From Earth to Solaria. And back. The Internet, Social Capital, and Subjective Well-Being

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Political economy and the outlook for capitalism

The Conference will be held in Paris, France, 5-8 July 2012, and aims at bringing together scholars from all strands of political economy and heterodox economics in order to discuss their future and the recent developments in the global economy and in economic science following the global economic crisis. For this conference, Asimina Christoforou, coordinator of the IIPPE social capital working group, has proposed a panel with a general theme on the contribution of Pierre Bourdieu in economics. You are invited to submit papers and ideas for this panel. (Photo by Ecstaticist from Flickr).

Follow the link for full details

Resources

- Data
- PhD theses
- Web sites
- Academic rankings

Publications

Next conferences

Socially Responsible Behavior, Social Capital and Firm Performance
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Thu, 2011-10-27 - Fri, 2011-10-28
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Thu, 2011-10-20
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Upcoming events

2011, October
Socially Responsible Behavior, Social Capital and Firm Performance
Fri, 2011-10-21 - Sat, 2011-10-22
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2011, November
The Social Capital Foundation 2011 Conference
Wed, 2011-11-02 - Sat, 2011-11-05
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2011, November
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Fri, 2011-11-18 - Sat, 2011-11-19
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2011, November
Economic Insecurity: Measurement, Causes and Policy Implications
Tue, 2011-11-22 - Wed, 2011-11-23
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2011, November
Recent Advances on the Role of Beliefs in Decision Theory
Thu, 2011-11-24 - Fri, 2011-11-25
more

2011, November

you can download my papers from:

