

Finding patterns in Statistics Canada crime data tutorial

Crime is perhaps the most written-about topic in most newsrooms.

Though the beat system has largely disappeared due to staff cuts and a move towards the use of generalists, newsrooms STILL tend to cover certain issues, if not with specialists, then folks who may count the area as ONE of their specialties. Everyone, it seems, covers crime.

It is for this reason, the Statistics Canada's crime databases provide an invaluable resource for journalists on deadline and looking for longer-term projects. And it's the reason that I've stressed using it for the first assignment.

When reporting on crime, it's best to use rates, as they measure the frequency with which offences occur for, say, every 100,000 people, which is the multiplier that police forces and StatsCan use. Rates also allow for comparisons between jurisdictions of various sizes. You can compare Ottawa to the much larger Toronto. You can see how Ottawa stacks against Ontario's rate, or Canada's. Using this methodology, we can quickly determine which cities have the highest homicide rates, leading to stories about the most dangerous places to live. We can do the same for provinces, and countries for that matter. Rates level the statistical playing field.

For more about rates, please consult, or re-visit, the [tutorial](#) that delves into this all-important topic for journalists.

In this tutorial, we will use filtering and sorting to come up with ideas that could lead to stories.

We'll use human trafficking data, in large part because the result is surprising.

So let's get started:

- 1) Go to Statistics Canada's "Incident-based crime statistics, by detailed violations": <http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=2520051>
- 2) Select the "Add/Remove data" tab which will allow for a deeper dive into the data.

3) You'll find six steps that will allow you to filter the dataset for the information that you want.

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Table 252-0051 [1](#), [2](#), [3](#), [54](#)

Incident-based crime statistics, by detailed violations
annual (number unless otherwise noted)

Data table [Add/Remove data](#) Manipulate Download Related information Help

Select the specific items from each step to create your customized CANSIM table.

Step 1- Select: Geography [3](#), [47](#)
(48 of 48 items selected)

Use the following checkboxes to select/deselect items from the list below: [+ Expand](#) ^

- All
- Canada [50](#)
 - Newfoundland and Labrador
 - St. John's, Newfoundland and Labrador [4](#)
 - Prince Edward Island [51](#)

Step 2- Select: Violations
(1 of 255 items selected)

Use the following checkboxes to select/deselect items from the list below: [+ Expand](#) ^

- All
- Total, all violations [0]
 - Total, all Criminal Code violations (including traffic) [25]
 - Total, all Criminal Code violations (excluding traffic) [50]
 - Total violent Criminal Code violations [1,001] [16](#)

4) Expand the Step 1 Geography section to obtain a full list of jurisdictions.

Use the following checkboxes to select/deselect items from the list below: [- Collapse](#)

- All
- Canada ⁵⁰
 - Newfoundland and Labrador
 - St. John's, Newfoundland and Labrador ⁴
 - Prince Edward Island ⁵¹
 - Nova Scotia
 - Halifax, Nova Scotia
 - New Brunswick
 - Moncton, New Brunswick ^{8, 58}
 - Saint John, New Brunswick ^{4, 47, 58}
 - Quebec ^{50, 62}
 - Saguenay, Quebec ^{5, 55}
 - Québec, Quebec
 - Sherbrooke, Quebec ^{32, 37}
 - Trois-Rivières, Quebec
 - Montréal, Quebec ^{38, 50, 53}
 - Ottawa-Gatineau, Quebec part ^{6, 61}
 - Ontario ^{7, 67}
 - Ottawa-Gatineau, Ontario/Quebec ^{6, 52, 61, 68}
 - Ottawa-Gatineau, Ontario part ^{6, 52, 68}
 - Kingston, Ontario ⁸
 - Peterborough, Ontario ⁸
 - Toronto, Ontario ³³
 - Hamilton, Ontario ³³
 - St. Catharines-Niagara, Ontario
 - Kitchener-Cambridge-Waterloo, Ontario
 - Brantford, Ontario ⁸
 - Guelph, Ontario ⁸
 - London, Ontario
 - Windsor, Ontario
 - Barrie, Ontario ⁸
 - Sudburv. Ontario ⁶⁰

5) Canada is the main category, followed by the provinces and territories, and the cities. The geography categories allow you to drill down by jurisdictions, allowing for comparisons between cities, cities to provinces, or cities to Canada.

