

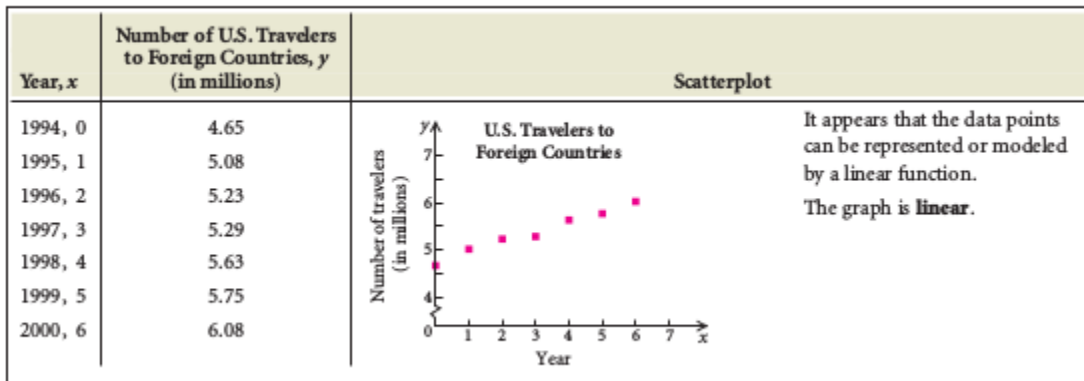
Computer lab 2:

Pre-lab exercise on scatter-plots & drawing conclusions.

9-Dec-2014

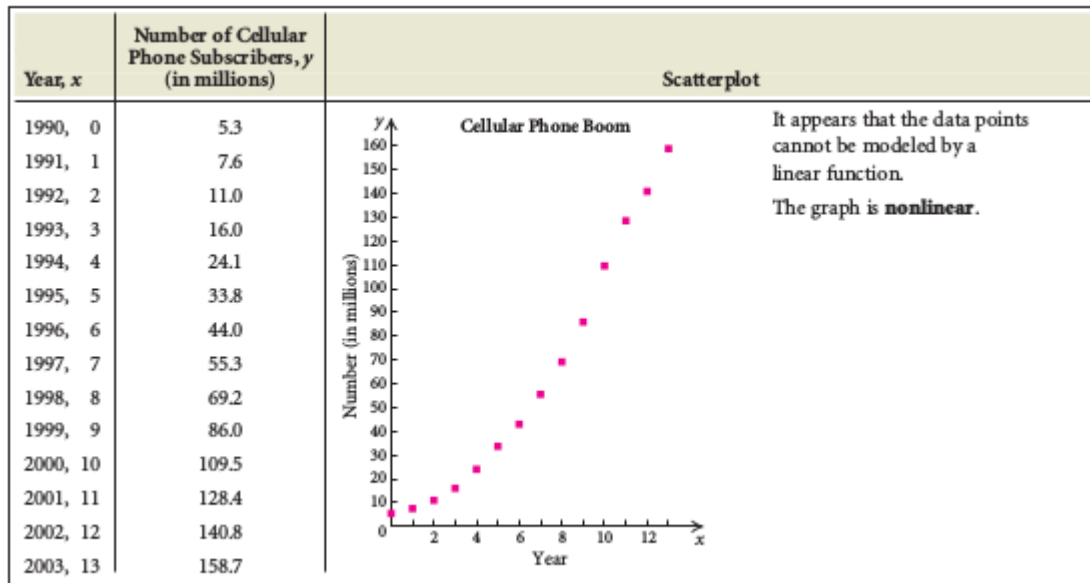
Section 1-4 of the text book offers numerous examples of scatter-plots. But every example is a plot of some quantity as a function of time.

Number of U.S. Travelers to Foreign Countries



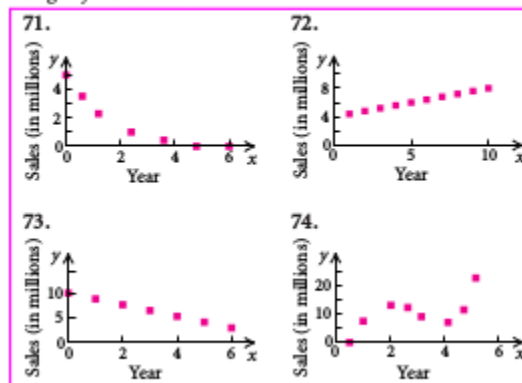
Sources: U.S. Department of Commerce; International Trade Administration; Tourism Industries

Number of Cellular Phone Subscribers



Source: Cellular Telecommunications & Internet Association

In Exercises 71–74, determine whether a linear model might fit the data.