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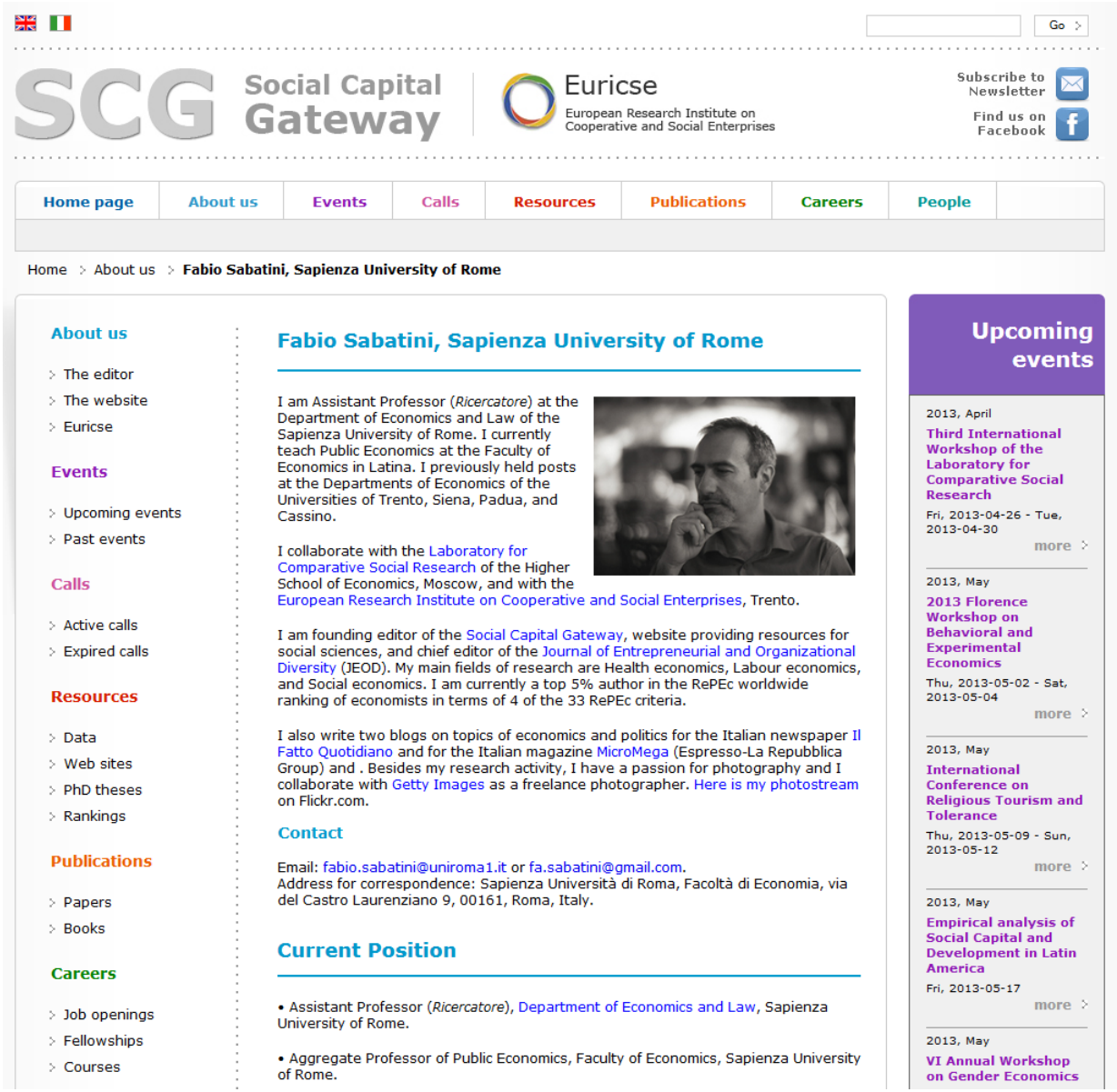
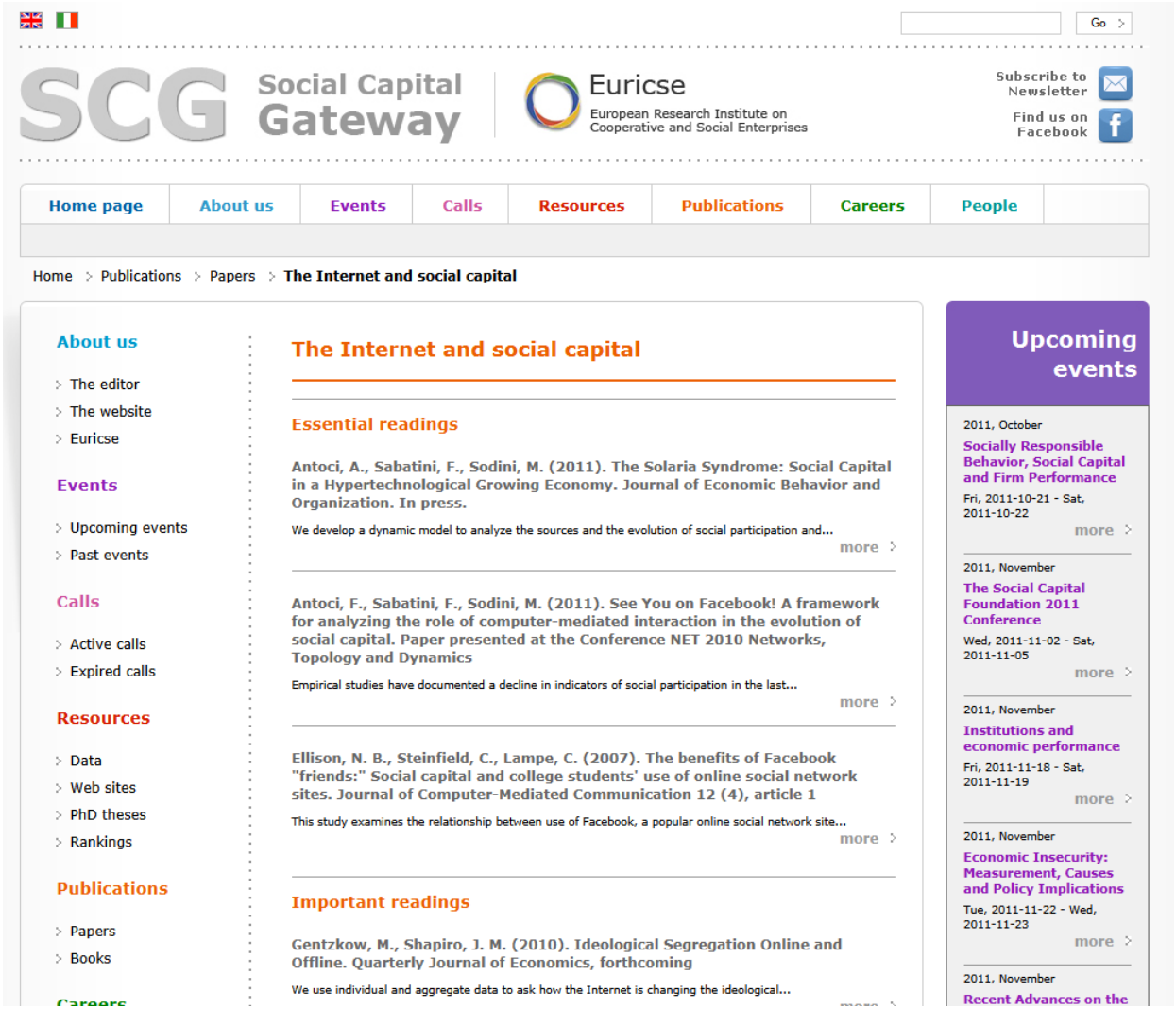
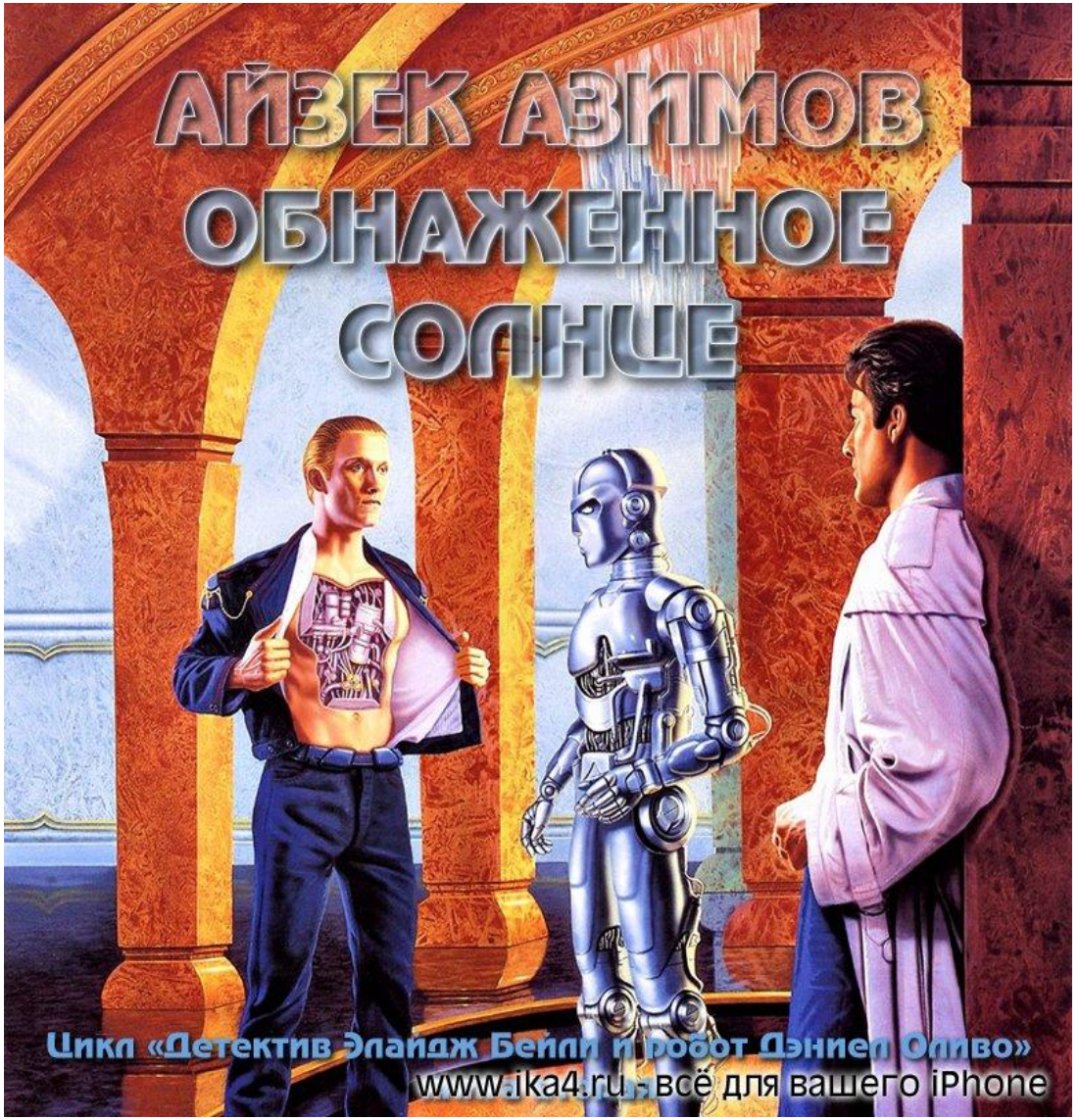


