Job Contact Networks Evolution and the Dynamics of Output and Inequality

By

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Abstract:

The importance of social networks in labour markets is well-documented in the sociological literature (e.g. Granovetter, 1974) which highlights the importance of social links like friends, relatives and acquaintances, as sources of information on job opportunities.

In this paper we study the effects of social networks on the dynamics of output and wage inequality by extending our previous work (Lavezzi and Meccheri, 2005) which considered only exogenous, fixed networks. In particular, we study the effects of the evolution of the network over time in a job contact network framework (*à la* Calvó-Armengol and Jackson (2003, 2004)) with heterogeneous jobs. We consider random networks, in particular by following the approach of Marsili, Vega-Redondo and Slanina (2004). In this setting, through occasional update, some of the existing social links are lost while other fresh new links are established, possibly through the creation of links to friends of friends. Over time, this leads to an evolving network which adapts to changing conditions. In this new scenario we investigate by means of numerical simulations the effects of network topology, composition and evolution on output and on wage inequality. In particular we try to disentangle the effects of network density from the effects of network geometry. We also study in detail some interesting issues previously highlighted in the literature on social networks. Specifically, we analyze the relevance of "small world" effects, and identify the conditions under which the hypothesis of "the strength of weak ties" holds in the proposed framework.

Preliminary results show that in an Erdos-Renyi type of random network, in which only the probability of link formation is considered, an increase in the average number of links caused by either an increase in the probability p of link formation or an increase in the number of agents n: (i) increases output, (ii) reduces inequality; (iii) increases average individual wages and reduces their variance over time. When we keep the average number of links np constant and compare a random network, a symmetric fixed network of degree np, and an asymmetric fixed network with average number of links np, we find that the symmetric network produces the highest output and the lowest inequality. When comparing a random network and a symmetric network, the latter also displays

higher individual wages and lower variances. We take this as evidence that, for a given level of link density, the case in which individuals have an equal number of stable (i.e. non-random) relationships produces the best results in terms of output and inequality. From the point of view of individual workers, it also produces higher and less volatile wages.