# Networks and economic growth
# Part 1: seminal studies

Lecture notes for the course of Economics and Policy of Networks

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# Networks and economic growth in Italy

Helliwell and Putnam (1995) want to explain 4 stylized facts:

1) Northern regions of Italy have been richer than the Southern ones for several centuries, despite having been on a par at the beginning of the millennium.

2) **North-South differences in per capita income are matched by differences in the societal structure**, with horizontal networks common in North and hierarchical structures in the South.

3) There is evidence of **convergence in per capita income among the Italian regions from 1950 to early 1980s**.

4) **From 1983 on, a new divergence** in per capita income took place.

# Networks and economic growth in Italy

Helliwell and Putnam's hypotheses:

1) Some regions have been able to establish and maintain higher levels of output per capita by virtue of their higher endowments in social capital.

2) However, **increasing openness and education levels** from 1950 to 1980s have facilitated convergence.

3) The divergence from the 1980s can be traced to the fact that the increased powers of the regional governments, as they came into play at the beginning of the decade thanks to a **major constitutional reform**, **were used more effectively in those regions with more social capital**.

To get an idea of the economic impact of the reform, consider that the funds expended by regional governments rose from next to nothing in 1970 to 10% of the GDP at the end of the 1980s.

The constitutional reform as a natural experiment

# Networks and economic growth in Italy

The main variables of interest in the analysis are: Throughout the paper, HP consider these variables as proxies of social capital.

**1) Civic community**, measured by a combination of:

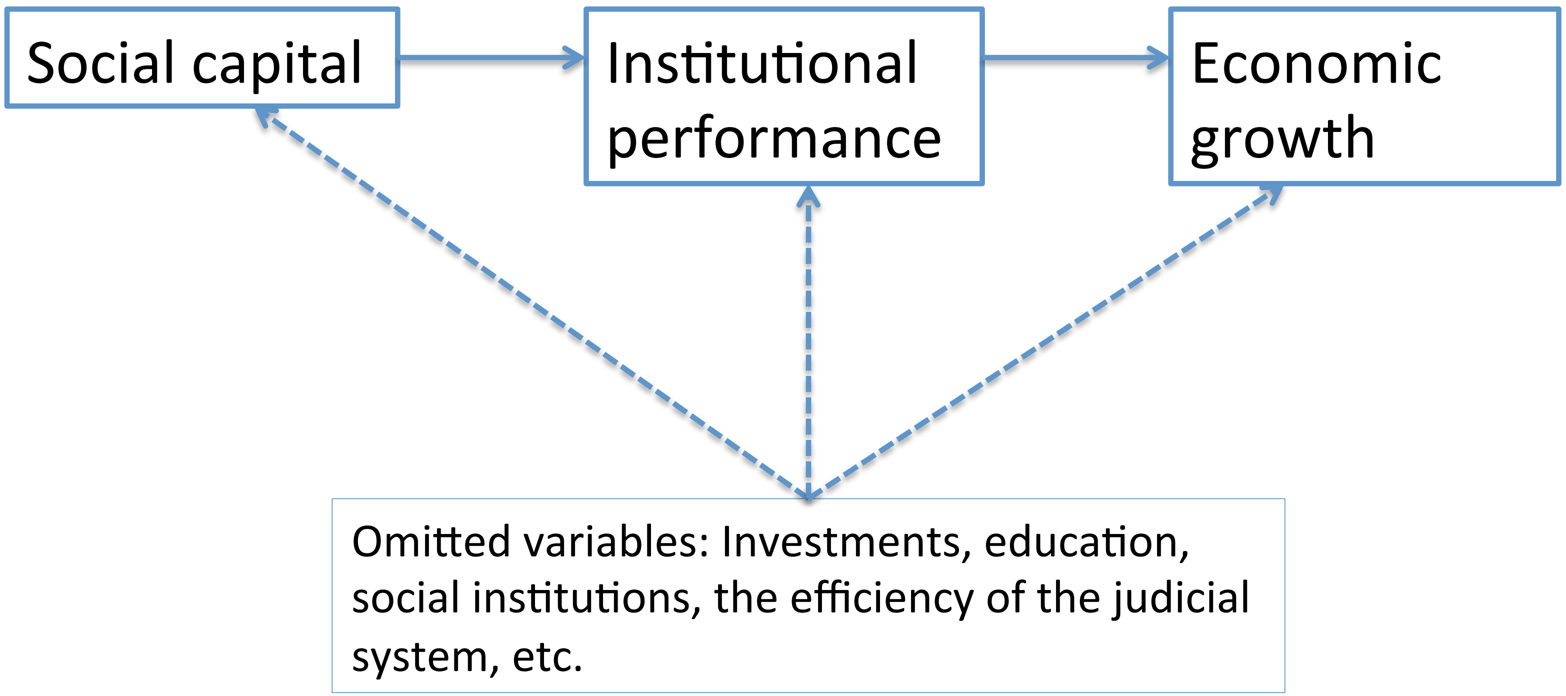
1) Newspaper readership.
2) Availability of sports or cultural associations.
3) Turnout in referenda.
4) Incidence of preference voting.

