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Why do people engage in networks?
– The need for a micro model of social capital

Abstract

Robert Putnam has convincingly showed the positive effects of social capital. He uses a society centred approach, where social capital becomes a characteristic of society and not an individualistic one. However, due to this approach he fails to show why individuals invest in social capital, i.e. Putnam misses the micro foundation. This opens for criticism and misunderstanding. What we need is a micro model for social capital.

When constructing a micro model for social capital, Pierre Bourdieu's ideas on the matter can inspire. Bourdieu has showed not only why people invest in social capital, but also why some networks flourish, while others die. If we let us be inspired by Bourdieu, we can show why some individuals have stronger incentives to invest in social capital than others.

This paper builds and estimates a micro model of social capital. The model's focus is voluntary organisations during the period 1994-2008 and the data used come from the World Value Survey (WVS), which gives us a possibility to compare countries on a micro level.

Introduction

Norms, trust, honesty and networks are important in the way the economy and the society as a whole works. Within political science, Robert Putnam's books "Making Democracy Work" and "Bowling Alone" brought the issue of social capital (and specifically the issue of trust) to new dimensions and have since 1993, when "Making Democracy Work" was released, been a continuous matter of discussion. Within sociology and humanities Pierre Bourdieu introduced his views on social capital already 1980. However, these two paradigms of social capital have, surprisingly seldom been analysed comparatively or complementary.

Even though Putnam quite convincingly can show the positive sides of social capital and its effect on democracy, economy, health and security and the correlation between trust and activity in voluntary organisations, he has been heavily criticised.[1]

One reason for this criticism is the confusion of the definition of social capital. Putnam himself is not very clear on this issue. He mixes the *effects* of networking, with the actual stock of social capital, when he defines social capital as norms, trust and networks[2]. We need a clear definition of social capital to be able to build a micro model. In this paper I define social capital as the relations *per se*. These relations can have positive or negative externalities. Putnam (among others) has showed that the positive externalities are created in horizontal networks, for example in voluntary organisations. The basic question for this paper is then: *why are people active in voluntary organisations?*

The purpose of this paper is to construct a tentative micro model of social capital. Therefore, the first third of the paper examines previous definitions, critique and weaknesses concerning the concept of social capital. This leads to the conclusion that we need a micro model of social capital. In the second part I suggest a tentative micro model of social capital. This micro model is briefly estimated in the last third with data from the World Values Survey. This estimations show that the model creates plausible results, in line with the conclusions from the tentative model presented in section two. However, a lot of empirical work is left. This paper ends with a number of suggestions concerning continuous empirical research.

[1] For the critique of Putnam see among others Rothstein (2003), Sobel (2002), Uslaner (2002), and Stolle (2001)
[2] Putnam (1993), p. 167

Social Capital according to Robert Putnam

Few books have had such an impact in political science and the international political debate as Putnam's "Making Democracy Work" that was published 1993.[3] The term "social capital" was not at all unknown up till that point, but "Making Democracy Work" high-lighted the issue. As Glaeser, Laibson and Sacerdote put it "Putnam (1993) jump-started the research on social capital when he found a strong correlation between measures of civic engagement and government quality across regions in Italy."[4] Often today when social capital is analysed in political science or economics, Putnam is referred.[5]

In "Making Democracy Work" Putnam points out the problem of collective action. There are a number of occasions where collective action (cooperation) *in total* is better than individualistic (non-cooperation) behaviour. The well known prisoner's dilemma (in game theory) is just one example out of many. The problem is that for the individual it might be appealing to defect and become a "free rider". One way to solve a situation like this is by third-party enforcement. Often the state has been able to take this role. However, the problem is, as Putnam puts it

> "For third-party enforcement to work, the third party itself must be trustworthy, but what power could ensure that the sovereign would not defect? Put simply, if the state has coercive force, then those who run the state will use that force in their own interest at the expense of the rest of society."[6]

… and the experience of southern Italy has not been encouraging. The state, i.e. the monarchs, has very often offered institutions that led to economic decline. So, the idea of a third-party enforcement is not a stable equilibrium. However, the problem of this theory is that it proves too much. There is, after all, collective action. This is where "soft" solutions, community, trust and social capital come in. As Putnam puts it

> "Success in overcoming dilemmas of collective action and the self-defeating opportunism that they spawn depends on the broader social context within which any

[3] Rothstein (2003)
[4] Glaeser, Laibson and Sacerdote (2002), p. F437
[5] The list can be endless, see for example Glaeser, Laibson & Sacerdote (2002), Knack&Keefer (1997), Kumlin&Rothstein (2007), Rothstein (2003) etc.
[6] Putnam (1993), p. 165

> particular game is played. Voluntary cooperation is easier in a community that has inherited a substantial stock of social capital, in the form of reciprocity and networks of civic engagement."[7]

Putnam defines social capital " ... features of social organisation, such as trust, norms and networks, that can improve the efficiency of society by facilitating coordinated actions".[8] According to Putnam social capital is productive, just like any other form of capital. In this sense social capital can be a production factor. By having access to social capital, specific achievements are possible, that wouldn't be possible otherwise. Here Putnam cites James S. Coleman:

> "Like other forms of capital, social capital is productive, making possible the achievement of certain ends that would not be attainable in its absence ... For example, a group whose members manifest trustworthiness and place extensive trust in one another will be able to accomplish much more than a comparable group lacking that trustworthiness and trust ... In farming community ... where one farmer got his hay baled by another and where farm tools are extensively borrowed and lent, the social capital allows each farmer to get his work done with less physical capital in the form of tools and equipment."[9]

Putnam acknowledges some specific characteristics of social capital. One is that those who have it tend to get more. Another is that it increases with use. This is central to the production and reproduction of social capital.

Putnam distinguishes between bridging (or inclusive) and bonding (or exclusive) social capital. Bonding social capital are groups that are inwards looking, reinforcing exclusive identities and homogeneous groups. Examples, according to Putnam, are ethnic fraternal organizations and fashionable country clubs. Bridging social capital contain networks that are outward looking and encompass people across social and ethnic barriers. Examples here are civil rights movements and many youth groups (for example sports clubs[10]).

