# Stochastic Productive Government Expenditure, Fiscal Policy and Economic Growth

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## Abstract

The fiscal shock is introduced to per-capita productive government expenditure to study the impact of stochastic productive government expenditure on a long-run growth rate, especially in the proportional congestion case. As a result, the households' degree of risk aversion plays a crucial role to determine how stochastic productive government expenditure deviates stochastic growth rate from its stochastic trend. The numerical example also shows that the famous invert-U shape relationship between growth and permanent income tax disappears when a degree of risk aversion is sufficiently high. Nevertheless, the necessary condition for growth-enhancing permanent income tax rate remains valid in stochastic growth context. In contrast to Turnovsky (1999), the difference between social planner's economy and decentralised economy occurs because the individual household does not take the externality from proportional congestion into account. Such difference provides the opportunity for the decentralised government to find the first-best tax structure that can achieve the first-best outcomes from centrally-planned economy. Finally, the welfare loss is calculated and it should be compensated by sacrificing the amount of initial capital in order to achieve the welfare target.

**Keywords**: Productive Government Expenditure; Stochastic Growth; Congestion; Taxation

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