

TABLE I  
TIME SERIES PROPERTIES OF U. S. GROWTH RATES 1880–1987

	Coefficient	Standard error	Test-statistic
1. Time trend <sup>a</sup>	0.0013	(0.0134)	0.10
2. Augmented Dickey-Fuller test <sup>b</sup>	0.246	...	-7.98
3. Endogenous mean shift <sup>c</sup>	1.633 (1933)	...	2.14
4. Difference in means: 1880–1929 vs. 1950–1987 <sup>d</sup>	0.096	(0.893)	0.11

a. The Time trend test reports the estimate of  $\beta$  from the regression,

$$g_t = \alpha + \beta t + \epsilon_t.$$

The test-statistic is the  $t$ -statistic corresponding to the Newey-West [1987] corrected standard error and tests  $\beta = 0$ . Note that growth rates are multiplied by 100, here and throughout the paper.

b. The ADF Test reports the estimate of  $\rho$  from the regression,

$$g_t = \mu + \rho g_{t-1} + B(L)\Delta g_{t-1} + \epsilon_t$$

where the lag length of  $B(L)$  is chosen using the Schwartz information criteria. The test-statistic tests the null hypothesis of  $\rho = 1$ . Critical values from Fuller [1976] for the 1 percent significance level are given below:

$T = 25$	-3.75
$T = 50$	-3.58
$T = 100$	-3.51.

c. The Mean shift test is taken from Bai, Lumsdaine, and Stock [1991]. The following equation is estimated:

$$g_t = \alpha + \beta I_{t > T^*} + \epsilon_t$$

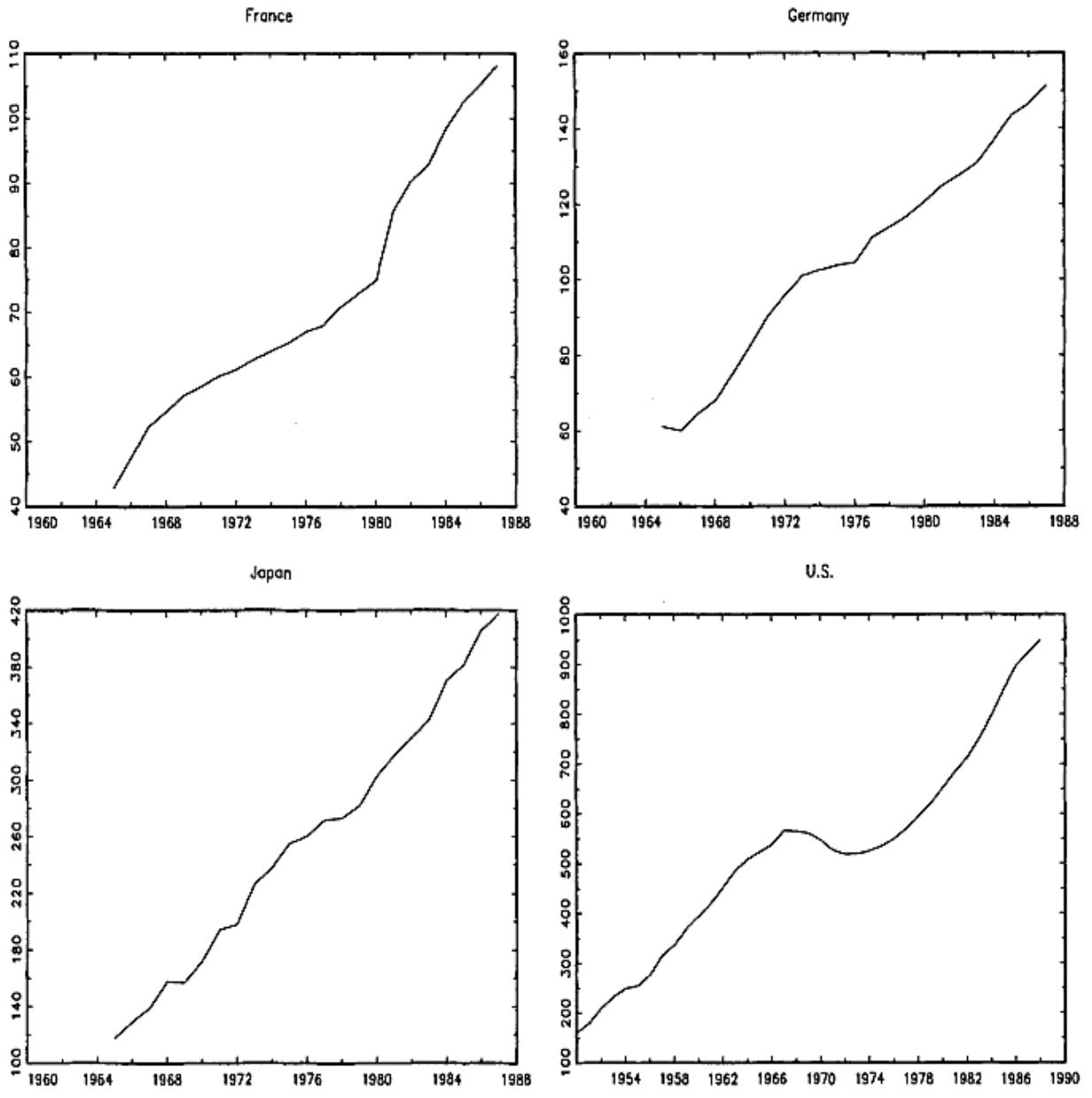
where  $I$  is an indicator variable that takes the value one for  $t > T^*$ . This equation is estimated for values of  $T^*$  in (1896, 1970) to reflect the 15 percent trimming recommended by Bai, Lumsdaine, and Stock. The reported test-statistic is the maximum Wald statistic testing  $\beta = 0$ . The critical value corresponding to the 15 percent significance level is 6.17. The coefficient and value of  $T^*$  corresponding to the max Wald statistic are also reported.

d. The Difference in means for 1880–1929 versus 1950–1987 is reported together with the unadjusted  $t$ -statistic testing the hypothesis that the difference is nonzero.

**TABLE III**  
**AVERAGE INVESTMENT SHARES OF GDP (PERCENT)**

	France	Germany	Japan	United Kingdom	United States
<b>Total investment</b>					
1950—1954	18.4	26.1	16.1	12.1	16.5
1955—1959	20.8	29.2	19.0	14.3	16.0
1960—1964	24.0	30.3	26.8	16.7	15.7
1965—1969	26.9	29.5	30.7	18.9	16.9
1970—1974	29.5	28.7	36.5	19.6	17.2
1975—1979	26.4	24.7	32.5	18.7	17.4
1980—1984	24.2	23.9	29.4	16.2	17.3
1985—1988	23.7	23.6	29.6	18.8	18.1
<b>Producer durables investment</b>					
1950—1954	4.3	4.8	3.4	4.8	4.4
1955—1959	5.1	5.5	3.8	5.5	4.3
1960—1964	6.3	6.8	5.6	6.0	4.2
1965—1969	6.9	6.9	6.0	6.6	5.2
1970—1974	8.1	7.8	7.4	6.9	5.4
1975—1979	8.0	7.3	6.4	6.9	5.9
1980—1984	7.9	7.6	7.5	6.6	6.2
1985—1988	8.0	8.1	9.8	7.5	7.2

*Source.* Summers and Heston [1991] and unpublished data courtesy of Robert Summers.



**FIGURE IV**

**Scientists and Engineers Engaged in R&D (1000s)**

*Source. NSF Science and Engineering Indicators 1989 and Bureau of the Census (various).*