This presentation is largely devoted to the role of the Internet in the accumulation of social capital.
All references can be retrieved (and freely downloaded) at the url:
http://www.socialcapitalgateway.org/internet



Solaria

- **Solaria** is a fictional planet **Isaac Asimov** described in the Foundation and Robot series.
- It was the last of the fifty worlds to be colonized by the so-called *Spacers*, a line of space colonists.



The Naked Sun, 1957 (Обнаженное солнце)

Solaria

- After centuries of **sustained economic growth** boosted by an unbounded **technological progress**, Solaria developed the most eccentric culture of the colonies.
- Solarians' lives were marked by **technology**: **citizens never had to meet**, save for **sexual contact** for reproductive purposes.
- All other contacts were accomplished by sophisticated holographic viewing systems, with most Solarians exhibiting a strong **phobia towards actual contact**, or even being in the same room as another human.
- All work was done by **robots**: there were indeed thousands of robots for every Solarian.

Solaria

- As centuries went by, **economic growth** and **technical progress** made Solaria become even more rigidly and obsessively isolationist.
- Its inhabitants genetically altered themselves to be **hermaphroditic** in order to avoid sexual contacts.
- At the final stage of Solarian civilization, the **human inhabitants disappeared**, giving the impression that they had died out (although they had in fact **withdrawn underground**).
- Their estates continued to be worked by **millions of robots**.

