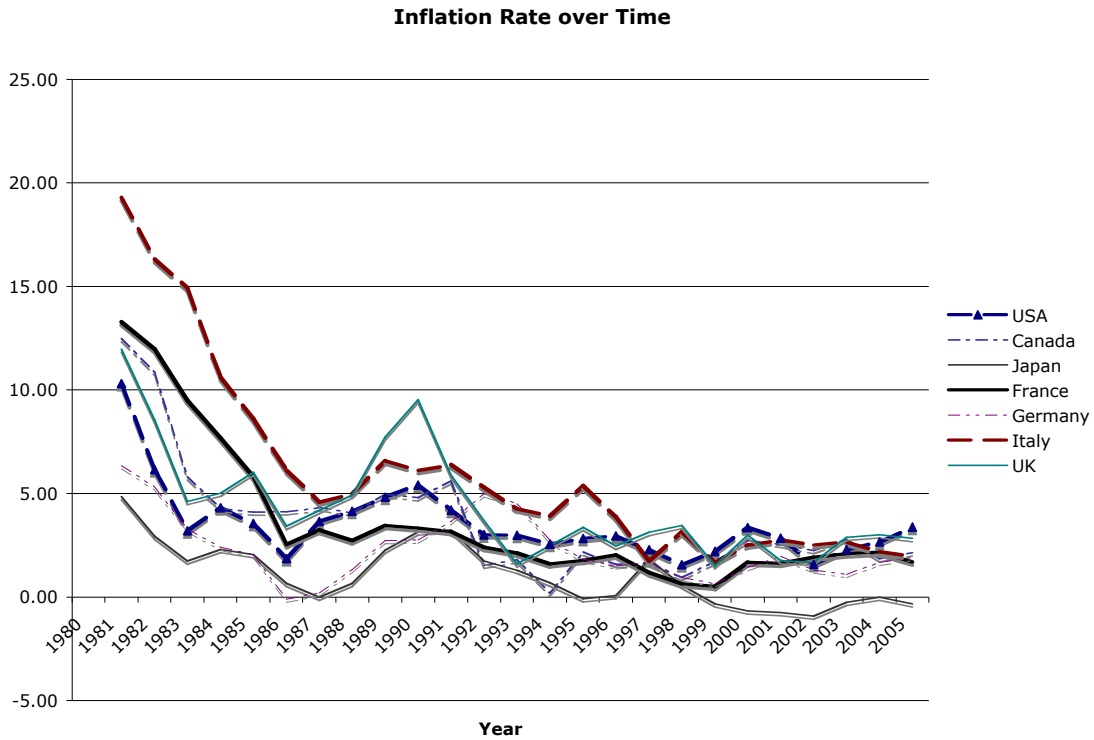


CHAPTER 1: THE NATURE OF REGRESSION ANALYSIS

1.1 (a) These rates (%) are as follows. They are year-over-year, starting with 1981.

	USA	Canada	Japan	France	Germany	Italy	UK
1980							
1981	10.32	12.48	4.84	13.28	6.34	19.30	11.97
1982	6.16	10.86	2.94	11.97	5.31	16.31	8.53
1983	3.21	5.80	1.73	9.49	3.30	14.94	4.61
1984	4.32	4.28	2.30	7.67	2.39	10.62	5.01
1985	3.56	4.11	2.06	5.83	2.04	8.61	6.01
1986	1.86	4.13	0.67	2.53	-0.10	6.11	3.42
1987	3.65	4.32	0.00	3.24	0.19	4.59	4.18
1988	4.14	4.05	0.67	2.73	1.33	4.99	4.93
1989	4.82	4.95	2.27	3.46	2.73	6.59	7.72
1990	5.40	4.80	3.15	3.34	2.75	6.12	9.53
1991	4.21	5.61	3.23	3.16	3.65	6.39	5.87
1992	3.01	1.54	1.74	2.41	4.99	5.30	3.70
1993	2.99	1.79	1.28	2.14	4.50	4.25	1.60
1994	2.56	0.20	0.68	1.60	2.74	3.92	2.48
1995	2.83	2.16	-0.08	1.78	1.83	5.37	3.36
1996	2.95	1.59	0.08	2.02	1.50	3.87	2.46
1997	2.29	1.63	1.84	1.19	1.70	1.75	3.12
1998	1.56	0.96	0.58	0.65	0.94	3.15	3.46
1999	2.21	1.71	-0.33	0.52	0.65	1.66	1.52
2000	3.36	2.74	-0.66	1.68	1.43	2.52	2.99
2001	2.85	2.55	-0.74	1.65	1.97	2.76	1.75
2002	1.58	2.25	-0.92	1.94	1.31	2.52	1.67
2003	2.28	2.78	-0.25	2.08	1.09	2.66	2.90
2004	2.66	1.86	0.00	2.16	1.69	2.19	3.00
2005	3.39	2.15	-0.34	1.70	1.92	1.95	2.83