**2) Institutional performance**, measured by the first principal component of 12 indicators the relative institutional performance of regional governments (the same used by Putnam in his previous work).

**3) Citizen satisfaction**, based on surveys administered between 1977 and 1988 in which respondents were asked how satisfied they were with the activities of their regional governments. The index was the share of respondents who were "very" or "rather" satisfied, the alternatives being "little" or "not at all" satisfied.

# Networks and economic growth in Italy

- Heliwell and Putnam (hereafter HP) use **GDP per capita as the main outcome variable**.

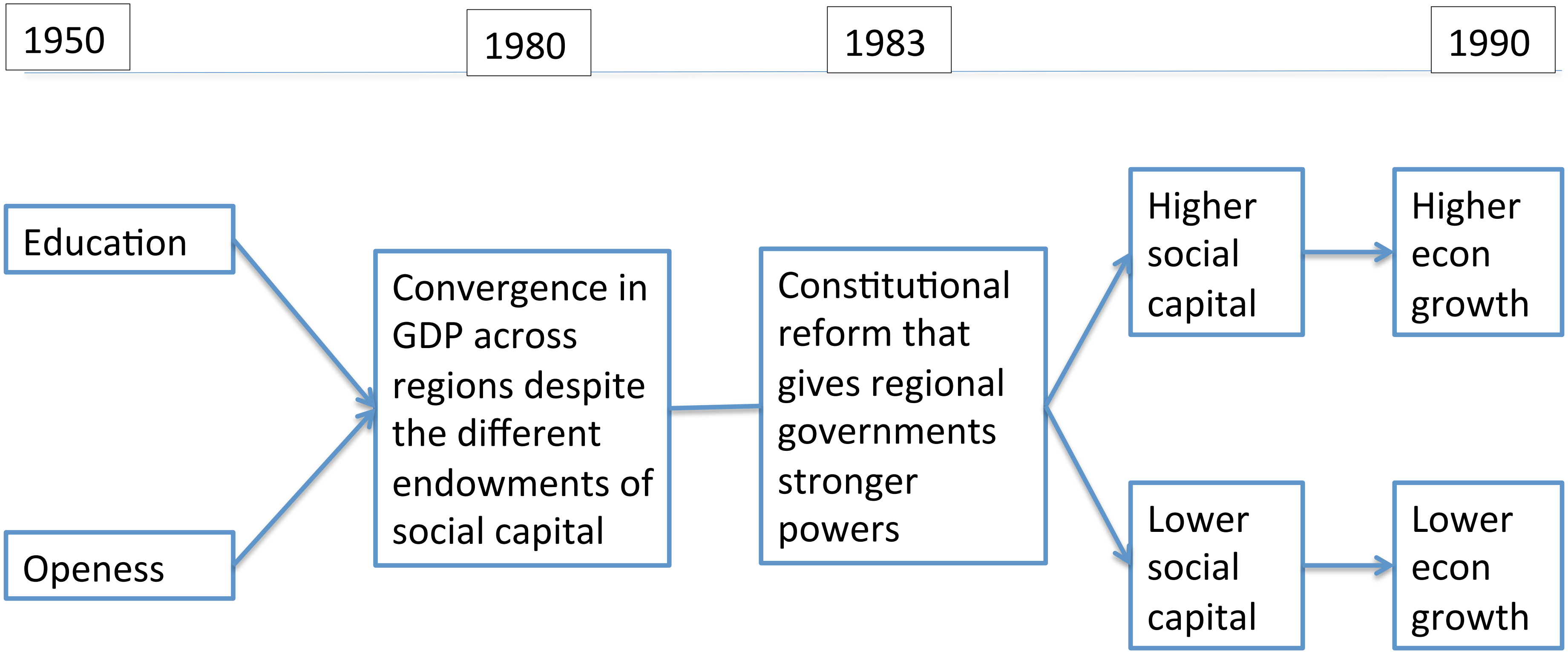


# Exclusion restrictions

- The choice of GDP per capita as variable of interest and the use of social capital to explain regional differences in its level and rate of growth requires the **assumption that differences across regions in other factors are not large (e.g. investment rate, education rate, social institutions, the efficiency of the judicial system), or at least that they are not correlated with social capital** (exclusion restriction).
- This is a strong assumption that leaves open the possibility that correlations between measures of social capital and higher levels or rates of growth of GDP per capita may be spurious and that causation may run from higher levels of GDP to higher social capital and better institutions.

# Networks and economic growth in Italy

- To sort out causality, the authors exploit the **natural experiment** of the Italian constitutional reform that changed regional governments' powers at the end of the 1970s.
- These reforms may have given better institutions more scope to encourage growth.
- **If those regions with more social capital experienced higher levels of growth after the strengthening of regional institutions due to the reform, then, HP argue, we would have solid evidence that some significance part of the correlation between social capital and growth should be attributed to a causal relation from social capital to growth**.


1950
1980
1983
1990
Education
Openess
Convergence in GDP across regions despite the different endowments of social capital
Constitutional reform that gives regional governments stronger powers
Higher social capital
Higher econ growth
Lower social capital
Lower econ growth

# Networks and economic growth in Italy

- HP estimate a conditional partial convergence model over the period 1950-1990 to find:
  1) Evidence of strong convergence of per capita GDP across Italian regions in the 1960s and 1970s, and significant evidence that **convergence is faster, and equilibrium income levels higher, in regions with more social capital**.
  2) The coefficient of **civic capital is always statistically significant**.
  3) From the mid-1980s, a few years after the implementation of the reform, **regions with greater social capital registered growing relative citizen satisfaction and greater economic growth**.