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[7] Ibid, p. 167
[8] Ibid, p. 167
[9] Coleman, James S. (1990) p. 302, p. 304, p. 307 cited by Putnam (1993) p. 167
[10] …especially in Europe. The U.S. do not have sports clubs in the same way as many European countries.

Bridging and bonding social capital is good for different things. Bonding social capital is good for reciprocity and mobilizing solidarity within a group. Dense networks can provide social and psychological support, create social insurance and a sense of belonging for the less fortunate members and provide start-up financing, markets and reliable labour for local entrepreneurs. However, by creating strong in-group loyalty, bonding social capital may also create strong out-group antagonism. Thus, bonding social might create negative external effects.[11]

Bridging social capital works in a broader sense. Bridging networks are better for linking assets and groups. By this, bridging social capital can expand social and economic markets. When seeking jobs or political allies, bridging social capital is better than bonding. Bridging social capital, which links to distant acquaintances that move in different circles than your own, is better than using the strong links to relatives and intimate friends who think the same as yourself.

However, many groups simultaneously work both bridging and bonding. Putnam gives an example of the black church that brings people together of the same race and religion, but bridge people over class barriers. Internet communities may bridge across geography, gender and religion, while being homogeneous in education, interest and ideology. Putnam points out that the blend of bridging in relation to bonding social capital that is needed depends of the scale of the problem - the bigger collective problem, the more bridging social capital is needed.

Beugelsdijk and Smulders sets up an economic model of bridging and bonding social capital. They find out that 1) network participation is a time-consuming process, which crowds out working and learning time (and therefore is negatively correlated with economic growth), 2) participation in networks might reduce the incentives for rent-seeking and cheating because of the risk of bad reputation. They find empirical evidence from 54 European regions that there is a positive relation between growth and bridging social capital, but find that

> "Such a positive relationship does not exist for bonding social capital and economic growth. Bonding social capital arises from networking within own communities of close

[11] Putnam (2000)

> friends and family. Because opportunistic behaviour is limited in one's own closed social circle, an increase in time spent with your own close circle does not reduce opportunistic behaviour in the economy."[12]

However, as Beugelsdijk and Smulders points out, social capital is a "choice variable" that derives from "...deeper economic and cultural variables".[13] The question why people choose bridging or bonding social capital has to be further studied, according to them.

Conclusively, bonding social capital is built within networks of people who are basically alike. Bridging social capital, on the other hand, is built within networks that link diverse groups of people and institutions. Bridging social capital is considered particularly predictive of societal well-being and economic growth.

Putnam proposes that, through affiliation, people learn the basic norms of cooperation and reciprocity and learn to trust each other. Putnam offers four explanations why networks and affiliations have such a strong effect on social capital:

1. Networks increase the costs of defection. Opportunistic behaviour puts other transactions at risk that this person might want to be engaged in, in the future.
2. Networks foster norms of reciprocity.
3. Networks facilitate communication and improve the flow of information about trustworthy individuals.
4. Networks embody past success of cooperation.

Even though Putnam is fairly strong on his conclusions that affiliations produce and reproduce social capital, he admits that there is much to learn before we can be certain of this vision.

> "The causal arrows among civic involvement, reciprocity, honesty and social trust are as tangled as well-tossed spaghetti. Only careful, even experimental,

[12] Beugelsdijk & Smulders (2009)
[13] Ibid, p. 28

research will be able to sort them apart definitively. For present purposes, however, we need to recognise that they form a coherent syndrome."[14]

Critique of Putnam

Putnam is not the only author that has a society centred approach to social capital. Also other prominent authors have argued that variations in the amount and type of social capital can be explained primarily by society-centred approaches.[15] Among the most important mechanisms accounts regular social interaction, preferably as membership in voluntary associations, though more informal types of social interactions have been included in later work.

Although most authors seem to agree that there is a correlation between civic participation and trust, there is little agreement on how causality works. Rothstein[16] and Sobel[17] argue that Putnam mixes correlation and causality and that Putnam's idea of associations being an explanatory variable of trust have no theoretical support. Uslaner argues that people who join associations, so called 'joiners', appear to be more trusting from the outset, so that it is not the associational membership *per se* that explains their higher level of trust.[18] In addition, Stolle shows that members of associations do not become more trusting over time.[19]

Knack and Keefer found that membership in certain types of organisations with re-distributive objectives (for example trades union) did appear to be associated with higher levels of generalised trust[20]. Membership in other cultural and recreational groups appeared to have no effect on generalised trust, and membership in religious organisations was associated with a decreased level of generalised trust. They conclude that membership in associations overall was not associated with increased trust.[21]

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[14] Putnam (2000), p. 137
[15] See among others Banfield (1958), Fukuyama (2001), Putnam (1993).
[16] Rothstein (2003)
[17] Sobel (2002)
[18] Uslaner (2002)
[19] Stolle (2001)
[20] The concept of generalised vs. partial trust has been highlighted by, among others, Uslaner (2002). Generalised trust is when you trust people in general. This is to be contradicted with partial trust; when you trust "your own", i.e. people in your neighbourhood, family, ethnicity etc. For a discussion about partial trust, see for example Håkansson & Sjöholm (2007)
[21] Knack & Keefer (1997)

In societies that are polarised by ethnic, political, religious or income differences, associations may also be polarised along the same lines. Relatively homogenous associations in heterogeneous societies may strengthen trust and cooperative norms *within* the group, but weaken trust and cooperative norms between groups.[22] Religious organisations have a tendency to polarise along religious (of course), ethnic and, quite often, political lines. The Balkans during the 90ies is an example where the religious communities have acted to polarise and insulate, rather than to invite and include.