6) De-select all the categories by clicking on the radio box to the left of “Canada”.

Use the following checkboxes to select/deselect items from the list below:

- All
- Canada [50](#)
 - Newfoundland and Labrador
 - St. John's, Newfoundland and Labrador [4](#)
 - Prince Edward Island [51](#)
 - Nova Scotia
 - Halifax, Nova Scotia
 - New Brunswick
 - Moncton, New Brunswick [8](#), [58](#)
 - Saint John, New Brunswick [4](#), [47](#), [58](#)
 - Quebec [50](#), [62](#)
 - Saguenay, Quebec [5](#), [55](#)
 - Québec, Quebec
 - Sherbrooke, Quebec [32](#), [37](#)
 - Trois-Rivières, Quebec
 - Montréal, Quebec [38](#), [50](#), [53](#)
 - Ottawa-Gatineau, Quebec part [6](#), [61](#)
 - Ontario [7](#), [67](#)
 - Ottawa-Gatineau, Ontario/Quebec [6](#), [52](#), [61](#), [68](#)
 - Ottawa-Gatineau, Ontario part [6](#), [52](#), [68](#)
 - Kingston, Ontario [8](#)
 - Peterborough, Ontario [8](#)
 - Toronto, Ontario [33](#)
 - Hamilton, Ontario [33](#)
 - St.Catharines-Niagara, Ontario
 - Kitchener-Cambridge-Waterloo, Ontario
 - Brantford, Ontario [8](#)
 - Guelph, Ontario [8](#)

7) Select Canada, Ontario, and “Ottawa-Gatineau, Ontario part” and “Toronto”.

Use the following checkboxes to select/deselect items from the list below:

- All**
- Canada** [50](#)
 - Newfoundland and Labrador
 - St. John's, Newfoundland and Labrador [4](#)
 - Prince Edward Island [51](#)
 - Nova Scotia
 - Halifax, Nova Scotia
 - New Brunswick
 - Moncton, New Brunswick [8, 58](#)
 - Saint John, New Brunswick [4, 47, 58](#)
 - Quebec [50, 62](#)
 - Saguenay, Quebec [5, 55](#)
 - Québec, Quebec
 - Sherbrooke, Quebec [32, 37](#)
 - Trois-Rivières, Quebec
 - Montréal, Quebec [38, 50, 53](#)
 - Ottawa-Gatineau, Quebec part [6, 61](#)
 - Ontario** [7, 67](#)
 - Ottawa-Gatineau, Ontario/Quebec [6, 52, 61, 68](#)
 - Ottawa-Gatineau, Ontario part** [6, 52, 68](#)
 - Kingston, Ontario [8](#)
 - Peterborough, Ontario [8](#)
 - Toronto, Ontario** [33](#)
 - Hamilton, Ontario [33](#)
 - St. Catharines-Niagara, Ontario

8) Expand the Step 2 Violations section to obtain the full list of violations.

Step 2- Select: Violations

(1 of 255 items selected)

Use the following checkboxes to select/deselect items from the list below: [- Collapse](#)

- All
- Total, all violations [0]
 - Total, all Criminal Code violations (including traffic) [25]
 - Total, all Criminal Code violations (excluding traffic) [50]
 - Total violent Criminal Code violations [100] ¹⁶
 - Homicide [110] ^{17, 24}
 - Murder, first degree [1110] ^{17, 24}
 - Murder, second degree [1120] ^{17, 24}
 - Manslaughter [1130] ^{17, 24}
 - Infanticide [1140] ^{17, 24}
 - Total other violations causing death [120]
 - Criminal negligence causing death [1150]
 - Other related violations causing death [1160]
 - Attempted murder [1210]
 - Sexual assault, level 3, aggravated [1310]
 - Sexual assault, level 2, weapon or bodily harm [1320]
 - Sexual assault, level 1 [1330]
 - Total sexual violations against children [130] ^{26, 70, 73}
 - Sexual interference [1345] ^{26, 70}
 - Invitation to sexual touching [1350] ^{26, 70}
 - Sexual exploitation [1355] ^{26, 70}
 - Making sexually explicit material available to children [1367] ^{48, 70}
 - Parent or guardian procuring sexual activity: person procured under the age of 16 years [3165] ⁷⁷ (Terminated)
 - Parent or guardian procuring sexual activity [1368] ^{64, 70}
 - Householder permitting illegal sexual activity: person under the age of 16 years [3167] ⁷⁷ (Terminated)
 - Householder permitting prohibited sexual activity [1369] ^{64, 70}
 - Luring a child via a computer [1370] ^{26, 70}
 - Assault, level 3, aggravated [1410]
 - Assault, level 2, weapon or bodily harm [1420]

