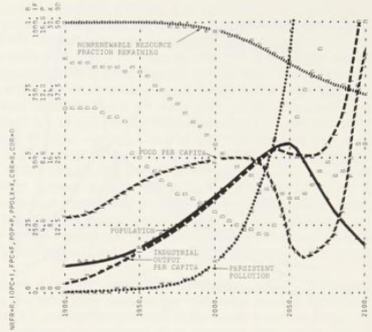


**Figure 7-11** Run 7-8: sensitivity of the initial value of nonrenewable resources to a ten-fold increase in NRI

*The initial value of nonrenewable resources NRI is increased by a factor of 10, to a value well outside its most likely range. Under this optimistic assumption, the effects of nonrenewable resource depletion are no longer a constraint to growth. Note that there is no dynamic difference in this run between setting resources at 10 times their reference value or assuming an infinite value of resources. However, population and capital continue to grow until constrained by the rising level of pollution.*

example, we show here the effects of varying the value of the average lifetime of industrial capital ALIC.

We might expect that an increase in ALIC would cause industrial capital IC and thus industrial output IO to grow faster, since the depreciation of industrial capital each year would be smaller. Run 7-10 (Figure 7-14) simulates the behavior of the model when ALIC equals 21 years, an increase of 50 percent over its value in Figure 7-7, the reference run. The result is as we had expected. Initially, both industrial output per capita IOPC and service output per capita SOPC grow faster than in the reference run, but the overall behavior mode of the system is the same.

The variables, however, no longer pass through their historical 1970 values. The reason for this discrepancy is that the gain around the positive feedback loop governing capital growth has been altered by this change in ALIC. In Chapter 3 it was shown that this gain is a complex function of the average lifetime of service capital ALSC, the average lifetime of industrial capital ALIC, the industrial capital-output



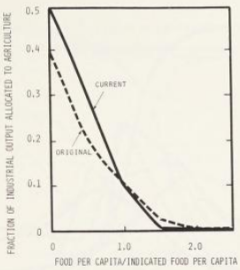


**Figure 7-12** Increase in the slope of the fraction of industrial output allocated to agriculture relationship for sensitivity test

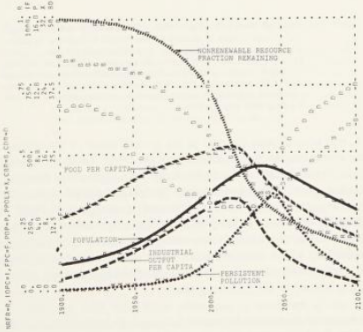


**Figure 7-13** Run 7-9: sensitivity of the fraction of industrial output allocated to agriculture

*The slope of the fraction of industrial output allocated to agriculture FIOAA relationship is increased, reducing the time needed to redirect industrial output into or out of agricultural investment. This change has very little effect on the overall behavior of the model.*