It is interesting to find Knack and Keefer's results on organisations with re-distributive objectives. In accordance with neo-classical theory and public choice theory we would expect trade unions to act "selfish", maximizing the members' wage, taking no responsibility for other values like loyalty towards the company and the financial or economic situation of the country. However, trade unions do not polarise along the same lines, for example ethnical, as religious organisations. This might open up for more bridging social capital, than would be the case with religious organisations.

Social trust does not exist independently of politics or government in the realm of civil society. Instead, government policies and political institutions create, channel and influence the amount and type of trust. Rothstein propose a mechanism by which good governance increases levels of social trust. He proposes that, when people are faced with corruption within institutions and/or do not feel adequately protected; they will lose trust in institutions. This leads to that people will assume that others are resorting to bribery and other forms of corruption to get ahead and get preferential treatment. This assumption will lead them to question whether they can really trust others, and the individual's level of generalised trust will be eroded.[23]

Kumlin and Rothstein find empirical support for the idea that the welfare-state institutions have a capacity for both making and breaking social capital (i.e. social trust)[24]. Selective, needs-tested institutions seem to reduce interpersonal trust, while universal institutions seem to build trust. According to Kumlin and Rothstein peoples view on "fair treatment" in their relation with public agencies is important. The key to build social capital (i.e. social trust)

[22] Ibid, p. 1278
[23] Rothstein (2003)
[24] As we shall see, definitions are not clear. Kumlin and Rothstein mean social trust, i.e. trust between people, when they talk about social capital. Further, this elusive definition causes confusion.

according to Kumlin and Rothstein is then encapsulated in the formal institutions, using NIE terminology.[25]

To summarize the critique against Putnam I would like to claim that it follows two different threads. The first tread, and the most commonly used, leans on the fact that Putnam lacks a micro model. We don't know why people join networks and we don't know why people sometimes enter bonding networks and sometimes bridging. With a micro model, however, we will be able to show the individual gains from networking. It has been showed that society gains from networks[26] (at least bridging networks), but what are the gains for the individual?

The second thread follows the confusion of a elusive definition of social capital. What the critics are saying are that social trust can be build/is build by other variables than relations. It seems obvious that relations are not the only variable that can build social trust and this can be straightened out with a clear and concise definition of social capital.

Other definitions of social capital

James Coleman is probably responsible for bringing the term social capital into wider use in recent years. He is vastly referred in Putnam's "Making Democracy Work" as well as in other prominent authors' work like Fukuyama.[27] Coleman introduces the term social capital to bridge the different explanations in sociology and neoclassical economics on how social action is explained. He acknowledges the problem of the "micro-macro transition from pair relations to system"[28] wants to solve this by introduce social capital.

Coleman defines social capital by its function. His starting point is that social relation can constitute useful capital resources for individuals. Here he presents three different forms of social capital

- Obligations, expectations, and trustworthiness of structures, i.e. the social relations will make people fulfil obligations and act trustworthy. As we shall see later, this correspond with Putnam's idea that network foster reciprocity.

[25] Kumlin & Rothstein (2005)
[26] Beugelsdijk & Smulders (2009), Putnam (1993, 2000), Knack & Keefer (1997) just to mention a few …
[27] See among others Putnam (1993), p. 171, Fukuyama (2001), p. 8 and Coleman (1988)
[28] Coleman (1988)

- Information channels. Acquisition of information is costly and in social relations information can be easier spread, which lowers the price. To use New Institutional Economics-terminology one could say that networks lowers transaction costs.
- Norms and effective sanctions. Social capital does not only facilitate certain actions. It also constrains not accepted actions. This is done by creating and fostering norms, and by giving out information about individuals, i.e. reputation. The fear of losing or gaining reputation is an effective sanction.

In analysing reputation (i.e. how information is communicated) Coleman claims that the structure of networks is of major importance when it comes to the effectiveness of how information is shared. If person A knows B and C, and B knows D, but C and D never talks to each other, there will be information loss. This is what Coleman calls "closure of social networks".[29]

Even though Coleman emphasizes the importance of the micro-macro transition he does not present a micro model of social capital that can be transformed into a society centred approach (i.e. macro level).

Portes compares Bourdieu and Coleman and finds some similarities:

> "Both Bourdieu and Coleman emphasize the intangible character of social capital relative to other forms. Whereas economic capital is in people's bank accounts and human capital is inside their heads, social capital inheres in the structure of their relationships. To possess social capital, a person must be related to others, and it is those others, not himself, who are the actual source of his or her advantage."[30]

Portes refers to the term "bounded solidarity" which might to some extent explain why some people engage in social networks.

> "It is the source of social capital that leads wealthy members of a church to anonymously endow church schools and hospitals; members of a suppressed nationality to voluntarily join life-threatening military activities in its defense; and

[29] Ibid, S105-S108
[30] Portes (1998), p. 7

> industrial proletarians to take part in protest marches or sympathy strikes in support of their fellows. Identification with one's own group, sect, or community can be a powerful motivation force."[31]

As stated above, it is obvious that you already have to have social relations to act under bounded solidarity. Thus, it gives a picture of why social capital seems to appreciate with use. Also, the concept of bounded solidarity does not offer a micro model of social capital, but it offers a thread that can be useful in building a micro model.

Portes also points out the down-side of social capital. One obvious, for the individual, negative side is that it is restricting the individuals' options. Other negative consequences are that a dense network hinders some people to enter. If a network is built on an ethnic foundation and this network control, for example, the diamond trade, this hinders other ethnic groups to enter this business.

Sobel brings up and criticizes Robert Putnam, but he also describes a wide range of different definitions. As Sobel states: "No one could dispute that social capital is multifaceted."[32] Arrow[33] argues that social capital does not require material sacrifice. As I will show later, Arrow's definition of social capital is hardly fertile. Also Sobel comments "Nevertheless, the fraction of social capital that is costly to acquire seems significant enough to be worthy of study."[34]

Elinor Ostrom[35] points out that in contrast to physical capital, social capital appreciates with use. As we know physical capital, it has a rate of return and the value of physical capital can be measured by summing past investments net of depreciations. However, as we will see later, in Bourdieu's definition of social capital, there is also a rate of return, investments and depreciations, even if it might not be as easy to measure.