9) Select “Trafficking in persons”

- Conspiracy to commit murder [1220]
- Other sexual violations [1340]
- Sexual Exploitation of a person with a disability [1356]
- Incest [1360]
- Corrupting morals of a child [1365]
- Anal intercourse [1375]
- Bestiality, commit or compel person [1380]
- Voyeurism [1385]
- Nonconsensual distribution of intimate images [1390] ⁷⁵
- Trap likely to or causing bodily harm [1475]
- Hostage taking [1520]
- Trafficking in persons [1525]
- Intimidation of a justice system participant or a journalist [1621]
- Intimidation of a non-justice participant [1622]
- Explosives causing death or bodily harm [1628]
- Arson, disregard for human life [1629]
- Other violent violations [1630]

- 10) Expand “Step 3 Statistics”, de-select all the categories, then select “Rate per 100,000”.

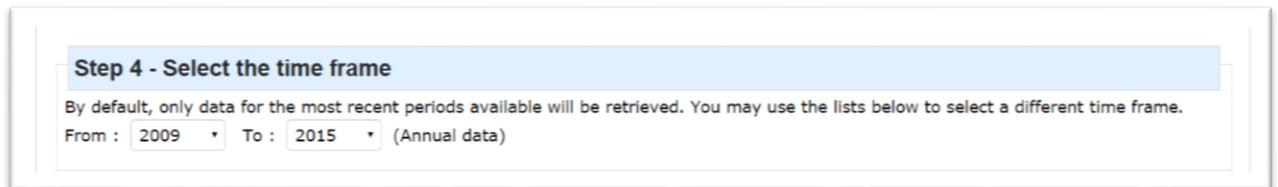


Step 3- Select: Statistics
(14 of 14 items selected)

Use the following checkboxes to select/deselect items from the list below: [- Collapse](#)

- All
- Actual incidents
- Rate per 100,000 population
- Percentage change in rate ⁴⁴
- Total cleared
 - Cleared by charge
 - Cleared otherwise
- Total, persons charged ²³
- Rate, total persons charged per 100,000 population aged 12 years and over ³¹
- Total, adult charged
- Rate, adult charged per 100,000 population aged 18 years and over ³¹
- Total, youth charged ^{39, 40}
- Rate, youth charged per 100,000 population aged 12 to 17 years ³¹
- Total, youth not charged ^{39, 40}
- Rate, youth not charged per 100,000 population aged 12 to 17 years ³¹

- 11) In “Step 4 Select the time frame,” click on the small black arrows to obtain the drop-down menu for the years and choose from 2009 to 2015.



Step 4 - Select the time frame

By default, only data for the most recent periods available will be retrieved. You may use the lists below to select a different time frame.

From : 2009 To : 2015 (Annual data)

- 12) If you're happy with your selections, click the "Apply" tab in "Step 6" to see what your table will look like.

Table 252-0051 [1](#), [2](#), [3](#), [54](#)
Incident-based crime statistics, by detailed violations
 annual

[Data table](#) [Add/Remove data](#) [Manipulate](#) [Download](#) [Related information](#) [Help](#)

The data below is a part of CANSIM table 252-0051. Use the [Add/Remove data](#) tab to customize your table.

