

On Choice of Technique in the Robinson-Solow-Srinivasan Model*

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Abstract: We report results on the optimal “choice of technique” in a model originally formulated by Robinson, Solow and Srinivasan. By viewing this model as a specific instance of the general theory of intertemporal resource allocation associated with Brock, Gale and McKenzie, we resolve long-standing conjectures in the form of theorems on the existence and price-support of optimal paths, and on their long-run behavior. We also examine policies, due to Stiglitz, as a cornerstone for a theory of transition dynamics in this model. We present examples to show that (i) an optimal program can be periodic, (ii) a Stiglitz’ program can be bad, and (iii) a Stiglitz production program can be non-optimal. We then provide sufficient conditions under which the policies proposed by Stiglitz coincide with optimal behavior. (127 words)

Journal of Economic Literature Classification Numbers: D90, C62, O21.

Key Words: Choice of technique, overtaking criterion, optimal program, golden-rule stock, golden-rule price, value-loss, average turnpike property, long-run, transition dynamics, Stiglitz program, Stiglitz production program, price-support property, cycling.

Running Title: Choice of Technique

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