CHAPTER 10

US Economic Growth in Retrospect and Prospect

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Summary

This chapter presents another view of the major factors affecting US economic growth both historically and prospectively. The Hickman–Coen (HC) annual growth model is used to investigate the determinants of economic growth and productivity change during 1956–1982 and to forecast the principal macroeconomic variables for 1985–2000. Our approach stresses the interaction of aggregate supply and demand in the growth process instead of concentrating exclusively on reduced-form analysis of the production function. It leads to a different view of the driving forces of economic growth, as summarized in the concluding section.

10.1. An Empirical Growth Model

The HC annual growth model for the US economy (Hickman and Coen, 1976) is a dynamic nonlinear simultaneous equation system combining Keynesian and neoclassical elements and allowing for departures from the full-employment growth path owing to gradual price adjustments. The key assumptions underlying this property are as follows.

1) Firms are imperfectly competitive and set prices as a markup over normal unit labor costs, with allowance for the prices of imported inputs and the degree of capacity utilization.
Given prices, output is determined by effective demand, which is disaggregated into three categories of investment, six of consumption, federal and state and local purchases, exports, and imports.

Firms choose capital and labor inputs to minimize cost, conditional on expected output and factor prices. The desired long-run or equilibrium inputs are derived by minimizing the cost of producing the expected output. Only part of the gap between actual and desired inputs is closed each year, however, owing to adjustment costs, so that the short-term factor demand functions contain lags which may prevent the attainment of full long-term equilibrium inputs for the given level of production.

Labor force participation is a function of the real after-tax consumption wage and the ratio of employment to population (Coen and Hickman, 1980a). The latter variable is included to capture the "discouraged worker effect", a nonprice signal which induces potential workers to withdraw from the labor market when unemployment rises. The labor force participation model is disaggregated into 16 age–sex groups, so that the aggregate labor force depends on the composition of population as well as its level.

The model includes an “expectations-augmented” Phillips curve for nominal wage inflation as a function of the gap between the actual and natural unemployment rates and the lagged rate of consumer price inflation.

The model can be solved for potential as well as actual output. Potential GNP is defined as that output which would be realized each year if the markets for labor and capital were continuously cleared at the natural rate of unemployment (Coen and Hickman, 1980b). A key characteristic of this concept is that potential output is unaffected by deviations of actual output, factor inputs, and real factor prices from their full-employment values. It is truly a measure of productive potential in which output is constrained only by available technology and factor supplies, and labor and capital are assumed to be fully employed each period along the growth path. Departures from the natural path imply disequilibrium in the factor markets, as the quantities of capital and labor deviate from their full-employment levels, but these temporary deviations do not affect potential output in subsequent periods, since they can be offset by future changes in investment and employment.

10.2. Factor Demands

The demands for labor and capital are interrelated in the model, since they are jointly derived on the assumption that firms minimize production costs subject to a long-run or planning Cobb–Douglas production function with constant returns to scale:

\[ XNR_t^* = Ae^{\beta t} (K_t^*)^\alpha (MH_t^*)^{1-\alpha}, \quad A, \alpha, \beta > 0 \]  

\( (10.1) \)