Stiglitz means that social capital can be both an aggregated asset, for example when individuals invest in reputation, as well as a precondition for effective market exchange.

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[31] Ibid, p. 8
[32] Sobel (2002), p. 144
[33] Arrow (1999)
[34] Sobel (2002), p. 145
[35] Ostrom (1999)

Social capital can help out where adverse selection, moral hazard, free rider problems or other opportunistic behaviour could occur. [36]

Thus, a wide range of definitions shows how well-discussed this issue has been since mid-1990'ies. However, as Portes points out, "despite its current popularity, the term does not embody any idea really new to sociologists."[37] What has happened from the mid-1990ies is that the term social capital has become more society centred. In this move from a more individual based approach (for example Bourdieu (1980, 1985)) to a more society based approach, (for example Putnam (1993, 2000) the micro foundation has been lost. As we have seen above, there have been many authors in the discussion of social capital, which might have made the concept very confusing and unclear. However, this also shows that the concept is far from consolidated, which makes the discussion interesting.

Quibria points out that this multifaceted palette of definitions has contributed to a "potpourri of confusion".[38] It seems like, more or less, anything can be called "social capital". One example is Glaeser, Laibson and Sacerdote[39] who includes social skills, charisma and status in the concept. This is a clear misunderstanding of the concept and differs widely from the original concept[40] that social capital derives from relations.

Quibria points out four problem areas for the concept of social capital. First - the definitions are unclear and confused, second – it is not clear whether social capital really is a form of capital or "a bad metaphor", third – undesirable outcomes are seldom brought up in the literature of social capital, and fourth – there are severe measurement and estimation problems. Quibria shows with his thorough exposition of the literature that a reason for this confusion is all the diverging definitions. Sometimes it seems like the authors is not aware of the early work and definitions of (for example) Bourdieu, but make up their own, conflicting definitions. Altogether, this points out the need for a stronger theoretical base for the concept of social capital.

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[36] Stiglitz (2000)
[37] Portes (1998), p. 2
[38] Quibria (2003)
[39] Glaeser, Laibson and Sacerdote (2002)
[40] I would like to say that the original concept derives from Bourdieu, and later developed by Coleman. However, Portes means that the concept can be traced back to Marx and Durkeim.

A Micro Model of Social Capital

Why do we need a micro model? Steven N. Durlauf excerpts three different papers that have influenced the social capital literature. His critique is massive and continues

> "... it seems clear that researchers need to provide explicit models of the codetermination of individual outcomes and social capital, so that the identification problems that have been analysed may be rigorously assessed."

It seems obvious from this and the critique from Quibria that that we need a new, clear definition and a new micro model of social capital.

We have seen above that the definition of social capital is a multifaceted palette. It is not clear if it is the actual mechanism or the effect (like trust; Putnam) or if it is the social characteristic of a person (as Glaeser, Laibson and Sacerdote, 2002, suggest). Neither is it clear whether social capital is individualistic or a characteristic of society.

I want to claim that we have to distinguish between the stock of capital and the returns on social capital. The stock of capital is what you can exploit for profits. If you can make a profit from the capital, then the capital can be productive. Let's assume that the stock of social capital is the relation per se. The returns of social capital are the gains or the profit (depending on the preferable terminology).

Social capital is not status, social skills or charisma, but these social skills decide the rate of returns. Further, we may think of trust and norms, generated by networking, as positive externalities of social capital. There can also be negative externalities, from for example strong out-group antagonism due to bonding social capital.

To look at the determinants of social capital, we then have to look at people's relations and specifically, horizontal networks (bridging social capital). If we can find out and explain why people join networks, we can explain how social capital is produced and reproduced. And to do this, we have to have a micro model.

The micro model has to tie together the questions of

- Why do people enter networks (i.e. invest in social capital)?
- Why does social capital seem to appreciate over time?
- Why does social capital seem to be preservative over time?

This micro model has to be able to take into account the specific nature of social capital; it increases with use (appreciation), and it is "self-accumulating" (i.e. the ones who have it tends to get more).

Glaeser, Laibson and Sacerdote use a standard economic investment model to estimate an individual's decision to accumulate social capital.[41] In this they specify a maximisation problem (the individual's stock of social capital subtracted by the cost of investment in social capital) and the social capital stock follow a budget constraint (social capital tomorrow equals the social capital today added with the investment today).

However, the theoretic model is too reductionistic to explain social capital. This makes the results confusing. For example, according to the theoretic model individuals with a high value of time (estimated with the opportunity cost; high wage) would invest less in social capital. However, the empiric results show the opposite. With a correct and full specification of the model, for example taking into account the specific nature of social capital, these contradictory results would not occur. Further, they find that "profound differences distinguish social capital from other forms of capital. Most of these differences stem from the interpersonal externalities that can be generated by social capital".[42] However, *it is these "externalities" that gives social capital its specific character in the first place*.

The model by Glaeser, Laibson and Sacerdote do not answer the most essential questions: why does social capital appreciate with use and why is it "self-accumulating" (i.e. the ones who have it tend to get more)? Thus, this model cannot be used to understand why individuals invest in social capital.

[41] Glaeser, Laibson and Sacerdote (2002)
[42] Ibid, p. F456

How is social capital defined by Bourdieu?

According to Bourdieu social capital is one out of three different forms of capital, which also covers cultural capital and economic capital.[43] Cultural capital can exist in three forms; the *embodied state*, i.e. closely linked to a specific person, like the possessor's speech, habits etc., the *objectified state*, i.e. in cultural goods like pictures, books, instruments etc., and in the *institutionalized state*, i.e. a form of objectification concerning academic qualification or other forms of education qualifications. The economic capital can be materialized in short term assets like *money* or in long term assets like *real estate*. It can also be transformed into *time*[44] or it can take an institutionalized form as property rights.

