
We explore the idea of endogenous hub location on a network. In contrast to much of the literature, we propose that hub networks may emerge naturally out of a set of assumptions and conditions borrowed from equilibrium traffic assignment. To this end, we focus on applying a non-linear cost function that rewards economies of scale on all network links. A model is presented and implemented in a GIS environment using both a 100-node inter-city matrix and several synthesized interaction matrices. We compare solutions for different assumptions about network costs, and visualize the results. We find that under discounted conditions, network flow is re-routed to take advantage of the cost savings for amalgamation and that several cities emerge as centers through which large amounts of flow pass. Larger cities such as Los Angeles, New York and Chicago serve gateway functions. We also find that that smaller cities such as Oklahoma City, Pittsburgh, Indianapolis, and Knoxville serve major gateway functions because of their locational advantages. Our paper should be of interest to the planner of a surface transportation system, or those interested in nodal concepts such as gateways and transport geography. Results are discussed in light of hub and spoke networks and suggestions are made for future research.