2–16 shows the behavior of the system with all parameter values set to the same values used in the World3 "standard" run of Chapter 7. It represents our best guess at parameter values. The parameter changes introduced in the following sensitivity runs are purposely large, since we wanted to test each parameter at the extremes of its possible values.

Run 2–17 (Figure 2–102) shows the result of changing the lifetime multiplier from food LMF to reflect a nearly perfect utilization of available food supplies through more equitable distribution and better nutrition education. The changed values of the LMF table function are listed in Appendix B to this chapter. The effect of the change is to keep the lifetime multiplier from food constant at its maximum value throughout most of the run. Since the decreased death rate causes the population to grow more quickly, the model generates a consistently lower industrial output per capita. The general behavior mode is similar to that of Run 2–16.

Run 2–18 (Figure 2–103) incorporates a new table of lifetime multiplier from health services LMHS to show a hypothetical increase in medical technology that allows a maximum life expectancy of 100 years. To avoid the necessity of constructing a complete life table for a 100-year life expectancy, this run utilizes the one-level population model. The model output under these conditions is only slightly different from Run 2–16, the lower death rate generating a somewhat larger total population. In Runs 2–17 and 2–18, note that an increase in life expectancy from one cause brings about additional population growth, which tends to retard somewhat the expected lifetime increase from another cause. Raising the lifetime multiplier from food LMF in Run 2–17 causes LMHS to climb more slowly; in Run 2–18, raising LMHS slows the increase in LMF. A deliberate change in one part of the system is partially (but only partially in this case) offset by secondary changes induced in other parts of the system.

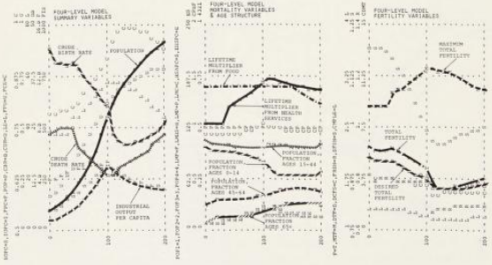


**Figure 2-102** Run 2–17: equitable food distribution and nutrition education



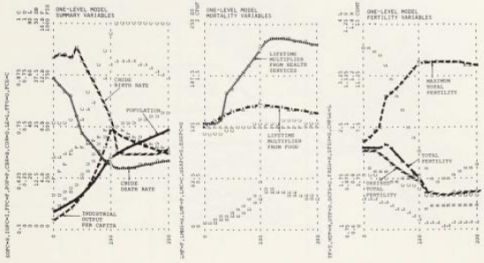


**Figure 2-103** Run 2–18: maximum life expectancy of 100 years

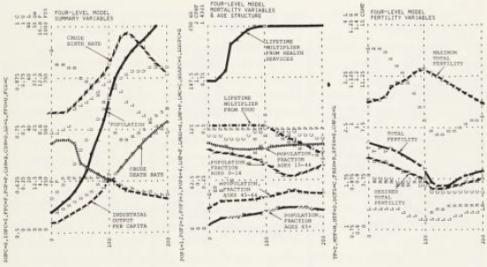


**Figure 2-104** Run 2–19: greater allocations to health services

A similar result is obtained by changing the health services table HSAPCT to reflect a much greater allocation of total service output to health services, as shown in Run 2–19 (Figure 2–104). In this run the death rate is greatly reduced, producing a population increase so rapid that the lifetime multipliers from food and crowding eventually decrease more than enough to offset the high value of the lifetime multiplier from health services. Again, however, the general model behavior mode is unchanged.