Structural Change and Constant Growth Path in a Three-Sector Growth Model with Three Factors

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Abstract

This paper proposes a unified framework of a three-sector model with structural change where agriculture, manufacturing, and service sector has different production technology. All three sectors use three factors of capital, labor and land as inputs. Since the relative price of foods and services in terms of manufacturing goods is determined endogenously, the condition for the constant growth path (CGP) becomes no longer the knife-edge condition. We show that the dynamical system along the CGP in the three-sector model corresponds to the two-sector optimal growth model, which has saddle point stability. We examine the effect of the rate of technological progress on the CGP numerically. Along the CGP, the decrease in the rate of technological progress increases the relative price of foods and services, the wage rate, the land rent, capital and output per efficiency labor while it decreases the interest rate.

Keyword: The three-sector GDP function; Stone-Geary utility function; Constant growth path (CGP); Kuznets facts; Kaldor facts

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