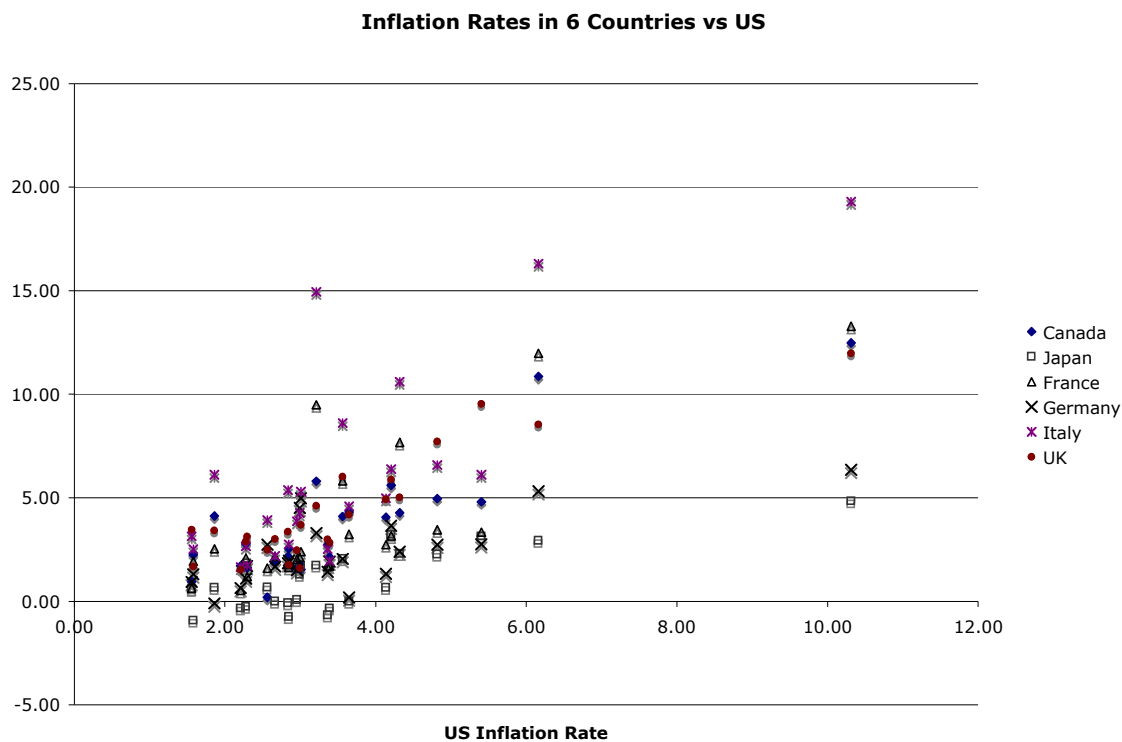
(b)



(c) As you can see from this figure, the inflation rate of each of the countries has *generally* declined over the years.

(d) As a measure of variability, we can use the standard deviation. These standard deviations are 1.81, 2.85, 1.49, 3.40, 1.60, 4.70, and 2.65, respectively, for the US, Canada, Japan, France, Germany, Italy, and the UK. The highest variability is thus found for Italy and the lowest for Japan.