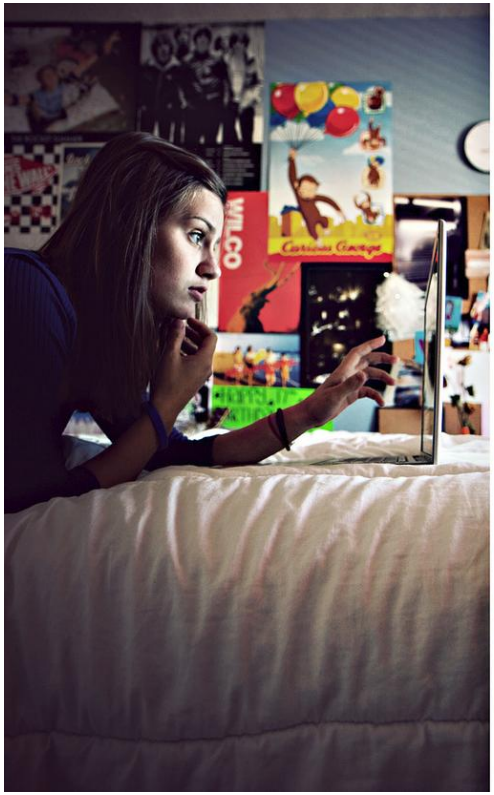
Foundation and Earth, 1986 (Прелюдия к Основанию)

Growth, technology and the risk of "dehumanization"

- Asimov draws on the Solaria metaphor to warn against the risks of dehumanization that may be caused by excessive **economic growth** and **technological progress**.
- In the 1950s, Asimov's novel well embodied the common fear according to which **technology would have progressively destroyed social interaction**.

Today, April 28, 2013

- Today, our lives are marked by **technology** almost as those of Solarians, and – despite the spreading of some criticism - **growth is still the policy makers' pole star**.
- The widespread diffusion of broadband, the internet revolution, and the true explosion of online networks such as Facebook and Twitter create growing worries about the risk of relational poverty.



Today, April 28, 2013

- The **folk wisdom** pointing to technology as one of the major responsible of the widespread **social isolation** of our time has get stronger and stronger, walking at the same pace of technological advance.

Aim and scope

- The main aim of this project is to **empirically** explore the relationships between the use of definite communication technologies – namely, the Internet and online networks - usage, social capital, and two dimensions of well-being – as given by happiness and health at the individual level.
- Our final purpose is to provide a set of policy guidelines for the improvement of well-being and to draw directions for future research in the field.

My research questions

- Do communication technologies and Internet usage – with particular regard to participation in online networks – strengthen or weaken social capital?
- **How do online networks affect the substitutability between relational goods and material goods** in individuals' preferences, in a context of economic growth and growing lack of leisure time?
- **Do online interactions crowd-out face-to-face encounters?**
- What is the effect of the interaction between Internet uage and social capital on **subjective well-being**?
- Spin-off: How do the Internet and social capital (and their interaction) affect **individual health**?

- **Relational goods** are a distinctive type of good that can only be enjoyed if shared with others. They are different from private goods, which are enjoyed alone (Uhlaner 1989).

Outline

- Data and method
- Related literature
- Contribution to the literature
- Theoretical framework (if remains time)

I have theoretically addressed these issues in a number of published papers:

Antoci, A., Sabatini, F., Sodini, M. (2012). **The Solaria Syndrome: Social Capital in a Hypertechnological Growing Economy**. *Journal of Economic Behavior and Organization* 81 (3), 802-814.

Antoci, F., Sabatini, F., Sodini, M. (2012). **See You on Facebook! A framework for analyzing the role of computer-mediated interaction in the evolution of social capital**. *The Journal of Socio-Economics* 41, 541–547.

Antoci, F., Sabatini, F., Sodini, M. (2013). **Economic growth, technological progress and social capital: the inverted U hypothesis**. *Metroeconomica*, doi: 10.1111/meca.12007.

Antoci, A., Sabatini, F., Sodini, M. (2013). ***Bowling alone but tweeting together: the evolution of human interaction in the social networking Era***. *Quality & Quantity*, doi: 10.1007/s11135-013-9863-z.

which can be downloaded at the url http://www.socialcapitalgateway.org/editor

Data

- The **first stage** of the project will focus on **Italy** and **Russia**, two notable case studies in the social capital literature.
- The Italian case will be examined through the exploration of a **pooled cross-section of data** including the last three waves (2008, 2010, and 2012) of the Multipurpose Survey on Households (MHS) provided by the Italian National Institute of Statistics (Istat).
- This survey contains **rich information on**

  - Internet usage – with special regard to participation in online networks

  - structural and cognitive social capital

  - physical health and health-related behaviours

  - life satisfaction.

Data

- As for Russian data, the author is confident in the feedback of LCSR experts for retrieving information about existing and suitable microdata.
- In a **second stage** of the project, Italy and Russia should be analyzed in comparison with other countries drawing on WVS data, which includes information on life satisfaction, self-reported health, social norms and values, structural and cognitive social capital.
- The 2010-2012 wave of the survey – when available – will allow a first exploratory investigation into the role of the Internet in individual health and the evolution of social norms. The feedback of LCSR experts on WVS will be crucial at this stage.

