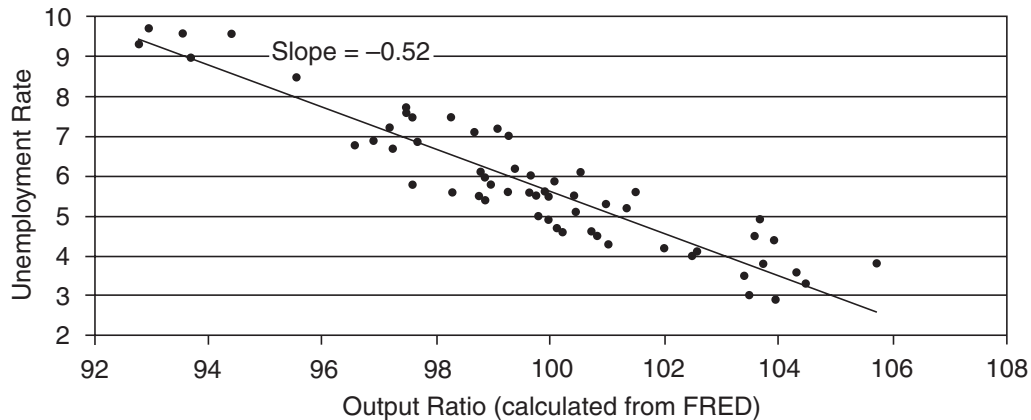


### 1.8.3 Okun's Law Regressions (Advanced Section)

Okun's regressions in his 1962 paper linked the actual unemployment rate to the estimated ADSGAP. He stated his result, "for each *extra* one percent of GNP, unemployment falls by 0.3 percent." This rough rule of thumb has come to be called Okun's Law.

The equivalent is done below, from 1951 to 2011. The slope from this regression line is 0.52, which is the estimated Lokun coefficient. What this value of 0.52 implies is that when the aftOR goes up 2 percentage points, the URATE falls roughly by 1 percentage point. This is called the *gap version* of Okun's law. (In our 20 Period table example, for numerical convenience, we assumed a much lower Lokun coefficient of 0.2). Note that the aftOR measure, used in Figures 1.f and 1.i, is calculated using a measure of potential output such that real GDP equals potential GDP on average, unlike Okun's estimate where potential GDP was almost always above actual GDP.



**Figure 1.i** America's Unemployment and Output Ratio for Post-war Period (1950–2000)

Source: Federal Reserve Bank St. Louis Database (abbreviated FRED).

Okun also regressed the *change in the unemployment rate* on GDP growth (quarterly values from 1950–62). Specifically, he regressed,

$$\Delta \text{URATE} = \alpha + \beta (\text{GDP Growth}).$$

This is called the *difference* version of Okun's Law. He used these coefficients to arrive at his law and to estimate potential GDP growth. This is done by solving the above 'difference version' Okun regression such that  $\Delta \text{URATE} = \text{zero}$ . It is easier to work with the difference version than the gap version, since it is based on actual data and does not require estimates of potential GDP and the output ratio. But conceptually the gap version which we will use is better.