

difficult to manage, leading, for example, to increased rural-urban migration and its resultant problems.

In the neoclassical model, increasing the capital-labour ratio is what leads to growth. Thus, increasing the population results in a decrease in this ratio which leads to lower per capita income growth. Figure 2 plots annualized per capita real GDP growth against annualized population growth over the 1955 to 1989 period for our 71 country sample. The negative correlation is immediately obvious. The sub-Saharan African countries of Zaire, Zambia and Ghana, for example, have among the highest population growth rates and among the lowest income growth rates.

Brander and Dowrick bolster this argument. They discover that declines in fertility (presumably highly correlated with the population growth rate) precede income growth in their sample of countries.⁶ They also find evidence that income growth has a negative effect on fertility. Therefore, a feedback mechanism exists, whereby lower fertility leads to higher income growth which further reduces fertility.

● Investment in Physical Capital

As we have already seen, traditional growth theory holds that increasing the stock of physical capital vis-a-vis the population, or capital-deepening will lead to growth. Increasing investment leads to an increased stock of capital which increases the productivity of labour, thus leading to economic growth. Figure 3 clearly shows the positive relationship between the investment share of GDP and annualized real per capita GDP growth over the 35 year period from 1955 through 1989.

De Long and Summers also find that investment in equipment is strongly associated with growth; each additional one per cent of GDP invested in equipment is associated with an increase in GDP growth of one-third of one percent, much higher than the association between growth and any other investment

⁶James A. Brander and Steve Dowrick, "The Role of Fertility and Population in Economic Growth: New Results from Aggregate Cross-National Data," mimeo, University of British Columbia, 1991, cited in Brander, *op. cit.*, p. 815.