

## COMPETITIVE ECONOMY AS A RANKING DEVICE OVER NETWORKS

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We propose a novel approach to generating a ranking of items in a network (e.g., of web pages connected by links or of articles connected by citations). We transform the network into an exchange economy, and use the resulting competitive equilibrium prices of the network nodes as their ranking. The widely used Google's PageRank comes as a special case when the nodes are represented by Cobb-Douglas utility maximizers. We further use the economic metaphor to combine between the Citation Index and PageRank by imposing a redistributive taxing scheme. Finally, we study the outcome of an interaction between a (CES utility) ranking system and agents who bias their link intensities in response to the published ranking. This outcome coincides with that of a related ranking system (and unbiased agents). A modification of the utility function's parameter allows us to cancel out the effect of the bias.

(with YE DU and ADY PAUZNER )