Social capital is defined by Bourdieu as

> "…the aggregate of the actual or potential resources which are linked to possessions of durable network of more or less institutionalized relationships of mutual acquaintance and recognition..."[45]

Thus, social capital can be linked to relationships of different forms. However, according to Bourdieu social capital is not the networks in itself, but the aggregate of resources that can be gained from networking. This definition, however, mixes, in a confusing way, the stock of capital with the return of capital.

Further, according to Bourdieu social capital can also take the institutionalized form like a title of nobility. The relationships are maintained due to exchanges that can be material or symbolic.

Both cultural as well as social capital can be transformed into economic capital, and economic capital can be transformed into cultural or social capital. For example, a salesman/woman

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[43] Bourdieu (2007), p. 84. This description of Bourdieu's definitions is built on Bourdieu (2007). This article has been published a number of times, among them in Richardson (1986) *Handbook of Theory and Research for the Sociology of Education*. Westport, Connecticut: Greenwood Press, which is the most commonly cited article when referring to Bourdieu's definition of social capital. Before that the article was published in German in 1983. However, his ideas on capital were already published in French in "Les trois états du capital culturel", *Actes de la recherche en siences sociales,* 30 (November 1979), pp. 3-6 and "Le capital social. Notes provisoires*", Actes de la recherche en sciences sociales,* 31 (January 1980), pp. 2-3.

[44] In an economic way of looking at time as economic capital, one can see it as an opportunity cost. In this way time is money …

[45] Bourdieu, (2007)

probably finds an extensive network of the uttermost importance and a possibility to sell his/her services. For an owner of a newly opened restaurant, an extensive network might be the difference between success and failure. A network can be produced and reproduced through gifts (materialized) or through visits/words (symbolic), i.e. acknowledgment. Materialized investments cost money and symbolic investments cost time.

To uphold the network is, of course, of importance, otherwise temporary acquaintances will be sunk costs. The skill to turn a temporary acquaintance into a long-lasting relationship will decide the value of your social capital.

Bourdieu points out that the existence of a network of connections is not a natural given. It is the

> "… product of an endless effort at institution, of which institution rites … mark the essential moments and which is necessary in order to produce and reproduce lasting, useful relationships that can secure material or symbolic profits. In other words, the network of relationships is the product of investment strategies …"[46]

Thus, investment in social capital cost time and/or money. This contradicts the view of Arrow who argues that social capital does not need material sacrifice.[47]

A tentative micro model

In the following a tentative micro model of social capital is constructed. The model uses a mix of inspiration from Bourdieu's ideas on social capital and a traditional economic investment model[48].

In accordance with Bourdieu's definition of social capital, the value of the social capital can differ depending on which network the individual is a member in. Thus, the value of the individual's social capital is a sum of the network members' sum of the three forms of capital (economic, social and cultural capital). This means that the more capital the members in your network have, the more social capital you yourself have.

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[46] Bourdieu (2007), p. 89
[47] …as refered in Sobel (2002)
[48] See for example Glaeser, Laibson and Sacerdote (2002)

Social capital depreciates (δ) with time, investments in social capital have to be made just to keep a constant level over time. Why do you invest in social capital? Because you have expectations of future returns of social capital. Why do you *not* invest in social capital? Because the costs of investing (subtracted by social skills) is greater than expected returns. This gives us that the investments in social capital is given by 1) the costs associated, 2) the social skills of turning acquaintances to lasting relationships and 3) the expectations of future returns on social capital.

The cost of investing in social capital can be material (for example, presents) or time. The cost of time is given by the opportunity cost, which can be income or utility connected to other activity.

The social skills are learned from parents, but also from practice. The more you practice, the better you become. For a fixed amount of investment, if skills are high, costs can be lowered. The social skills will also decide person *i*:s possibilities to exploit the relations, i.e. the pay-off of social capital. This social skill is closely related to Bourdieu's cultural capital and the idea of habitus.

Further, a person's expectations of future returns is, of course, given by this persons rate of return of social capital, which is given by this persons possibility to to transform social capital into other forms of capital and the social skills to exploit the relations.

In this two period model, time is not an explanatory variable of depreciation. Normally social capital depreciates with time and the relationships have to be constantly maintained. What does affect depreciation, however, is bad reputation and social skills. Bad reputation can increase depreciation and social skills can slow down depreciation.

In accordance with this discussion we can formalize this into the following expressions.

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\begin{aligned}
&Vsc_{it} = Vc_{t-1} + Isc_{it-1} - \delta_i Vsc_{it-1} \\
&Isc_{it-1} = e_{it-1}(r_i Vsc_{it}) - (C_i - skills_i) \\
&\delta_i = f(reputation, skills_i) \\
&r_i = g(poss.trans_i, skills_i)
\end{aligned}
\tag{1.1}
$$

Where

Vsc_{it}	=	the value of social capital for person *i*
Vc_{t-1}	=	the aggregated value of all forms of capital of all network members in time period t-1
Isc_{it-1}	=	person *i*:s investment in social capital in time period t-1
δ_i	=	depreciation rate of person *i*:s social capital
C_i	=	person *i*:s cost for investing in social capital
$skills_i$	=	person *i*:s social skills
$e_{it-1}(r_i Vsc_{it})$	=	person *i*:s expectations (in time period t-1) of future returns on social capital
r_i	=	person *i*:s rate of return of social capital
$poss.trans_i$	=	person *i*:s possibility to transform social capital into other forms of capital.

So, equation 1.1 tells us that the value of person *i*:s social capital is given by

(1.2) $$Vsc_{it} = h(Vc_{t-1}, C_i, skills_i, reputation_i, poss.trans_i)$$

The implication from this is that there are a number of central variables that make social capital a specific form of capital.