# Networks and economic growth in Italy

- It is interesting to note that, throughout the paper, HP perform the estimates testing, in each regression, 2 alternative measures of social capital mentioned before (civic community and institutional performance) without mentioning that only 1 of them (civic community) can actually be considered as a measure of social capital.
- This approach is very common in economics − namely in political economy and behavioral economics − when it comes to the measurement of social phenomena, and it strongly affects the empirical research on social capital.

# Another methodological issue: tautologies

- Citizen satisfaction and the institutional performance actually measure some social capital's hypothetical outcomes, instead of the core of the concept.
- They could be linked to the presence of social capital − in which case we could argue about the nature of their common presence in a certain territory: causal link vs. spurious correlation.
- But **they could well be not linked**.
- In general, measuring a certain phenomenon, say *X*, through an indicator of its supposed outcome leads to a tautology**: the phenomenon under investigation is observed wherever its hypothetical outcome is present**.
- In this way, the researcher is led to argue that the *X* is systematically correlated to that outcome or, worse, that it causes that outcome.

# Another methodological issue: tautologies

- If we pick a positive outcome for measuring *X* (for example, citizen satisfaction, or the efficiency of institutions, or reduced crime rates, reduced teenagers pregnancy rates, declining judicial disputes: all measures that have been used to assess social capital), then *X* becomes a "good thing" **by definition**.
- In other words, *X* will be considered as a positive force not because there is evidence showing its positive effect on some benign outcomes, but because it was measured through an indicator of that outcome, that is, it was ultimately defined as being the outcome itself. **Hence the tautology**.
- Another example: **blood donation** has been used in the literature to measure social networks. But are the two phenomena the same thing? Are they necessarily linked?

# Networks vs. trust and civic norms in econ growth

- In a famous paper published in the *Quarterly Journal of Economics*, Knack and Keefer (1997) used data from the World Values Survey (WVS) to assess:

1. The conflicting hypotheses of Putnam (1993) and Olson (1982), on the relationship between civic networks and growth.
2. The relationship between interpersonal trust, norms of civic cooperation, and economic performance, and some of the policy and other links through which these dimensions of social capital may have economic effects.
3. The determinants of trust and norms of civic cooperation, including civic networks and formal institutions.

