Impact of contingent payments on systemic risk in financial networks

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clearing wealths map into a compact set. Theorem 4 of [34] immediately provides the monotonicity of the clearing wealths.

Fix $x \in \mathbb {R}^{n+1}_+$ and let $\mathcal {X}= x + [-1,1]^{n+1}$ be a closed compact neighborhood of x in the full Euclidean space $\mathbb {R}^{n+1}$. Then we can define $V^x: \mathcal {X}\rightarrow \mathbb {R}^{n+1}$ as the restriction (and possible expansion to negative terms) of the domain of V to $\mathcal {X}$. The graph of V^x is given by:

$$\begin{aligned} {\text {graph}}V^x= & {} \Bigg \{(\hat{x},\hat{V}) \in \mathcal {X}\times \prod _{i \in \mathcal {N}_0} \left[x_i-1-\sum _{j \in \mathcal {N}_0} \bar{L}_{ij} , x_i+1+\sum _{j \in \mathcal {N}} \bar{L}_{ji}\right] \; | \; \hat{V}\\= & {} \hat{x} + \Pi (\hat{V})^\top [\bar{p}(\hat{V}) - \hat{V}^-]^+ - \bar{p}(\hat{V})\Bigg \}. \end{aligned}$$

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