Endowment-Driven Technology and Economic Development[1]

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Abstract

First, evidence from Japanese listed firms between 1960 and 2018 reveals that Total Factor Productivity (TFP) increased in correlation with capital intensity. Second, when technology is selected to maximize the production frontier, the optimal industrial structure—defined by capital intensity—becomes a function of factor endowments. Consequently, the Constant Elasticity of Substitution (CES) and Cobb-Douglas production functions linearize, with TFP being determined by capital intensity. Third, the Solow model can account for permanent growth without population growth, while also allowing for the existence of poverty or middle-income traps. Fourth, permanent growth occurs even when endogenous technology and endogenous time preference are introduced simultaneously. Fifth, when endogenous technology is integrated into the Heckscher-Ohlin (H-O) model, trade may not occur, and the Leontief paradox can arise, even though trade still occurs within a Ricardian framework.

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