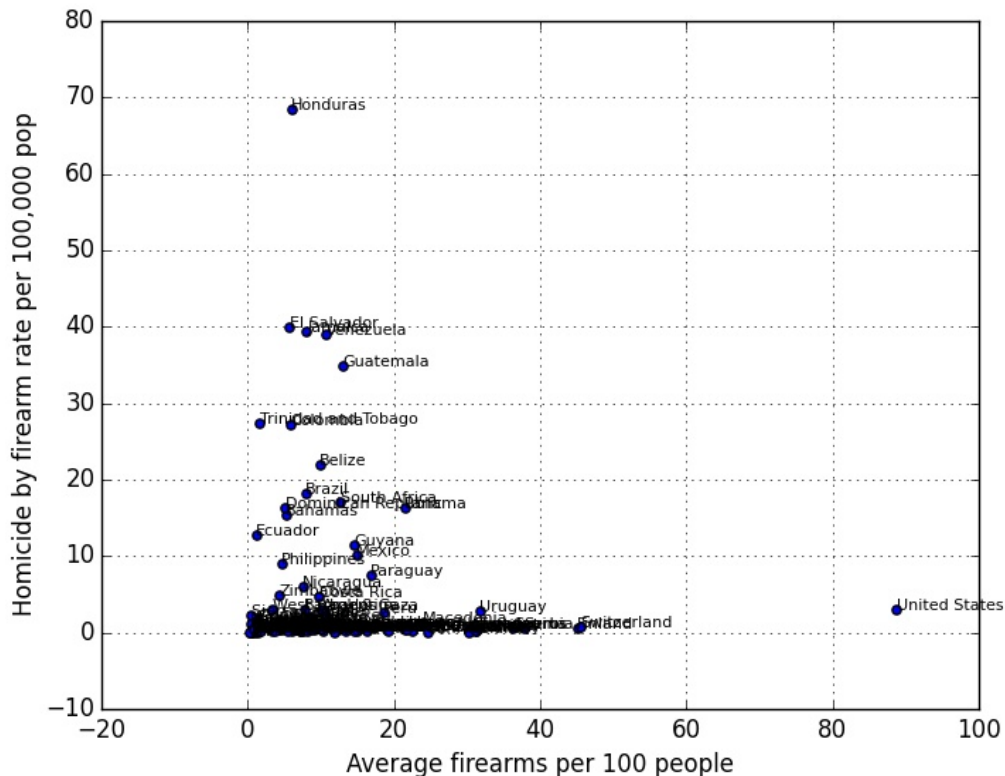
In the computer lab, we're going to generalize the idea of a scatter-plot beyond the textbook's *time-dependent* examples.

For this lab, we'll explore the association between rates of *firearm-homicides* and *firearm-ownership* across the world.

