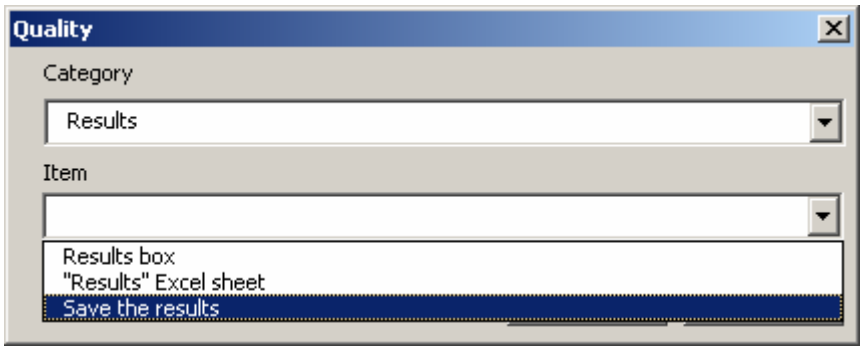
Quality's help function is a quick way to get step-by-step advice on how to use the application. Simply click "Help" and select the subject and item of interest.

When you click "Help" on the "Home" worksheet, a new window will appear. Of the five categories, choose the one that best fits what you are looking for. The "Geographic area" category deals with the selection of geographic areas in the "Home" worksheet. The "Variable" category concerns the selection of variables in the "Home" worksheet. The "Calculation" category relates to the actions required to calculate the coefficient of variation. The "Results" category covers the ways in which the results are presented. The "Error message" category deals with the various errors you may encounter and how to correct them.

After choosing the category, select the item of interest. An item is a more specific help topic. In general, it refers to the action you want to perform. After selecting a category and an item, click "OK".

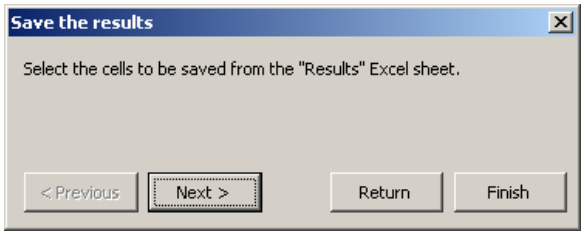
For example, if you want to know how to save your results, first click "Help". Next, select the "Results" category, and choose the "Save the results" item. Then click "OK".

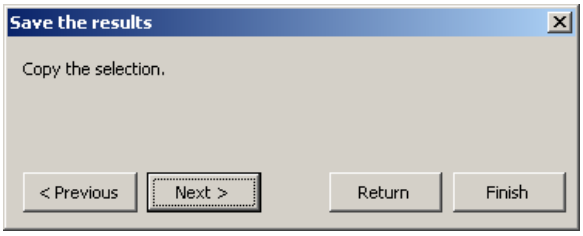


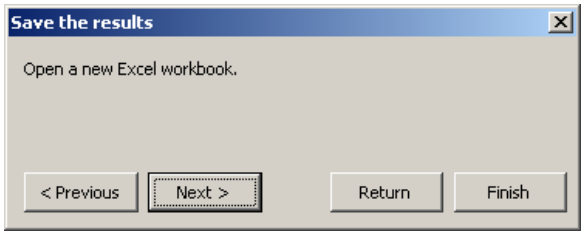


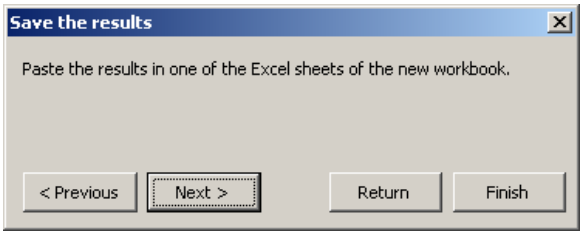
A first dialog box will appear. This first box contains the first of the steps you have to carry out to perform the desired action. Simply click “Next” to go on to the next step. When you complete the desired action, if you want to choose another help item, click “Return”. To return to the “Home” worksheet, click “Finish”.

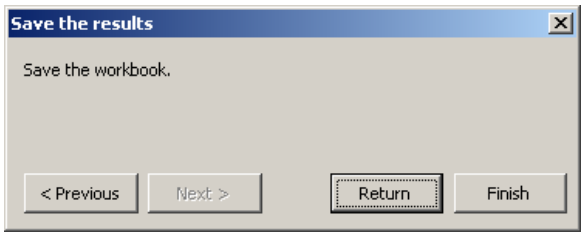
Unfortunately, you cannot access the help function when input windows or error messages are on the screen. Please read the help item carefully and then perform the desired action.











7. MACINTOSH VERSION OF QUALITY

A Mac version of Quality is also available to users of Excel for Mac. The graphical interface of the Mac version of Quality is somewhat different from the PC version, as the buttons and controls appear on a form rather than on an Excel worksheet. However, it works in essentially the same way.

To launch the application, enable the macros. Then select the geographic areas and variables as described in Sections 3A and 3B, and click “Calculate”. Enter the data needed for the calculation, as described in Section 3C. The results will appear in a window. To view the detailed results in the “Results” worksheet, click “Finish”. The main form will close, and you will have access to the “Results” worksheet. The method of saving the results is the same as the one for the PC version of Quality (described in Section 4C). If you want to go back to the main form, click the “Quality” button in the upper left corner of the “Results” worksheet.