Selected items [\[Add/Remove data\]](#)

Statistics = Rate per 100,000 population (rate)

Geography ^{3, 47}	Violations	2009	2010	2011	2012	2013	2014	2015
Canada ⁵⁰	Total, all violations [0]	7,281.47	6,996.36	6,627.06	6,458.60	5,969.98	5,775.78	5,888.19
	Trafficking in persons [1525]	0.12	0.07	0.17	0.17	0.22	0.40	0.59
Ontario ^{7, 67}	Total, all violations [0]	5,310.02	5,073.39	4,796.40	4,612.28	4,183.68	4,003.38	3,990.64
	Trafficking in persons [1525]	0.19	0.08	0.20	0.31	0.37	0.71	1.04
Ottawa-Gatineau, Ontario part ^{6, 52, 68}	Total, all violations [0]	5,069.50	4,788.61	4,621.50	4,590.90	4,023.85	3,692.22	3,617.12
	Trafficking in persons [1525]	0.00	0.11	0.42	0.73	1.23	2.33	5.92
Toronto, Ontario ³³	Total, all violations [0]	4,284.50	4,060.66	3,888.83	3,624.22	3,348.98	3,247.85	3,290.00
	Trafficking in persons [1525]	0.27	0.12	0.31	0.39	0.39	0.62	0.66

Footnotes: [Back to original table](#)

- 13) If you're satisfied, select the "Download" tab above the table to produce two options.

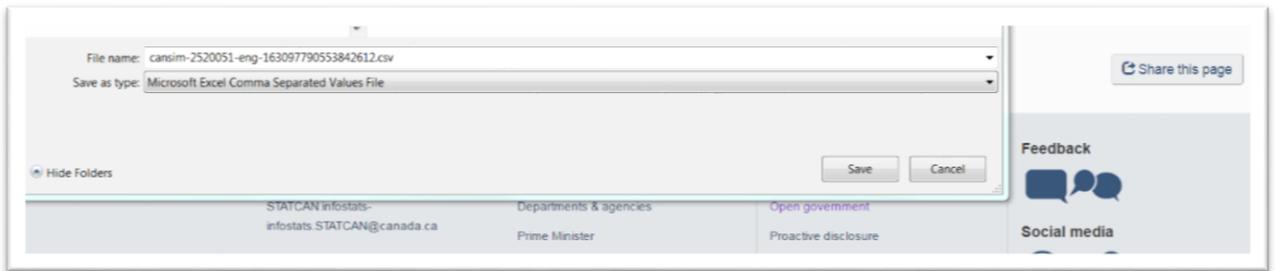
The screenshot shows a web interface for downloading data. At the top, there are tabs: "Data table", "Add/Remove data", "Manipulate", "Download" (highlighted), "Related information", and "Help". Below the tabs, it says "Select an option to download data in the desired format." There are two main options:

- Option 1 - Download data as displayed in the Data table tab**
 - Select the language: English
 - Select the data output format type: time as columns
 - Select the file format: CSV (comma-separated values) English spreadsheet
 - Series details: normal retrieval (selected), vector identifier, plus coordinate, plus data
 - Download data button
- Option 2 - Download entire table**
 - Select the file format: CSV (comma-separated values) English spreadsheet (13.1 mb) (Files modified on 2016-07-20)
 - Download entire table button

- 14) Since we don't want to download the entire table – in large part because it's too big for Excel, but not for MySQL which we'll learn in subsequent tutorials – chose "download data" tab under "Option 1".

The screenshot shows the "Alternative format - CSV document" page on the Statistics Canada website. The page header includes the Statistics Canada logo and a search bar. The main content area has a heading "Alternative format - CSV document" and a red-bordered box containing the text: "The following document is available for downloading or viewing:" followed by a bullet point: "Download file from CANSIM (CSV Version, 7.196kb)". Below this, it says "If you do not have a software that converts Comma-separated value (CSV) or semicolon-separated value (SCSV) file formats, download the following viewer:" followed by a bullet point: "Excel viewer". At the bottom, there is a "Date modified: 2016-09-15" and buttons for "Contact us" and "Share this page".

- 15) Select the “Download file from CANSIM (CSV Version 7.196kb)” link.