1. The value of network members' total capital is central both when it comes to investment decisions and the profitability of person *i*:s social capital.
2. As described above, investments can be made by gifts or time, but also words (acknowledgement) can be an investment in social capital. However, social skills can lower the cost of investments and also make the investment more effective. The skill is considered to be a learning process, i.e. the more you practice it, the more skilled you will become. *This variable will grow with use* (and, of course, depreciate with disuse).
3. Person *i*:s possibility to transform social capital change. The more social capital you have, the easier it is to transform. We can also link this back to the discussion of bridging and bonding social capital. To be able to profit from social capital when it

comes to finding a job or getting voters for a candidacy, it is necessary to have a wide network. So, this variable will then grow with investment in social capital.

Once you started to invest in social capital, there are incentives to keep on investing in social capital. Why? There are at least three explanations:

1. The value of your own social capital is a function of the network member's economic, social and cultural capital. From the argumentation above it is obvious that a higher social capital is better than a smaller. Therefore it is better to invest in a network with members with higher value of their capital than the other way around. This means that "wealthy" networks (meaning: networks with members with a lot of capital) will flourish and poor networks will die. When you invest in your own social capital, the other network members' social capital will increase as well. And, due to that your own social capital is a function of the aggregated value of the network members' capital; there will be a multiplicative effect. It works the opposite way as well, if the network members do not maintain their social capital, your social capital will decrease as well.
2. The social skill of turning acquaintances into lasting relations is central for social capital. If this skill is a variable that can increase due to investments in networks, it will become evolutionary in the meaning, the more you use it, the more you will get. Using Putnam's[49] definition and view, social capital and social skills grow in interaction with others. If investing in network, you have to spend more time with the relations and this will increase your skills in upholding relations. And investing in networks is not worth anything if you don't have the capacity to turn acquaintances into lasting relations. Also the opposite is a fact: The skill of maintaining a network decrease with disuse. If social capital starts to decrease, there's no use to try to uphold it. Thus, the variable will become evolutionary, in the meaning no external factor is needed to boost social capital (or impede it).
3. All forms of capital can be transformed, and this is central for the reproduction of capital, but it can only be transformed under specific conditions. Firstly, the transformation of capital is context specific, for example a network will be of higher value for a salesperson than for a public servant. Secondly, there might be a lower limit where the social capital can be transformed into economic capital, i.e. the

[49] And others, see for example Fukuyama (2001)

> relationship between social (or cultural) capital and economic capital has a minimum. Thirdly, if the variable "possibility to transform social capital" depends on the value of social capital, i.e. causality is inversed, then it will grow with the value of social capital. If so, also here the variable will be evolutionary.[50]

Thus, the incentive to invest in social capital will grow with investment until the expected returns on social capital fall short of the costs (subtracted with the skills). Further, the solidarity of the group derives from the potential profits the members have from the network. *This explains why groups and clubs are more common among individuals with high social capital*. They have more to gain. But also, your social capital increases if other members have high rates of the different forms of capital.

This is very essential. Social capital will be a self playing piano in specific groups with high social capital. Also, if you are a person with high social capital (or other forms as capital as well), you will be invited to join networks and groups. As Bourdieu puts it

> "They are sought after for their social capital and, because they are well known, are worthy of being known; they do not need to 'make the acquaintance' of all their 'acquaintances'; they are known to more people than they know, and their work of sociability … is highly productive."[51]

This is the essence of the model above. In the next section this will be estimated in an econometric model.

Estimations: Is the model plausible?

In this section the model is estimated with data from World Values Survey. The estimations is solely done to check whether the model gives plausible results and whether the model is possible to test empirically. A huge amount of empirical research is to be done on this model, but at least the results here show that it can be estimated quantitatively and that it is plausible.

[50] Just as well as these variables can grow with investment or with a growing value of social capital, they can decrease with a decreasing social capital. This means that there can either be a spiral upwards or a spiral downwards. Rothstein (2003) calls this the social trap, meaning that it is difficult to get out of the negative spiral.
[51] Bourdieu (2007), p. 90

To estimate the conclusions from the model, the variables age, social class, education, income and gender are used. The dependent variable will be active memberships in voluntary associations (wave 1994-1999 and 2005-2008)[52] or "For which organisation are you doing unpaid voluntary work" (wave 1999-2004)[53]. This will be a proxy for the type of relationships we want to measure; the horizontal relationships or, to use the Putnam terminology, the bridging social capital.

This means that the econometric model we want to estimate looks like the following:

$$\text{ASSOCIATION} = \alpha+\beta_1 young +\beta_2 old +\beta_3 pens + \beta_4 lowedu + \beta_5 midedu + \beta_6 socclass +\beta_7 income + \beta_8 male$$

In total is data for 71 countries from 1994 to 2008 used. Table 1 shows the distribution of respondents over time and active membership in associations. For example, the year 1994 a number of 24 respondents were active members in 3 or more associations. The number of memberships fluctuates over time, which rests on the fact that different kinds of countries enter different years. In appendix 1 the countries in the study are presented and the distribution of active memberships. Table 2 shows the definitions of the variables and the expected sign for each variable.

[52] European and World Values Surveys four-wave integrated data file, 1981-2004, v.20060423 (2006)
[53] WORLD VALUES SURVEY 2005 OFFICIAL DATA FILE v.20090621 (2009)

Table 1
Active memberships in associations in the study

	no. of associations				
year	**0**	**1**	**2**	**3+**	**Total**
1994	469	130	36	24	659
	71%	20%	5%	4%	100%
1995	4 777	2 516	1 453	1 811	10 557
	45%	24%	14%	17%	100%
1996	17 021	5 416	2 215	2 075	26 727
	64%	20%	8%	8%	100%
1997	5 806	1 231	474	301	7 812
	74%	16%	6%	4%	100%
1998	5 943	2 102	752	529	9 326
	64%	23%	8%	6%	100%
1999	1 773	703	295	386	3 157
	56%	22%	9%	12%	100%
2000	3 909	1 149	476	347	5 881
	66%	20%	8%	6%	100%
2001	8 392	3 783	1 609	1 883	15 667
	54%	24%	10%	12%	100%
2002	1 934	711	323	258	3 226
	60%	22%	10%	8%	100%
2003	833	104	34	16	987
	84%	11%	3%	2%	100%
2005	6 055	2 354	949	550	9 908
	61%	24%	10%	6%	100%
2006	12 088	4 546	2 199	2 087	20 920
	58%	22%	11%	10%	100%
2007	8 590	3 939	1 683	1 945	16 157
	53%	24%	10%	12%	100%
2008	5 329	796	303	237	6 665
	80%	12%	5%	4%	100%
Total	82 919	29 480	12 801	12 449	137 649

