Working Papers on Economics - Authority Centrality and Hub Centrality as Metrics of Systemic Importance of Financial Market Infrastructures

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Network analysis has been applied to identify systemically important financial institutions after the 2008 financial crisis. Such applications have stressed the importance of centrality within the too-connected-to-fail concept.

Yet, despite their well-known importance for financial stability, financial market infrastructures' centrality has not been equally covered by literature. Some particularities of strictly hierarchical (i.e. directed and acyclic) networks may explain the inconvenience arising from using basic metrics of centrality, and may explain why assessing centrality has been limited to financial institutions' case.

This paper addresses the assessment of systemic importance for Colombian financial infrastructures by means of the estimation of authority centrality and hub centrality. Their particular advantage consists of assessing importance as the mutually reinforcing centrality arising from nodes pointing to other nodes (i.e. hubs) and from nodes being pointed-to by other nodes (i.e. authorities), even in the case of directed and acyclic networks.

Results are valuable since they quantitatively support financial authorities' efforts to (i) identify systemically important financial infrastructures under the too-connected-to-fail concept; (ii) focus the intensity of oversight, supervision and regulation where the infrastructure-related systemic impact is the greatest; and (iii) enhance their policy and decision-making capabilities.

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