- 16) Browse to the location on your hard drive where you want to keep the Cansim table, and give it an understandable label, something like “Human Trafficking Violation_ cansim-252-0051.csv. Notice that we want to keep the numerical reference to the Cansim table -- 252-0051 – that contains the crime data.

- 17) Open the table and adjust the column widths.

	Violations	Statistics	2009	2010	2011	2012	2013	2014	2015
Canada (50)	Total, all violations [0]	Rate per 100,000 population	7281.47	6996.36	6627.06	6458.6	5969.98	5775.78	5888.19
Canada (50)	Trafficking in persons [1525]	Rate per 100,000 population	0.12	0.07	0.17	0.17	0.22	0.4	0.59
Ontario (7,67)	Total, all violations [0]	Rate per 100,000 population	5310.02	5073.39	4796.4	4612.28	4183.68	4003.38	3990.64
Ontario (7,67)	Trafficking in persons [1525]	Rate per 100,000 population	0.19	0.08	0.2	0.31	0.37	0.71	1.04
Ottawa-Gatineau, Ontario part (6,52,68)	Total, all violations [0]	Rate per 100,000 population	5069.5	4788.61	4621.5	4590.9	4023.85	3692.22	3617.12
Ottawa-Gatineau, Ontario part (6,52,68)	Trafficking in persons [1525]	Rate per 100,000 population	0	0.11	0.42	0.73	1.23	2.33	5.92
Toronto, Ontario (33)	Total, all violations [0]	Rate per 100,000 population	4284.5	4060.66	3888.83	3624.22	3348.98	3247.85	3290
Toronto, Ontario (33)	Trafficking in persons [1525]	Rate per 100,000 population	0.27	0.12	0.31	0.39	0.39	0.62	0.66

- 18) You’ll notice that the table looks like the one we saw on the website; the name of the table and Cansim number at the top, the jurisdictions in the first column, the foot notes underneath the table.

- 19) Paste the website’s URL in B2, the first available cell in the first row.

- 20) Save the csv file.

- 21) Because this is a csv file, it only supports one worksheet. We may want copy and paste version of this table on successive worksheets.

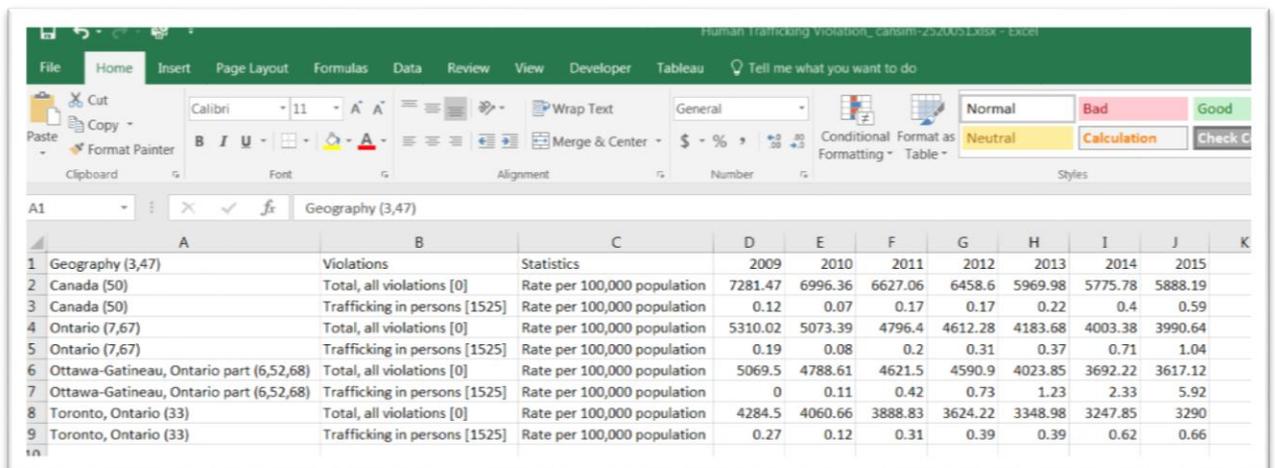
22) So let's save this table as an Excel file.



23) Now it's time for a bit of clean up. Select the table in your Excel file.