Source: European and World Values Surveys four-wave integrated data file, 1981-2004, v.20060423 (2006) and WORLD VALUES SURVEY 2005 OFFICIAL DATA FILE v.20090621 (2009)

Table 2
Variables in the econometric model

Variable	Expected value	Definition
association	Dependent	Value 0,1,2,3 – where 0=not active in any association, 1=active in one association, 2=active in two, 3=active in three or more
young	-	young=1; adult, old, pensioner=0.Young= 15-24 years, adult= 25-54, old= 55-64, pens=65-.
old	-	old=1; young, adult, pens=0
pens	-	pens=1; young, adult, old=0
low edu	-	Low.edu=1; mid.edu, hi.edu=0. Low.edu = no schooling, elementary school and part of secondary school, mid.edu= secondary and upper secondary school, hi.edu= part of, or completed collage/university education.
mid edu	-	Mid edu=1; low edu, hi edu=0
social class	-	The respondent answers the question "people sometimes describes themselves as belonging to the working class, the middle class, or the upper or lower class. Would you describe yourself as belonging to the: 1=upper class, 2=upper middle class, 3=lower middle class, 4=working class, 5=lower class
income	?	The households income divided in deciles for each country. 1=lowest decile .... 10=highest decile
male	?	Male=1, Female=0

Glaeser, Laibson and Sacerdote find that their model predicts an "inverted u-shaped profile of social capital over the lifecycle"[54]. This means that individuals 40-49 years old are the most active; both younger and older individuals are less active. Putnam finds the same age pattern.[55] We can therefore expect the young, the old and the pensioners to be less active than the adults (25-54 years).

In accordance with the model specified in the previous section active membership in associations are expected to grow with education. This means that low and middle educated respondents are expected to be less active than high educated respondents. Also social class is expected to covariate with active membership (not at least because social skills/cultural capital is expected to correlate with social class); the higher social class, the more active you are expected to be. Because upper class=1 and lower class=5, the sign is negative.

[54] Glaeser, Laibson and Sacerdote (2002), p. F447
[55] Putnam (2000)

The variable *income* can end up either positive or negative. Income can be correlated with social skills and cultural capital; then the sign is positive. However, income is also the opportunity cost of time. This means that the higher income, the higher cost of investing in social capital. Depending on which effect that dominates, the sign could be either positive or negative.

The gender effect cannot be predetermined by the model presented in the previous section.

The method used for the estimations is an orded logit model. Three calculations have been run with different data sets. The first calculation contained the complete number of countries (71 countries) with 137 649 respondents. The second contained the 11 OECD countries that participated in the study with the required variables and the third was made for one country only; Sweden. Table 3 shows the results from the three different calculations.

Table 3
Orded logit model of belonging to an association

association	World	OECD	Sweden
young	0.1249	-0.1808	-0.1351
	(0.0147)***	(0.0380)***	(0.1308)
old	-0.0626	0.1418	-0.1632
	(0.0171)***	(0.0346)***	(0.1086)
pens	-0.2267	0.4083	-0.1720
	(0.0249)***	(0.0454)***	(0.1468)
low edu	-0.4988	-1.0895	-0.5512
	(0.0159)***	(0.0345)***	(0.1209)***
mid edu	-0.4447	-0.4652	-0.2973
	(0.0140)***	(0.0288)***	(0.0893)***
social class	-0.0807	-0.0986	-0.1175
	(0.0064)***	(0.0148)***	(0.0467)**
income	0.0566	0.1164	0.0080
	(0.0025)***	(0.0052)***	(0.0161)
male	0.1769	-0.0279	-0.1040
	(0.0107)***	(0.0235)	(0.0761)
No. of obs.	137 649	27 039	2 433
Prob>chi2	0.0000	0.0000	0.0000

Standard error within brackets. **significant at 5% level, *** significant at 1% level.

The results show differences between the OECD countries, Sweden and the rest of the world when it comes to age and gender. When it comes to education, social class and income, the tendencies are strikingly the same (with the exception that income is not significant for Sweden). Education and social class matters for entering an active membership in a voluntary organization in the way that the model predicts.

When it comes to income, the results tell us that the effect of the opportunity cost of time is overtaken by the effect of being correlated with social class and cultural capital (social skills). This is also results that Glaeser, Laibson and Sarcerdote get. However, they have problems in explaining why income is positively correlated with membership in voluntary organizations:

> "This might not be surprising, if one imagines that the same people who invest in standard forms of human capital (e.g. college educations) also invest in social capital. Human capital and social capital may be complements."[56]

Bourdieu shows that social and cultural capital is not only complementary, but it can be transformed into other forms of capital, and the model in the previous section shows that social capital is self-generating. Thus, in accordance to the model presented earlier it is not at all strange that a high income correlates with social capital.

Discussion

The question whether the individual's investment in social capital is bridging or bonding is not explicitly answered by the model. However, there are at least two implicit aspects of whether the individual should invest in bridging or bonding social capital. The first is that the individual invests in the kind of social capital were the expected future returns will be the highest and the costs of investing will be the lowest.

The second aspect deals with investments in "new" groups. If members in a group will come into possession of capital (economic, social or cultural) other members will have incentives to invest in the network, because high social capital gives incentives to invest in networks. However, as the model above show not only *capital* gives incentives to invest in networks. Also the possibility to transfer social capital to other forms of capital is important. In some

[56] Glaeser, Laibson and Sacerdote (2002), p. F454

situations it might be important to have networks that stretch over socio-economic, ethnic and religious boundaries, for example for a salesperson or a politician. This means that bridging social capital give a high pay-off for some.

