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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:

$$\begin{aligned} \text{graph } V^x = & \Big\{ (\hat{x}, \hat{V}) \in \mathcal{X} \times \prod_{i \in \mathcal{N}_0} \left[x_{i-1} - \sum_{j \in \mathcal{N}_0} \bar{L}_{ij}, x_{i+1} + \sum_{j \in \mathcal{N}} \bar{L}_{ji} \right] \mid \hat{V} = \hat{x} + \Pi(\hat{V})^{\text{top}} [\bar{p}(\hat{V}) - \hat{V}^+]^+ - \bar{p}(\hat{V}) \Big\}. \end{aligned}$$

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