Country	Time Period	Rate of Growth of GNP per Capita (% per decade)	Average Annual Rate of Growth (% per year)
Great Britain	1864–1967	13.4	1.25
France	1896–1966	18.6	1.7
Belgium	1904–1967	14.3	1.3
Switzerland	1910–1967	16.1	1.5
Denmark	1869–1967	20.2	1.85
Norway	1869–1967	21.3	1.9
Sweden	1869–1967	28.9	2.5
Italy	1899–1967	22.9	2.1
Japan	1879–1967	32.3	2.8
United States	1914–1967	18.4	1.7
Canada	1924–1967	20.9	1.9
Australia	1904–1967	13.1	1.2
Argentina	1904–1967	10.1	0.95
Mexico	1899–1967	18.2	1.65
Ghana	1891–1967	15.6	1.45
Philippines	1902–1967	10.3	1.0
India	1901–1958	6.3	0.6

Figure 3-17 National GNP per capita growth rates for seventeen countries for time periods during the interval 1864–1967 (noninflated)
Source: Kuznets 1971.

year. We chose 1.7 percent per year as the basis for our estimate. A GNP per capita of 200 dollars per person-year in 1900 would have grown to 660 dollars by 1968 if it increased 1.7 percent per year over the interval 1900–1968.

According to the development patterns portrayed in Figure 3-3B, when the GNP per capita is 200 dollars per person-year the industrial output per capita is typically about 21 percent of GNP, that is, about 42 dollars per person-year. Figure 3-18 summarizes our estimates of the magnitude and composition of the average global GNP per capita in 1900 and 1968. The initial value of industrial capital IC had to be chosen so that industrial output per capita IOPC in 1900 would equal 42 dollars per person-year. Using the equation for IC in 1900 given previously, we estimated

$$IC(1900) = 2.1 \times 10^{11}$$

	1900	1968
GNP per capita (1968 dollars)	200	660
Industrial output per capita (1968 dollars per person-year)	42	220
Service output per capita (1968 dollars per person-year)	90	330

Figure 3-18 Estimates of the magnitude and composition of average global GNP per capita, 1900 and 1968

The uncertainties present even in the current data make our estimates of economic parameters in 1900 subject to error by a factor of two or more. It is important to realize, however, that the exact initial values set for the model levels have very little influence on the behavior modes subsequently generated—as can be verified by varying the initial values and comparing the resulting simulation runs.

Industrial Capital Depreciation Rate ICDR

```
ICDR.KL=IC.K/ALIC.K                                          53, R
   ICDR   - INDUSTRIAL CAPITAL DEPRECIATION RATE
            (DOLLARS/YEAR)
   IC     - INDUSTRIAL CAPITAL (DOLLARS)
   ALIC   - AVERAGE LIFETIME OF INDUSTRIAL CAPITAL
            (YEARS)
```

In World3 the magnitude of the industrial capital stock in any year depends upon the amount of capital existing in the preceding year, plus investments, less depreciation. The annual depreciation equals the current level of the capital stock divided by the average lifetime of the capital stock. The industrial capital depreciation rate ICDR has dimensions of capital units (dollars) per year. Although the contribution of each capital unit to the industrial capital stock declines after acquisition, as indicated in Figure 3-9, the total amount of effective capital generally tends to increase because investment normally exceeds depreciation.

Average Lifetime of Industrial Capital ALIC

```
ALIC.K=CLIP(ALIC2,ALIC1,TIME.K,PYEAR)                        54, A
ALIC1=14                                                     54.1, C
ALIC2=14                                                     54.2, C
   ALIC   - AVERAGE LIFETIME OF INDUSTRIAL CAPITAL
            (YEARS)
   CLIP   - A FUNCTION SWITCHED DURING THE RUN
   ALIC2  - ALIC, VALUE AFTER TIME=PYEAR (YEARS)
   ALIC1  - ALIC, VALUE BEFORE TIME=PYEAR (YEARS)
   TIME   - CURRENT TIME IN THE SIMULATION RUN
   PYEAR  - YEAR NEW POLICY IS IMPLEMENTED (YEAR)
```

The numerical value required for the average lifetime of industrial capital ALIC is the average of the lifetime of every type of reproducible capital weighted by the contribution of each capital type to the total industrial output. An analogous figure is also required for the average life of service capital ALSC. Our estimates of the lifetimes of industrial and service capital were derived from data on total GNP, total depreciation, fraction of GNP in industry, and fraction of GNP in services (columns 3, 4, 6, and 7 in Figure 3-7). To minimize the effect of agricultural capital depreciation, we used data only from those countries in which agricultural output was less than 5 percent of total output. To relate those figures to capital lifetimes we used the following approximation: