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Abstract: In this paper, efforts will be made to study an extended Neoclassic economic growth model derived from Solow-Swan Model and Ramsey-Cass-Koopsman Model. Some growth models (e.g., Solow- Swan Model) attempt to explain long-run economic growth by looking at capital accumulation, labor or population growth, and increases in productivity, while our derived model tends to look at growth from individual household and how their choice of saving, consumption and money holdings would affect the overall economic capital accumulation over a long period of time.

First an optimal control model is set up, and a system of differential equations and algebraic equations is derived from the optimal solutions which is an extension of the existing model. Secondly, the equilibrium points and their stability of both models are studied by calculating the determinant of their respective Jacobian matrix. Last but not least, model numerical simulations are performed for both models using Matlab, in hopes that it will give us a better understanding of the system and a clearer pattern for the behaviors of each model.