Journal of Macroeconomics 45 (2015) 63–84

Contents lists available at ScienceDirect

Journal of Macroeconomics

journal homepage: www.elsevier.com/locate/jmacro

Social ties and economic development ☆

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ARTICLE INFO

Article history:
Received 5 March 2015
Accepted 7 April 2015
Available online 23 April 2015

JEL classification:
E1
E2
O1
O4

Keywords:
Social capital
Development
Transaction costs
Networks

ABSTRACT

We develop a parsimonious general equilibrium model where agents allocate time across three activities: production, trade, and leisure. Leisure includes time spent socializing, which economizes transaction costs. Our framework yields multiple equilibria in terms of the number of social ties and predicts that the number of social ties is positively associated with development. We calibrate our model using an empirical measure of country-level social ties and are able to quantitatively match the cross-country relationship between social ties and income per capita. Our calibration also captures additional dimensions of cross-country data: (i) increasing income inequality, but converging growth rates; (ii) an association between weak social ties and development; and (iii) an association between number of social ties and size of the transaction sector.

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1. Introduction

Knack and Keefer (1997) build a case for the economic relevance of social capital by showing that regions with higher levels of perceived *trust* exhibit higher economic performance. This association is also present when one uses an alternative measure of social capital, specifically the average number of *social ties*, as shown in Fig. 1. In the figure, social ties refer to self-reported number of friendships/acquaintances, i.e., ties that are not familial.

Our paper is the first to ask whether and how the heterogeneity in social ties can *quantitatively* account for differences in economic development, using a neoclassical approach. First we develop a model where time spent socializing economizes transaction costs. Next we calibrate the model using data from the International Social Survey Programme on the number of ties, obtaining a reasonable fit to empirical moments. Specifically, the calibrated model generates a cross section of income per capita in 2000 that correlates strongly with data and exhibits similar levels of dispersion. Our calibration also matches

☆ We thank comments from and discussions with Andres Almazan, Aydoğan Alti, Lawrence Blume, Daniele Coen-Pirani, Juan Dubra, Richard Green, Matthew Jackson, Finn Kydland, Richard Lowery, Ray Reagans, Bryan Routledge, Bruce Sacerdote, Robert Shimer, Clemens Sialm, Chris Sleet, Sheridan Titman, Ping Wang (editor), and Yves Zenou. We also wish to thank comments from seminar participants at Carnegie Mellon University, University of California at Santa Barbara, University of Oslo, University of Western Ontario, and University of Texas at Austin. Finally we thank comments from participants at the 2008 conference of the Latin American and Caribbean Economic Association, the 2010 workshop on social capital at the Stanford Institute for Theoretical Economics, and the 2011 meetings of the American Economic Association.

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http://dx.doi.org/10.1016/j.jmacro.2015.04.004
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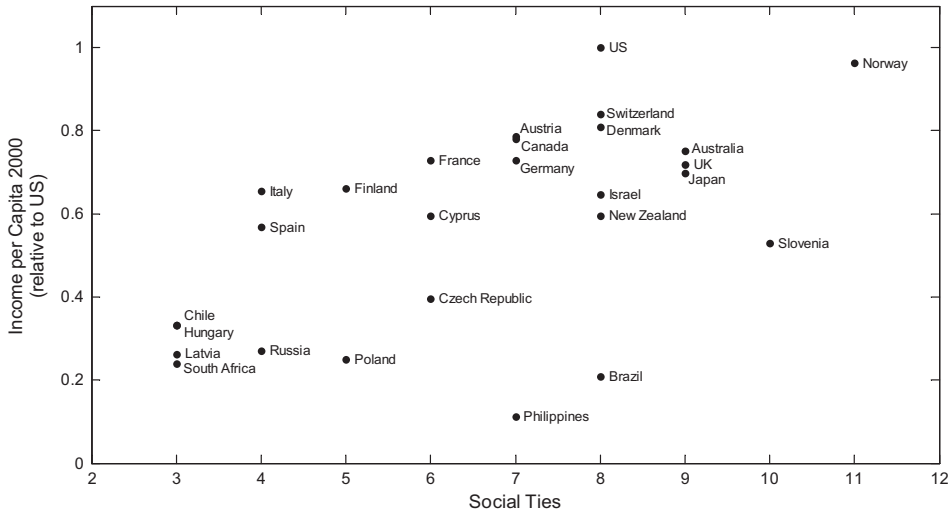

Fig. 1. Social ties and income per capita: cross-country comparison. The figure plots, for each country, the median number of "close friends" (*source:* International Social Survey Programme, 2001) versus the income per capita in the year 2000 (*source:* Penn World Table), normalized by the income per capita for the United States. The sample correlation between social ties and income per capita is 0.58, statistically significant at 0.1%. Data is provided in Appendix A.

other empirical patterns: (i) increasing income inequality, but converging growth rates; (ii) an association between weak social ties and development; and (iii) an association between number of social ties and size of the transaction sector.

Finally, we use the calibrated model to quantify the importance of social capital: we run a counter-factual simulation where time spent socializing no longer economizes transaction costs. In such simulation, we find that the annual long-run growth rate in income per capita in the US drops by about 50%. Thus our model suggests that social capital plays a quantitatively important economic role.

At the core of our theoretical setup is a general equilibrium model where the set of goods includes ties between economic agents. Ties between any two agents are produced according to a technology that uses scarce time from both parties. The model further assumes that total time spent socializing economizes transaction costs, i.e., there is a form of social capital. Our theoretical approach yields the existence of multiple equilibria, each one of them associated with a specific number of social ties and an equilibrium level of social capital. These multiple equilibria can be interpreted as rational outcomes in societies with different cultural beliefs, an approach in the spirit of Krugman (1991), Cole et al. (1992), and Greif (1994).

The theory predicts a strong association between the number of social ties and economic development. The mechanism underlying this result is that in economies with a large number of ties, agents choose high levels of *transformational effort*, which is required to produce standard commodities and can be interpreted as a combination of labor and investment in human capital. In the model, productivity growth comes from the accumulation of transformational effort over time (may be interpreted as learning by doing), which implies that higher levels of transformational effort translate into higher rates of economic development.

High-social-ties economies choose higher transformational effort for two reasons. First, it turns out that a higher number of social ties implies a higher level of equilibrium time spent socializing, which increases trade efficiency and thus creates a higher incentive for production. Second, and perhaps surprisingly, even in the absence of social capital effects it is still the case that a higher number of ties induces a higher level of transformational effort, due to an interplay in preferences between social ties and the consumption of standard goods.

We want to emphasize that we do not assume *a priori* that a higher level of social ties equates directly to a higher level of social capital. Social capital corresponds to time spent socializing, which is given by the product of "number of social ties" (exogenous) times "average time devoted to each tie" (endogenous). In that sense, our model is also contributing towards understanding the drivers of social capital itself.

We calibrate the model using data for the United States and generate predictions of development paths for countries with different levels of social ties. Cross-country data on social ties comes from the International Social Survey Programme (ISSP), which contains a collection of several sociometric variables.[1] Three types of ties are covered by that study: nuclear family, close friends, and participation in secondary associations, such as political parties and neighborhood organizations.[2] Fig. 1 plots the data on close friends, which is also what we use in the quantitative exploration of the model. Close friends' ties correlate

[1] The International Social Survey Programme is a cross-national collaboration initiative in the field of social science. It evolved from a bilateral cooperation between the ZUMA center in Germany and the University of Chicago.

[2] See www.issp.org for details.

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