- According to Scholar, the paper was cited 7154 times at the moment of writing these slides.

# The World Values Survey

- The WVS is a global network of social scientists studying changing values and their impact on social and political life, led by an international team of scholars, with the WVS association and secretariat headquartered in Stockholm, Sweden.
- The WVS consists of nationally representative surveys conducted in almost 100 countries which contain almost 90 percent of the world's population, using a common questionnaire.

## The Olson-Putnam controversy about civic networks

- We saw that Putnam attributed the economic success and governmental efficiency of northern Italy, relative to the south, in large part to its richer associational life, claiming that civic networks (e.g. voluntary associations) "instill in their members habits of co-operation, solidarity, and public-spiritedness" (Putnam 1993, pp. 89-90).
- This cooperation and solidarity is invoked most commonly to resolve collective action problems at the level of **smaller groups**, however.
- **If the economic goals of a group conflict with those of other groups or of unorganized interests, the overall effect of group memberships and activities on economic performance could be negative**.

# The Olson-Putnam controversy about civic networks

- Several authors questioned the beneficial role of social networks that was stressed by Putnam, Bourdieu and Coleman.
- Adam Smith noted that when “people of the same trade” meet “even for fun and diversion” the result is often “**a conspiracy against the public**” or “some contrivance to raise prices.”
- Olson (1982) observed that **<u>horizontal associations can hurt growth because many of them act as special interest groups lobbying for preferential policies that impose disproportionate costs on society</u>**.

# How KK measured civic networks

- Respondents in the World Values Surveys were asked whether they belonged to any of the following types of organizations:

a) social welfare services for elderly, handicapped, or deprived people;
b) religious or church organizations;
c) education, arts, music, or cultural activities;
d) trade unions;
e) political parties or groups;
f) local community action on issues like poverty, employment, housing, racial equality;
g) third world development or human rights;
h) conservation, the environment, ecology;
i) professional associations;
j) youth work (e.g., scouts, guides, youth clubs, etc.)

- Then, they built a measure of the density of the engagement in civic networks (GROUPS) as the **average number of groups cited per respondent in each country**, claiming that this measure constitutes a reasonable approximation of Putnam's notion of the density of horizontal networks in a society.

## The Olson-Putnam controversy about civic networks

- KK then tested the relationship between GROUPS and economic growth across 29 countries with simple OLS estimates.
- **Group membership was found not being significant in either growth or investment equations**.
- The authors explain this result as the harmful effects of groups as rent-seeking organizations theorized by Olson (1982).
- They then try to differentiate "Putnam-esque" from "Olsonian" groups…

# The Olson-Putnam controversy about civic networks

a) social welfare services for elderly, handicapped, or deprived people;
b) **religious or church organizations**;
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g) third world development or human rights;
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j) **youth work (e.g., scouts, guides, youth clubs, etc.)**

Are treated as networks which involve social interaction that can build trust and cooperative habits, i.e. "Putnam-esque".

# The Olson-Putnam controversy about civic networks

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i) **professional associations;**
j) youth work (e.g., scouts, guides, youth clubs, etc.)

Are treated as networks that are likely to act as "distributional coalitions", i.e. "Olsonian".

# The Olson-Putnam controversy about civic networks

- The authors found that membership in civic networks was not significant in either the growth or investment equations.
- Conversely, membership in Putnam-esque networks "was found to harm investments".
- In general, no support is given to the conjecture that the effect of groups is neutral because Olsonian and Putnam-esque groups balance each other.
- The authors conclude there is no empirical support for the claims about the positive role of networks that were advanced by Putnam – and, to a certain extent, by Bourdieu and Coleman.

# A problem of classification?

- Do KK estimations about the role of civic networks make sense?
- In a first stage of the analysis, the authors measure membership in civic networks through an indicator summarizing the engagement in very different types of networks.
- Some of those networks indeed have the “virtuos” characteristics anticipated by Putnam. Others do not. Rather, they look as the types of networks thant conspire against the public.
- When KK try to differentiate between civic networks, they seem to repeat the same mistake, as a closer look to the list of associations can easily show.
- **A further methodological issue: classifications are often arbitrary and always need a in-depth theoretical justification!**
- **Other problem: KK are quite assertive in commenting their own results but do they really capture causal relations?**

# The role of trust

- Since Putnam stressed the role of trust that can be generated by networks and, more in general, by the civic community, K&K also tested the **relationship between trust, the average annual growth in per capita income over the 1980-1992 period, and investment rates in 29 countries**.