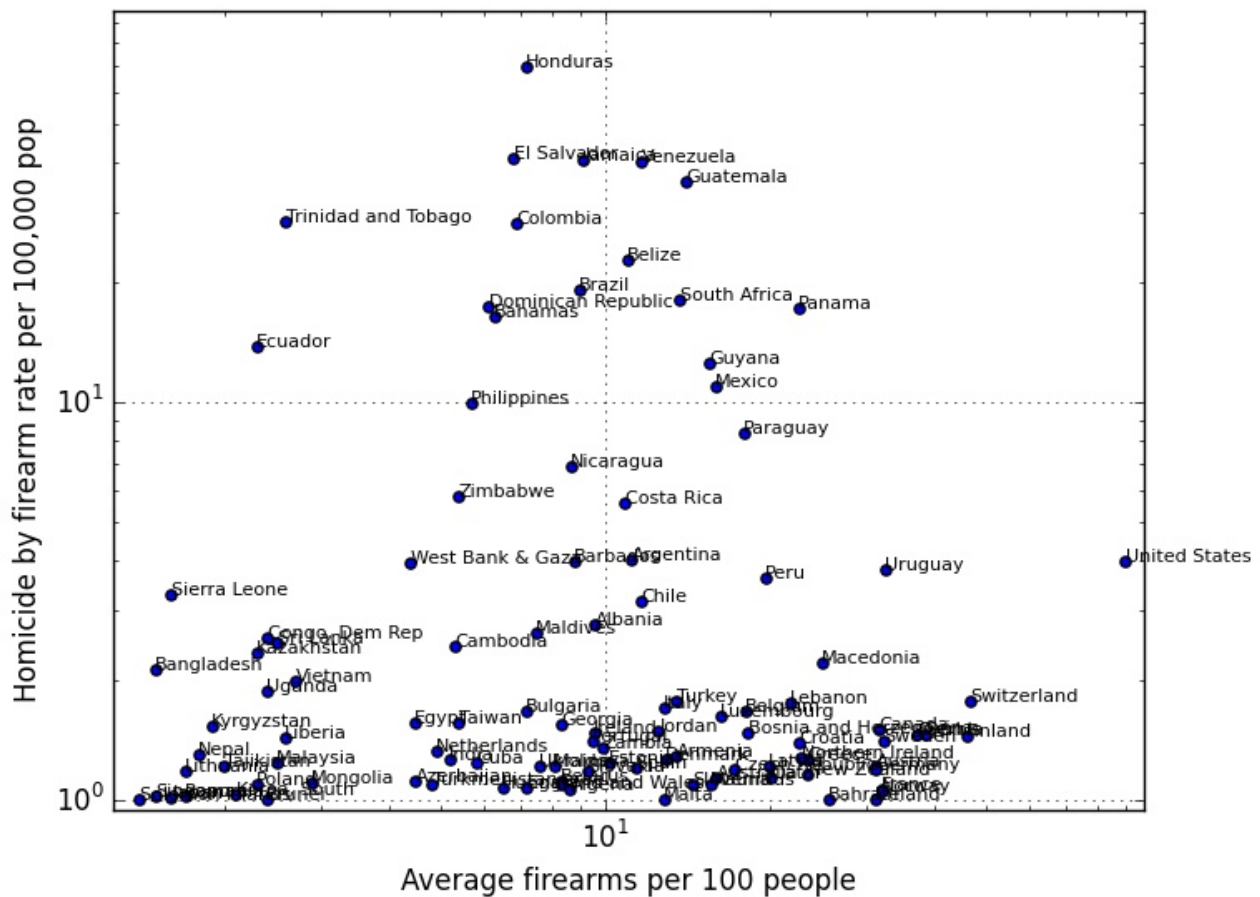
Here's a quick glimpse of a data set for 185 countries:

Country/Territory	ISO code	Source	% of homicides by firearm	Number of homicides by firearm	Homicide by firearm rate per 100,000 pop	Rank by rate of ownership	Average firearms per 100 people	Average total all civilian firearms
Albania	AL	CTS	65.9	56	1.76	70	8.6	270000
Algeria	DZ	CTS	4.8	20	0.06	78	7.6	1900000
Angola	AO					34	17.3	2800000
Anguilla	AI	WHO-MDB	24	1	7.14			
Argentina	AR	Ministry of Justice	52	1198	3.02	62	10.2	3950000
Armenia	AM	CTS	13	9	0.29	52	12.5	380000
Australia	AU	NSO	11.5	30	0.14	42	15	3050000
Austria	AT	CTS	29.5	18	0.22	14	30.4	2500000
Azerbaijan	AZ	CTS	6.5	11	0.12	115	3.5	290000
Bahamas	BS	CTS	61.2	52	15.37	98	5.3	17000
Bahrain	BH	CTS	0	0	0	18	24.8	180000
Bangladesh	BD	National police	43.6	1456	1.12	169	0.5	700000
Barbados	BB	CTS	40	8	2.99	76	7.8	21000
Belarus	BY	CTS	2.5	12	0.12	79	7.3	710000
Belgium	BE	WHO-MDB	39.5	70	0.68	34	17.2	1800000
Belize	BZ	National police	52.3	68	21.82	62	10	29000

A scatter-plot of the data shows an association (if one exists) between the *rates* of firearm-homicide and firearm-ownership.



A logarithmic scale of that scatter plot better shows the relative position of individual countries.



Lab pre-questions:

- 1) Do you see a strong or weak association between these two rates?
- 2) If you were to fit a line to this data, draw your best guess where it might fall.
- 3) What are some analytic limits that come from comparing just the rates of homicides and ownership?
- 4) What other variables in the dataset might you want to explore in the computer lab by a scatter-plot?