



Optimal Fiscal Policy under Endogenous Disaster Risk: How to Avoid Wars?

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Vytautas Valaitis^{1,3} and Alessandro T. Villa²

¹Centre For Macroeconomics, ²Federal Reserve Bank Chicago, ³University of Surrey

How should fiscal policy optimally manage disaster risks? In this paper, we answer this question by means of a Ramsey problem where the planner faces the risk of war, which we model as an economic disaster. Besides standard policy tools, such as distortionary labor taxes and non-state contingent debt, the planner can invest in defense capital. First, defense capital creates deterrence by making future disasters less likely. We denote this as a deterrence channel. Second, higher defense capital reduces the severity of economic damage during war episodes. We denote this as insurance channel. The paper contributes by endogenizing disaster risk management and studying the Ramsey policy in a setting with rare disasters (Rietz 1988, Barro 2006).

The analysis proceeds in two stages. First, a two-period model isolates mechanisms driving the policy choices in anticipation of wars. Financing defense investments through borrowing trades off tax smoothing across states for tax smoothing over time. Unlike standard expenditure, defense investment justifies higher debt issuance because it lowers the likelihood of highly distortionary disaster states, thus reducing the expected future tax burden. Second, the paper develops a fully dynamic infinite-horizon model solved globally using neural network techniques. The quantitative results validate the theoretical insights: defense investment constitutes an optimal policy response even when only the deterrence motive is active. When both deterrence and insurance motives are present, the model features greater long-run levels of debt than a counterfactual model where disasters are exogenous and significantly more debt than the classical model of Aiyagari et. al. (2002).

To isolate the role of deterrence, we study how optimal policies change when this channel becomes more potent. Consistently to the theoretical findings, it is optimal to borrow to finance defense in the presence of rising disaster risks. Such policy involves a trade-off between ex-ante benefits and ex-post costs. By lowering the risk of war, marginal defense investment makes the expected future tax distortions smaller. Intuitively, debt helps to bring these future gains into the present and allows for smaller taxes present taxes. At the same time, such excessive borrowing creates the risk that the government will already be heavily indebted in case a war occurs in the future and the planner will have less capacity to absorb such a shock with debt. In this way, borrowing to finance defense allows for smoother tax distortions over time but sacrifices tax smoothing across the war and normal states. We show that the time smoothing aspect dominates as deterrence becomes more potent.





Finally, the paper investigates the role of primary deficit constraints through two policy applications. First, we show that the addition of the Maastricht-type primary deficit rule results in more long-run debt and higher average taxes. Second, we show that while financing of standard temporary government spending shocks involves an equal balance of debt and taxes, the same-size defense spending sequence is financed primarily through borrowing.