**Stay-at-Home Orders in a Fiscal Union**

Authors expand the SIR model of Eichenbaum et al. (2020) to multiple locations in order to study the optimal implementation of stay-at-home orders. Each location experiences an idiosyncratic virus shock. Following this, the virus can spread through both consumption and employment within a given location. Individuals may also spread the virus across locations by travelling from place to place. An aggregate social planner can implement mitigation policy, proxied by consumption tax, to maximize the welfare of the country. Mitigation policy is able to vary across locations, which allows for economic and welfare comparisons between a common national policy and location-specific policy.

SIR model: Modified version of the SIR model from Eichenbaum et al. (2020), which features multiple locations, where virus is transmitted within and across states through consumption and employment. The main difference between this model and the SIR model of Eichenbaum et al. (2020) is the presence of travel cost in the transmission mechanism equation.

Economic model: States are closed economies except for virus transmission. Consumers maximize utility over an infinite horizon subject to the budget constraint, which includes the consumption tax as a proxy for mitigation policy. Continuum of representative firms produce goods via linear production technology, which is a function of labor. Government levies tax rate on consumption and maintains a balanced budget.