Abstract

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 Count and PageRank by imposing a redistributive taxing scheme.

Keywords: network, exchange economy, competitive prices, ranking, economy-based ranking, PageRank, taxation, citation count, normalized citation count.