Empirical problems: “aggregation”

- Great part of existing cross-national studies on the social and economic outcomes of social capital is based on measures of trust taken from the WVS.
- Trust measured through surveys is a micro and cognitive concept, in that it represents the individuals’ perception of their social environment, related to the particular position that interviewed people occupy in the social structure.
- The aggregation of such data, however, creates a measure of what can be called macro or social trust which looses its linkage with the social and historical circumstances in which trust and social capital are located.
- Fine (2001) argues that “If social capital is context-dependent – and context is highly variable by how, when and whom – then any conclusion are themselves illegitimate as the basis for generalisation to other circumstances” (Fine, 2001, p. 105).

Empirical problems: endogeneity

- Two main empirical issues on the relationship between social capital and individual well-being deserve to be highlighted.
- **Multidimensionality**: social capital is a very multidimensional phenomenon and there is no univocal evidence about which of its dimensions is good for life satisfaction, health and, more in general, individual well-being.
- The relationship between the multiple facets of social capital and healthis context-dependent and varies according to a number of individual, social, and institutional features.
- **Omitted variables**: even if many studies identify social capital as a significant predictor of individual well-being, there are reasons to suspect this result to be due to a spurious correlation. Individual effects, such as exogenous shocks, may be correlated with both social capital and several aspects of well-being.
- **Reverse causality**: it seems reasonable to assume the existence of reverse causality: for example, as regards health, unhealthy people may face obstacles to social interaction, while healthy people may be more inclined to certain relational activities such as, for example, doing sports with others.

Related literature

- Early studies in the field of sociology mostly shared the fear that the internet would cause a progressive reduction in social interaction. This concern was based on three main arguments.

  1) First, the more time people spend using the Internet during leisure time, the more time has to be detracted from social activities like communicating with friends, neighbours and family members (Nie 2001, Nie et al. 2002, Gershuny 2003, Wellman et al. 2006).
- These studies date back to shortly before the explosion of online networking, and they could not differentiate between pure entertainment and social activities.

Related literature

2) Second, the Internet allows users to conduct many daily transactions such as shopping or banking online from home (Nie et al. 2002, Franzen 2003).

- Supporters of this argument suggest that to shop and carry out a number of tasks without leaving home may reduce face-to-face interaction.
- A straightforward objection is that transactions and other commissions often do not have particular relational implications. In fact, they divert time from relational activities.

Related literature

3) A third more intriguing argument relies on the concept of “community without propinquity” (Weber 1963) and on the earlier theories of the Chicago School of Sociology.

- In a famous paper, Wirth (1938) claimed that a heterogeneous urban environment would be characteristic of the absence of “intimate personal acquaintanceship” and would result in the “segmentation of human relations” into those that were “largely anonymous, superficial, and transitory” (Wirth 1938, p. 1).
- This argument can be easily applied to the Internet, which seems to have the potential to fragment local communities into new virtual realities of shared interest that may negate the necessity of face-to-face encounters.
- The “anonymization hypothesis”, however, has been challenged by results from studies specifically targeted at verifying the effects of online networking on communities living in a precise geographic location (e.g. a city area or suburb).

Related literature

- Findings from the latest wave of studies (i.e. carried out between 2006 and 2010) on the relational effects of social networking unanimously converge on the claim that online networks support the consolidation and development of existing ties.
- These works are more reliable than those arguing for a possibly negative relationship between web-mediated interaction and social capital because they were conducted *after* the explosion of online networking. Thus, they specifically aim to assess the implications of SNSs.

Related literature

- According to this strand of the literature, SNSs:

1) Support the strengthening of bonding and bridging social capital (Valkenburg et al. 2006, Ellison et al. 2007, Steinfield et al. 2008, Gilbert et al. 2009, Burke et al. 2009)
2) Allow the crystallization of weak or latent ties that might otherwise remain ephemeral (Haythornthwaite 2005, Ellison et al. 2007)
3) Support teenagers' self-esteem - encouraging them to relate to their peers (Ellison et al. 2007, Steinfield et al. 2008)
4) Stimulate social learning (Burke et al. 2010)
5) Enhance social trust, civic participation and political engagement (Valenzuela et al. 2009)
6) Facilitate the creation of electronic networks of practice (Vasko and Faray 2005, Landqvist and Teigland 2010, Matzat 2010)
7) Help the promotion of collective actions to the pursuit of shared goals (Landqvist and Teigland 2010).

Contribution to the literature

- Previous studies basically belong to the fields of applied psychology and computer-mediated communication studies. IMO endogeneity problems are not satisfactorily addressed in these studies.
- Previous empirical investigations do not draw on representative samples. They are generally conducted on severely biased samples of particular populations (e.g. college students).
- The wealth of the Istat's questionnaire may allow a deeper investigation of the phenomena of interest and may give the chance to reliably address endogeneity issues.
- The theoretical framework my co-authors and I developed in our previous works provides interesting and original hypotheses to be tested within the empirical analysis – see, for example, the crowding-out hypothesis and the possible substitution between material and relational goods.

Theoretical framework

Antoci, A., Sabatini, F., Sodini, M. (2012). **The Solaria Syndrome: Social Capital in a Hypertechnological Growing Economy**. *Journal of Economic Behavior and Organization* 81 (3), 802-814.