Geography (3,47)	Violations	Statistics	2009	2010	2011	2012	2013	2014	2015
Canada (50)	Total, all violations [0]	Rate per 100,000 population	7281.47	6996.36	6627.06	6458.6	5969.98	5775.78	5888.19
Canada (50)	Trafficking in persons [1525]	Rate per 100,000 population	0.12	0.07	0.17	0.17	0.22	0.4	0.59
Ontario (7,67)	Total, all violations [0]	Rate per 100,000 population	5310.02	5073.39	4796.4	4612.28	4183.68	4003.38	3990.64
Ontario (7,67)	Trafficking in persons [1525]	Rate per 100,000 population	0.19	0.08	0.2	0.31	0.37	0.71	1.04
Ottawa-Gatineau, Ontario part (6,52,68)	Total, all violations [0]	Rate per 100,000 population	5069.5	4788.61	4621.5	4590.9	4023.85	3692.22	3617.12
Ottawa-Gatineau, Ontario part (6,52,68)	Trafficking in persons [1525]	Rate per 100,000 population	0	0.11	0.42	0.73	1.23	2.33	5.92
Toronto, Ontario (33)	Total, all violations [0]	Rate per 100,000 population	4284.5	4060.66	3888.83	3624.22	3348.98	3247.85	3290
Toronto, Ontario (33)	Trafficking in persons [1525]	Rate per 100,000 population	0.27	0.12	0.31	0.39	0.39	0.62	0.66

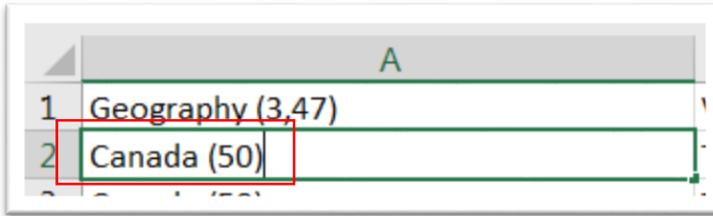
24) Copy and paste it into a new worksheet, and adjust the column widths.



25) Name the worksheet something like "HumanTrafficking1". You'll notice that we have no spaces between the words in our label. There are two reasons for this: space is limited on the tabs; and database naming conventions for titles dictate that spaces not be used. In this instance, we could have also used an underscore to join the words.

26) Because we'll want to visualize our results, it's best to rid the labels of the numbers beside them.

27) You can do this, by double-clicking inside the cells, which you can now treat as mini-documents.



	A	B	C	D	E	F	G	H	I	J	K
1	Geography	Violations	Statistics	2009	2010	2011	2012	2013	2014	2015	
2	Canada	Total, all violations	Rate per 100,000 population	7281.47	6996.36	6627.06	6458.6	5969.98	5775.78	5888.19	
3	Canada	Trafficking in persons	Rate per 100,000 population	0.12	0.07	0.17	0.17	0.22	0.4	0.59	
4	Ontario	Total, all violations	Rate per 100,000 population	5310.02	5073.39	4796.4	4612.28	4183.68	4003.38	3990.64	
5	Ontario	Trafficking in persons	Rate per 100,000 population	0.19	0.08	0.2	0.31	0.37	0.71	1.04	
6	Ottawa-Gatineau, Ontario part	Total, all violations	Rate per 100,000 population	5069.5	4788.61	4621.5	4590.9	4023.85	3692.22	3617.12	
7	Ottawa-Gatineau, Ontario part	Trafficking in persons	Rate per 100,000 population	0	0.11	0.42	0.73	1.23	2.33	5.92	
8	Toronto, Ontario	Total, all violations	Rate per 100,000 population	4284.5	4060.66	3888.83	3624.22	3348.98	3247.85	3290	
9	Toronto, Ontario	Trafficking in persons	Rate per 100,000 population	0.27	0.12	0.31	0.39	0.39	0.62	0.66	
10											

28) That's better.

29) Apply the filter, and select the "Trafficking in persons" in column B.