# Why trust matters

- There is a fundamental and simple reason why trust might matter for economic growth: economic activities that require some agents to rely on the future actions of others are accomplished at lower cost in higher-trust environments.
- **Arrow** (1972) stated that "Virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time. It can be plausibly argued that much of the economic backwardness in the world can be explained by the lack of mutual confidence" (p. 357).
- Trust-sensitive transactions include those in which goods and services are provided in exchange for future payment, employment contracts in which managers rely on employees to accomplish tasks that are difficult to monitor, and investments and savings decisions that rely on assurances by governments or banks that they will not expropriate these assets.

# The role of trust

- Other examples of why trust matters:
  - **Individuals in higher-trust societies spend less to protect themselves from being exploited in economic transactions**. Written contracts are less likely to be needed, and they do not have to specify every possible contingency. Litigation may be less frequent. Individuals in high-trust societies are also likely to divert fewer resources to protecting themselves-through tax payments, bribes, or private security services and equipment-from unlawful (criminal) violations of their property rights.
  - **Low trust can also discourage innovation**. If entrepreneurs must devote more time to monitoring possible malfeasance by partners, employees, and suppliers, they have less time to devote to innovation in new products or processes.
  - Government officials in societies with higher trust may be perceived as more trustworthy, and their policy pronouncements as thus being more credible. To the extent that this is true, trust also triggers greater investment and other economic activity.
  - Promises by central bankers that they will not raise interest rates, assurances by ministers of finance that a nominal ex-change rate anchor is fixed in stone, and guarantees that tax legislation will not be rapidly amended are all likely to be more credible in societies where people trust each other more.

# The role of trust

- Other examples of why trust matters:
  - **Trusting societies are more likely to have higher returns to accumulation of human capital**. Where trust improves access to credit for the poor, enrolment in secondary education.
  - Where trust facilitates the enforcement of contracts, the return to specialized education will increase.
  - Finally, in low-trust societies, hiring decisions will be influenced more by trustworthy personal attributes of applicants, such as blood ties or personal knowledge and less by educational credentials, than in high-trust societies, reducing the returns to acquisition of educational credentials in low-trust societies.

# Measuring trust

- The main source for the cross-country measurement of trust and other values is the World Values Survey (WVS), www.worldvaluessurvey.org.
- Other important sources are the European Social Survey, the Eurobarometer, the Afrobarometer and national surveys such as the British Household Panel, the German Socio-Economic Panel, the Italian Multipurpose Survey on Household, the US General Social Survey, etc.

# Measuring trust

- The question used by K&K to measure trust is:

  "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?"
- K&K's trust indicator (TRUST) is the percentage of respondents in each nation replying "most people can be trusted" (after deleting the "don't know" responses).
- The mean value is 35.8 percent, with a standard deviation of 14 percent

# Measuring trust

- This trust item is somewhat ambiguous with respect to which "people" respondents have in mind. The term "people" is general enough that responses should not merely reflect expectations about the behavior of friends and family.
- If by “most people” respondents consider most people that they transact with, the variation in our trust measure will be reduced.
- Data from experiments conducted by the Reader's Digest (as reported in The Economist, June 22, 1996) provide reassuring behavioral evidence for the validity of these survey measures. Twenty wallets containing $50 worth of cash and the addresses and phone numbers of their putative owners were "accidentally" dropped in each of twenty cities, selected from fourteen different western European countries. Ten wallets were similarly "lost" in each of twelve U. S. cities. The number of wallets returned with their contents intact was recorded for each city.
- The percentage of wallets returned in each country closely tracks the WVS measures: it is correlated with TRUST at .67.
- The high correlation of TRUST with the percentage of wallets returned (by strangers), and its relatively low correlation with trust in family members, indicate that TRUST is primarily capturing "generalized" trust as opposed to "specific" trust placed in people one has repeated interactions with.

