



Corporate competition: A self-organized network

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(Submitted on 4 Jul 2011)

A substantial number of studies have extended the work on universal properties in physical systems to complex networks in social, biological, and technological systems. In this paper, we present a complex networks perspective on interfirm organizational networks by mapping, analyzing and modeling the spatial structure of a large interfirm competition network across a variety of sectors and industries within the United States. We propose two micro-dynamic models that are able to reproduce empirically observed characteristics of competition networks as a natural outcome of a minimal set of general mechanisms governing the formation of competition networks. Both models, which utilize different approaches yet apply common principles to network formation give comparable results. There is an asymmetry between companies that are considered competitors, and companies that consider others as their competitors. All companies only consider a small number of other companies as competitors; however, there are a few companies that are considered as competitors by many others. Geographically, the density of corporate headquarters strongly correlates with local population density, and the probability two firms are competitors declines with geographic distance. We construct these properties by growing a corporate network with competitive links using random incorporations modulated by population density and geographic distance. Our new analysis, methodology and empirical results are relevant to various phenomena of social and market behavior, and have implications to research fields such as economic geography, economic sociology, and regional economic development.

Comments: In Press Social Networks, 2011
 Subjects: **Physics and Society (physics.soc-ph)**; Social and Information Networks (cs.SI); Adaptation and Self-Organizing Systems (nlin.AO)
 Journal reference: Social Networks 33, 3 (July 2011) pp. 219--30
 DOI: [10.1016/j.socnet.2011.05.004](https://doi.org/10.1016/j.socnet.2011.05.004)
 Cite as: [arXiv:1107.0539v1](https://arxiv.org/abs/1107.0539v1) [physics.soc-ph]

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