	A	B	C	D	E	F	G	H	I	J
1	Geography	Violations	Statistics	2009	2010	2011	2012	2013	2014	2015
3	Canada	Trafficking in persons	Rate per 100,000 population	0.12	0.07	0.17	0.17	0.22	0.4	0.59
5	Ontario	Trafficking in persons	Rate per 100,000 population	0.19	0.08	0.2	0.31	0.37	0.71	1.04
7	Ottawa-Gatineau, Ontario part	Trafficking in persons	Rate per 100,000 population	0	0.11	0.42	0.73	1.23	2.33	5.92
9	Toronto, Ontario	Trafficking in persons	Rate per 100,000 population	0.27	0.12	0.31	0.39	0.39	0.62	0.66

30) These is what we want: the trafficking in persons rates for Ottawa, Toronto, Ontario and Canada. Copy this table and paste it into a new worksheet, which you should name.

31) Now we're looking for patterns.

32) First, let's determine the increase over time. The numbers for 2009 look pretty small. In fact, for Ottawa the rate was zero. Without conducting an interviews, it's hard to know why the numbers are so low. It could be, for instance, that the police forces had few resources to combat this crime,

36) Hit enter, format the cell as a percent with one decimal place...

The screenshot shows the Microsoft Excel interface with the following data in the spreadsheet:

	H	I	J	K	L	M	N	O	P
12	2013	2014	2015	Percent_Change_2011-2015					
17	0.22	0.4	0.59	2.470588235					
31	0.37	0.71	1.04						
73	1.23	2.33	5.92						
39	0.39	0.62	0.66						

The 'Format Cells' dialog box is open, showing the 'Number' tab. The 'Category' list includes: General, Number, Currency, Accounting, Date, Time, **Percentage**, Fraction, Scientific, Text, Special, and Custom. The 'Sample' field displays '247.1%' and the 'Decimal places' field is set to '1'. The dialog box also includes the following text: 'Percentage formats multiply the cell value by 100 and displays the result with a percent symbol.' and buttons for 'OK' and 'Cancel'.

37) ... and copy the formula to the bottom of the table.

	A	B	C	D	E	F	G	H	I	J	K	L
1	Geography	Violations	Statistics	2009	2010	2011	2012	2013	2014	2015	Percent_Change_2011-2015	
2	Canada	Trafficking in persons	Rate per 100,000 population	0.12	0.07	0.17	0.17	0.22	0.4	0.59		247.1%
3	Ontario	Trafficking in persons	Rate per 100,000 population	0.19	0.08	0.2	0.31	0.37	0.71	1.04		420.0%
4	Ottawa-Gatineau, Ontario part	Trafficking in persons	Rate per 100,000 population	0	0.11	0.42	0.73	1.23	2.33	5.92		1309.5%
5	Toronto, Ontario	Trafficking in persons	Rate per 100,000 population	0.27	0.12	0.31	0.39	0.39	0.62	0.66		112.9%

38) The percentages are impressive, but because the numbers are so small, percent increases may not be our best angle. At best we can say that the arrest rates are increasing.

39) It may be more newsworthy to compare Ottawa's to that of Toronto, Ontario and Canada.

40) To do this, we can sort the 2015 figures in descending order.

	A	B	C	D	E	F	G	H	I	J	K	L
1	Geography	Violations	Statistics	2009	2010	2011	2012	2013	2014	2015	Percent_Change_2011-2015	
2	Ottawa-Gatineau, Ontario part	Trafficking in persons	Rate per 100,000 population	0	0.11	0.42	0.73	1.23	2.33	5.92		1309.5%
3	Ontario	Trafficking in persons	Rate per 100,000 population	0.19	0.08	0.2	0.31	0.37	0.71	1.04		420.0%
4	Toronto, Ontario	Trafficking in persons	Rate per 100,000 population	0.27	0.12	0.31	0.39	0.39	0.62	0.66		112.9%
5	Canada	Trafficking in persons	Rate per 100,000 population	0.12	0.07	0.17	0.17	0.22	0.4	0.59		247.1%

41) Interesting. Ottawa has the highest rate.

42) There could be many reasons for this. So now it's time to begin asking questions and conducting interviews.

43) You've successfully used this dataset as a great tip sheet.