# K&K results on trust

- After controlling for: 1) the proportion of eligible students enrolled in secondary and primary schools in 1960, 2) per capita income at the beginning of the period, and 3) the price level of investment goods, relative to the United States, K&K found that:
- Trust exhibits a strong and significant relationship to growth.
- **A ten-percentage-point rise in trust variable is associated with an increase in growth 0,8 percentage points**.
- A one-standard-deviation change in trust (fourteen percentage points) is associated with a change in growth of more than one-half (.56) of a standard deviation, **nearly as large as the standardized coefficient for primary education** (.64).

# K&K results on trust

- K&K then try to address endogeneity problems by instrumenting trust.
- They pick 2 instruments:

1) The percentage of a country’s population belonging to the largest "ethnolinguistic" group, where groups are identified by race, language, or religion depending on which of these appears to be the most important cleavage in a society.
2) The number of law students in 1963 as a percentage of all postsecondary students.

- Are we sure these are valid instruments?

# K&K results on trust

- Instrumenting for TRUST with these two variables, TRUST remains a significant predictor of growth.
- When investment's share of GDP is included as a regressor in growth equations, coefficients for TRUST remain positive but are no longer statistically significant, suggesting that trust can foster growth through factor accumulation.
- Similar effects are observed with measures of human capital accumulation. When secondary enrollment is omitted from the regressions, TRUST's coefficient rises.
- When K&K regress trust on investment/GDP, averaged over the 1980-1992 period, they found it being positively correlated with investment, but being significant at the .05 level only for a one-tailed test.
- Each seven-percentage-point rise in trust were associated with a one-point rise in investment's share of GDP.
- Results were not sensitive to different specifications.

# Civic networks vs. trust

K&K argue that the **relationship between trust and civic networks** may be double-sworded:

Involvement in formal or informal networks and associations (the density of networks of horizontal association) **may build trust and civic-minded behavior**.
Such relationships either break down information asymmetries or create a pattern of repeated interactions that allow self-enforcing agreements to be reached.

Relatively homogeneous associations in heterogeneous societies **may strengthen trust and cooperative norms within an ethnic (or income, or social) group, but weaken trust and cooperation between those groups**.

# Civic networks vs. trust

- K&K found that network memberships was not a significant predictor of trust.
- Disentangling the two types of networks, they found that the more politically oriented "Olson" groups are associated, surprisingly, with stronger trust and cooperative attitudes, while the "Putnam" groups have no effect on trust (equation 3).
- **These are interesting correlations that are worth being mentioned, but conceptual, measurement, and endogeneity issues must be accounted for when handling these results.**

# Networks or trust? A few critical remarks

- The treatment of networks and trust as “interchangeable” parts of the same concept of social capital fostered the consolidation of a misunderstanding in the literature.
- Putnam (and Bourdieu and Coleman) treated networks as the core of the multidimensional concept of social capital, then claimed a role for social capital in economic growth.
- After that, the following literature tested the role of the multidimensional concept of social capital in a wide (infinite) range of possible outcomes.
- Sometimes, social capital was measured through networks, some others, it was not. Rather, each study picked the most convenient measures to the purpose of the empirical analysis.
- Social capital was then attributed the responsibility of a series of positive outcomes. In many of these studies indicators of trust, or tolerance, were adopted to measure social capital.
- At that point, however, thank to the extraordinary influence of the work of Putnam in the economics debate, the definition of social capital was tightly linked to the concept of networks. Each empirical study on social capital in economics started with a brief introductory digression about the concept, which in most cases substantially relied on the work and definitions proposed by Putnam (Bourdieu and Coleman). All the three authors defined the core of social capital as mostly composed of networks.
- So, the message passed that networks are in most cases a good thing that should be preserved to the purpose of boosting growth, well-being and public welfare
- For example, there has been a disproportionate emphasis on the desirability of civil society organizations and on the need to strengthen them.

# References


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# Examples of possible exam questions

- Briefly summarize (3 statements) the main results of the study by Putnam and Heliwell (1995) about the relationship between social capital and economic growth.
- Briefly explain the Olson-Putnam controversy about civic networks and how Knack and Keefer (1997) measured those networks.
- Briefly summarize the results obtained by Knack and Keefer (1997) in their cross-country analysis of the role of networks and trust in economic growth.

# Highlights

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**Thank you!**