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Model: Private vs. relational goods

- We assume that $B_i(t)$ is produced through the joint action of the **time devoted to social activities**, the **average social participation**, and the **stock of social capital**:

$$B_i(t) = F(s_i(t), \overline{s}(t), K_s(t))$$

- The time agent i does not spend for social participation, is used as an input in the production of the private good. Moreover, we model the claims of the empirical literature by assuming that **SC plays a role in private production**:

$$C_i(t) = Y_i(t) = G(1 - s_i(t), K_s(t))$$

Model: Private vs. relational goods

- The instantaneous utility of the representative agent is represented by the following *CES* function:

$$U(C,B) = [\lambda C^{-\theta} + (1-\lambda)B^{-\theta}]^{-\frac{1}{\theta}}$$

  i.e. agents' well-being depends on private and relational goods.

- We assume that **private goods can satisfy both private and social needs**. On the contrary, **relational goods cannot satisfy primary needs** such as food, security, clothing, and shelter.

Model: Private vs. relational goods

- These goods serve different needs. However, we introduce the possibility that **private goods substitute for relational ones in the satisfaction of social needs, or, at least, for compensating the deprivation of human interactions**. For example, a material, highly technology intensive, good like a playstation can (partially) console for the unavailability of 21 friends to play football on a sport field.
- The extent to which such a substitution process can take place is given by $\rho = \frac{1}{1+\theta}$ measuring the (constant) elasticity of substitution between B and C. We will address two cases:
- **Low substitutability** between B and C ($\theta > 0$). In this situation, material and relational goods are complements.
- **High substitutability** between material and relational goods ($\theta > 0$). We will refer to this case by saying that B and *C* are substitutes.

Model: accumulation of social capital

- Following hints from rational choice sociology, we assume that most of the times the creation of social ties does not depend on rational investment decisions. Social capital is accumulated as a **by-product of social participation**.
- Following hints from political science, we assume that the production of private goods exerts a **positive spillover** on social capital's accumulation.
- Since human relations need care to be preserved, we introduce a positive SC's **depreciation rate** η to account for their possible cooling over time:

$$\dot{K}_s = I(\bar{s}, K_s) - \eta K_s = \bar{s}^{\delta} K_s - \eta K_s$$

Model: accumulation of social capital

- The resulting stock is a **public resource**, which enters as an argument in every agent's utility function due to its ability to contribute to the production of both private and relational goods.

Model: the agent's problem

- Letting *r* be the discounting rate of future utility, the *i*-agent's maximization problem is:

$$\max_{s(t)} \int_0^{+\infty} U(C,B)e^{-rt}dt$$

- Under the constraint:

$$Y(t) = \left[1 - s(t)\right]K_s^{\alpha}(t)$$

- Since agents are a continuum, *i* takes the average values of *s*, *B*, and *Y* as given.
- **Please refer to the paper** if you want to learn more about the exact functional forms.

Model: exogenous technological progress

- In this framework, we introduce an exogenous technological progress.
- We assume that technological progress raises productivity in the production of both private and relational goods.
- The assumption is based on the observation that **technology can help the production of relational goods in a variety of ways**.

$$Y(t) = \left[1 - s(t)\right] K_s^{\alpha}(t) T^{\pi}(t)$$

$$B(t) = s^{\beta}(t) s^{-1-\beta}(t) K_s^{\gamma}(t) T^{\psi}(t)$$

- where *T* represents technological progress, growing at the exogenous rate μ.

Results

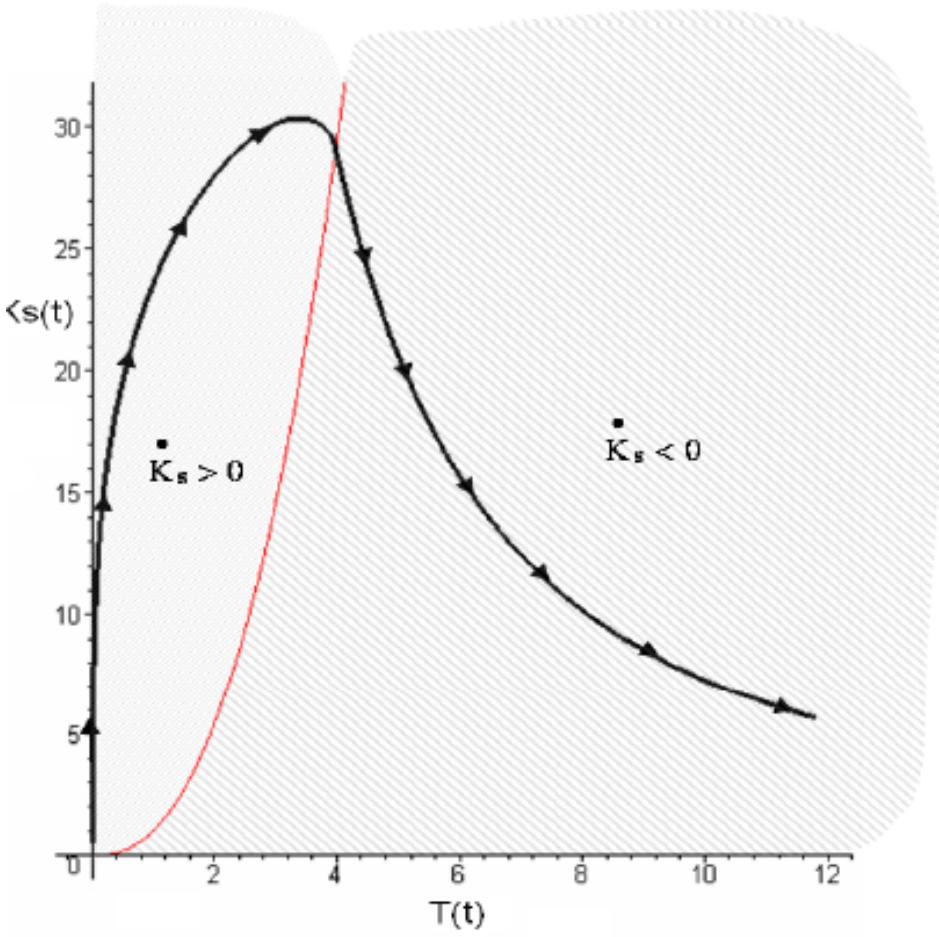
- If the following assumptions hold:

A) There is positive substitutability between *B* and *C*

B) and K_S gives a significant contribution to the production of private goods.

C) and technological progress contributes to the production of material goods more than to the production of relational goods:

- **Then the stock of social capital may exhibit a growth followed by a decline, so that its relationship with technological progress is described by an inverted U-shaped curve**.



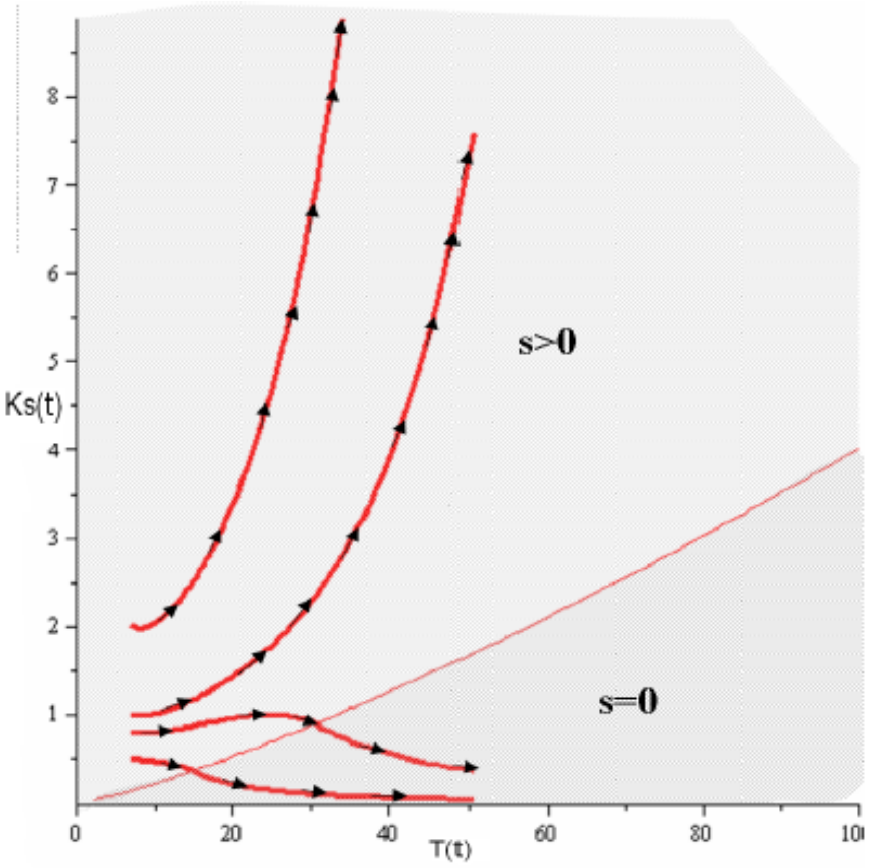
Results

- If there is no substitutability between *B* and *C*
- Or if:

A) K_s contributes to the production of relational goods more than to the production of material goods

B) and **technological progress supports productivity more in the production of relational goods than in the production of material goods**:

- Then, the stock of social capital can unboundedly grow.



Interpretation of results

- The role of technology in social interactions.
- **When can technological progress support the production of relational goods more than the production of material goods?**
- In our view, this is **the case for online networking**, i.e. participation to social networking sites such as **Facebook** and **Twitter**.

Interpretation of results

- In the rest of the presentation, we will show:

  A) how, in a world characterized by a rising pressure on time, **the evolution of human interaction implies a partial shift from face-to-face interactions to Internet-mediated interactions**.

  B) Why we do not have to worry about this change.