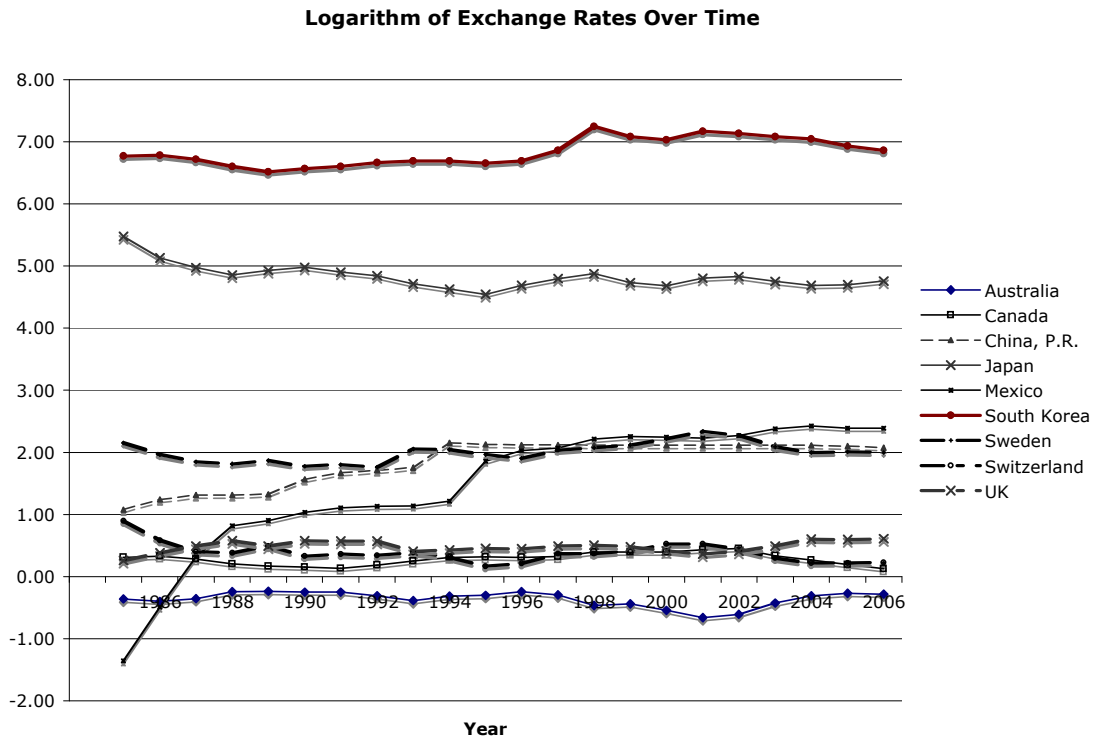
1.2. (a) The graph of the inflation rates of the six countries plotted against the US inflation rate is as follows:



(b) As the figure shows, in general the inflation rates of the six countries are positively correlated with the US inflation rate.

(c) Remember that correlation does not mean causation. One may have to consult a book on international macroeconomics to find out if there is any causal connection between the US and the other countries' inflation rates.

1.3 (a) For better visual impression the logarithm of the exchange rate is plotted on the vertical axis and time on the horizontal axis.



As you can see, the exchange rates show a good deal of variability. For example, in 1985 one US dollar only bought about 0.257 Pesos, but in 2004 it could buy about 11.29 Pesos.

(b) Again, the picture is mixed. For instance, between 1985 and 2006, the U.S. dollar appreciated at a relatively high rate against the Peso, but for most of the other currencies the relationship more slowly and steadily increased.

1.4. The graph of the M1 money supply is as follows:



As GDP increases over time, naturally a higher amount of the money supply is needed to finance the increased output.

1.5. Some of the relevant variables would include: (1) wages or earnings

in criminal activity, (2) hourly wages or earnings in non-criminal activity, (3) probability of getting caught, (4) probability of conviction, (5) expected sentence after conviction. Note that it may not be easy to get data on earnings in the illegal activities. Anyway, refer to the Becker article cited in the text.

- 1.6.** One key factor in the analysis would be the labor force participation rate of people in the 65-69 age category. Data on labor force participation are collected by the Labor Department. If, after the new law went into effect, we find increased participation of these "senior" citizens in the labor force, that would be a strong indication that the earlier law had artificially restricted their labor market participation. It would also be interesting to find out what kinds of jobs these workers get and what they earn.
- 1.7** (a), (b) & (c). As the following figure shows, there seems to be a positive relationship between the two variables, although it does not seem to be very strong. This probably suggests that it pays to advertise; otherwise, it is bad news for the advertising industry.