An evolutionary model (Antoci et al. 2011c and 2011d)

- We model a society composed by a continuum of identical individuals. In each instant of time they choose how to allocate their leisure time, *p*, which is exogenously given, between two kinds of social interaction.
- We assume that, in each instant of time *t*:

  1) A share *x(t)* of agents embrace a **social networking strategy *SN***, i.e. their social participation relies both on online networks and face to face interaction.

  2) The remaining share of the population *1 – x(t)* adopts a **face-to-face strategy *FF***: they do not interact online and thus develop all their relationships through face to face encounters.

Payoffs

- The payoff of the *FF* strategy depends on x(t) and on the share of time devoted to social interaction, p.
- The payoff of the *SN* strategy depends on the share of the population adopting it, x(t), on the time agents devote to social participation, p, and on the wealth of ties - or, in other words, the stock of social capital - of online networks at time *t*, : $K_n(t)$

Payoffs: further assumptions

- We assume that the payoff of the FF strategy decreases as the share of the population adopting the *SN* strategy grows.
- The payoff of the SN strategy increases as K_n, i.e. the stock of the internet's social capital, grows.

  In other words, the more our friends join Facebook, the higher the utility of subscribing to the platform will be as well. On the other hand, being outside of the network (i.e. continuing to play the *FF* strategy) may imply an increasing relational cost.

Payoffs: further assumptions (the role of *p*)

- The more the time *p* available for social participation declines, the more the *SN* strategy becomes comparatively more profitable.
- By contrast, a growth in the time *p* for leisure makes the *FF* strategy comparatively more profitable.
- If agents are forced to be deeply immersed in their professional activities, the possibility to take care of human relationships in spare moments (e.g., while on the train, or at home before going to sleep) becomes a precious means for the preservation of social life.
- *SN* can thus be interpreted also as **a "defensive" strategy that individuals adopt to protect their social life from growing pressure on time**.

Results of the analysis of the model

- We show that two “extreme” stationary states are “attractive”:

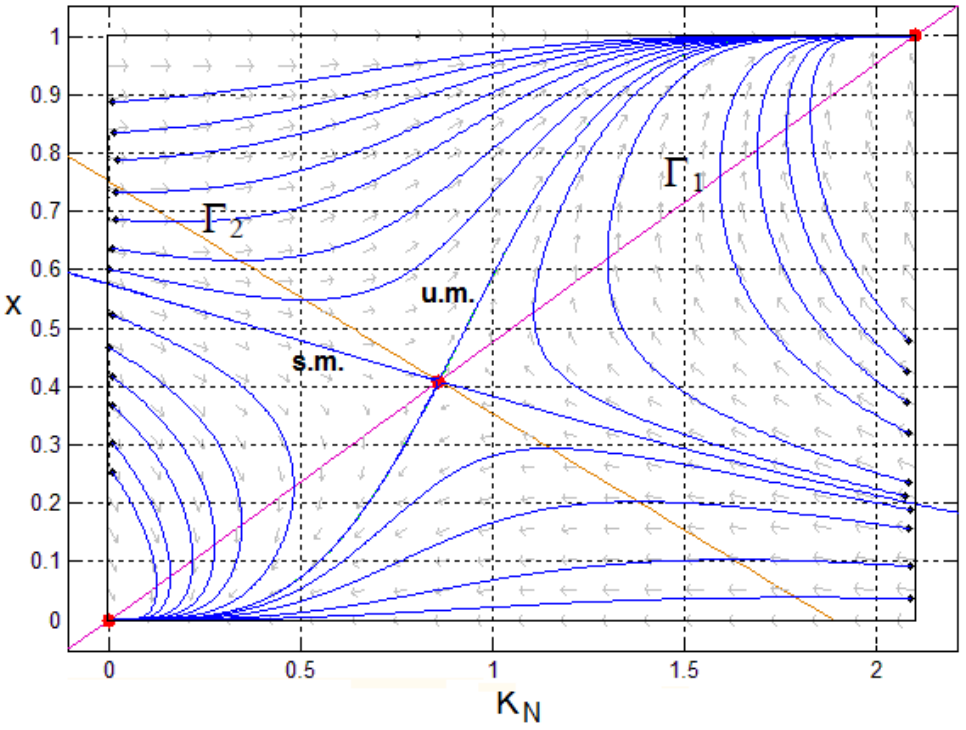
  1) $(K_n, x) = (0, 0)$ all agents adopt the FF strategy

  2) $(K_n, x) = [(p\beta / \gamma), 1]$: the stock of the Internet social capital reaches its highest possible level and all agents embrace the social networking strategy.

Results of the analysis of the model

• In the two cited papers we show that the basins of attraction of the stationary state where all agents chose the *SN* strategy (and the stock K_n representing the wealth of knowledge and ties of the Internet reaches its highest level) expands as the time *p* available for social participation decreases.

• **Internet-mediated interaction can be seen as a tool allowing individuals to manage their social relationships despite increasing time pressures and possible distance constraints**.



The yellow line moves towards the left-bottom part of the plane as *p* decreases