Individual gains of networking

Putnam has showed that social capital has strong externalities, but what are the gains for the individual? Coleman points out the possibility of cheap information channels, as referred earlier. However, there are, at least, two more.

Transformation of social capital into economic capital

> "At the individual level, social connections affect one´s life chances. People who grow up in well-to-do families with economically valuable social ties are more likely succeed in the in the economic marketplace, not merely because they tend to be richer and better educated, but also because they can and will ply their connections."[57]

In "Bowling Alone" Putnam refers to research on the correlation between social ties and connections and the possibility to get employed. Even though Putnam convincingly can explain the correlation between social capital and economic prosperity (for example to get an employment) he can't explain the causality, i.e. mechanisms of the model; why do social capital lead to economic prosperity? Bourdieu's model on investment and transformation of capital can, however. According to Bourdieu all forms of capital can be transformed into another form of capital. Bourdieu's definition of different forms of capital helps the transformation. The existence of transformation is important when it comes to the investment decision. Without the possibility to transform social capital into, for example, economic capital, the will to invest would be much less. If so, there is an intimate link between the investment decision and possibilities and skills to transform social capital into other forms of capital.

[57] Putnam (2000), p. 319

This transformation of social capital into economic capital can be made by individuals, which is also the level that Bourdieu analysis the different forms of capital. However, Putnam means that this also can be applied on an aggregated level. Putnam brings forward the example of Silicon Valley. According to Putnam "the success is due largely to the horizontal networks of informal and formal cooperation that developed among the fledgling companies in the area."[58] Also this can be connected to Bourdieu's theories of social capital. According to this the value of the individual's social capital depends on the network members' value in different forms of capital. In a community like Silicon Valley the capital accumulation will become an evolutionary process.

Lowering transaction costs

Central in the New Institutional Economics-paradigm is the idea of transaction costs.[59] In the neo-classical economic paradigm, an economic transaction, per se, is no problem; they do not cost anything, defection do not occur, the quality of the goods are possible to evaluate on the spot and at the time of the economic transaction. In this case no contracts have to be written, no property right-laws have to be enforced and no legal powers have to uphold the laws. The cost of doing business is zero. However, as the New Institutional Economists claim, transaction costs exist in all economic transactions.

The transaction cost that appears between two parties in an economic transaction can be regulated by a signed contract, if the contract can be covered legally and the laws can be upheld by a third party (for example the state). However, every possible situation can't be covered in a contract. If this has to be done, the cost of establishing the contract would exceed the profit or the utility made from the deal. Thus, trust and norms lower transaction costs. Or as North puts it: "Informal constraints directly influence transaction costs."[60] Informal institutions also reduce uncertainty about the future and the need for people to continually make provisions for the possibility of opportunistic behaviour by others.[61]

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[58] Putnam (2000), p. 324
[59] See for example Williamson (2000)
[60] North (2005)
[61] Other researchers have found empirical proof for that generalised trust effects investment as well as economic growth, even if causality is hard to proof and. See Zak & Knack (2001) and Knack & Keefer (1997).

Lowering transaction costs is good for society (positive externality) because it increases economic activity. But it is also a gain for the individual because economic transactions can be profitable that wouldn't be otherwise.

Conclusively...

Putnam lacks to explain causality, when it comes to how social capital is generated. On the other hand Putnam's description and explanations when it comes to bridging and bonding social capital is of great importance when it comes to the understanding of different types of social capital and its externalities. Obviously, all kinds of social capital are not good, especially not for society as a whole.

Bourdieu does not take any notice of whether the social capital is bridging or bonding. His aim from the beginning was not to describe what is good for society as a whole, but to understand why society tends to be preservative. Bourdieu's objective was especially to study how elite groups could preserve their power. However, the strength in Bourdieu's theory on capital is that it can explain the production and reproduction of social capital and can offer help in building a micro model of social capital. As Bourdieu shows, a person with high social capital has an incentive to invest in more social capital. In Putnam's world (and in the definition of social capital in this paper) this means joining associations. When the individual has joined an association, he or she will invest more (spend more time, take on a position in the board etc.) if the individual have the skills to turn acquaintances into lasting relations, if the individual will be able to transform the social capital into other forms of capital, and if the other members have high cultural, social and economic capital.

Continuous research

The purpose of this paper has been to construct a micro model for social capital. The estimations presented of the suggested model are very brief and its purpose is mainly to show that the model is plausible and possible to estimate. There are a number of empirical studies that can be done in the future.

- Country studies. In this paper regressions are run for the world (71 countries) OECD (11 countries) and Sweden. More comparative studies have to be done to find country differences.

- Time series studies. Is the model time indifferent or have people's willingness to invest in social capital changed over time?
- Variables. Are there ways fine-tune the variables measured and estimated? Are there other variables to measure to estimate the model?

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Data

European and World Values Surveys four-wave integrated data file, 1981-2004, v.20060423, 2006. Surveys designed and executed by the European Values Study Group and World Values Survey Association. File Producers: ASEP/JDS, Madrid, Spain and Tilburg University, Tilburg, the Netherlands. File Distributors: ASEP/JDS and GESIS, Cologne, Germany.

WORLD VALUES SURVEY 2005 OFFICIAL DATA FILE v.20090621, 2009. World Values Survey Association (*www.worldvaluessurvey.org*).

Appendix 1:

Data used in the estimations

The data used come from the World Values Survey (WVS) and the three waves 1994-1999, 1999-2004 and 2005-2008. The estimations are based on data from 71 countries in total. The dependent variable is active membership in voluntary organisations (wave 1994-1999 and 2005-2008) or "For which organisation are you doing unpaid voluntary work" (wave 1999-2004). The number of organisations is summed up for each respondent. This gives the following:

	country/region	no. of affiliations				Total
		0	1	2	3	
1	albania	1 134	446	217	105	1 902
2	andorra	421	276	139	105	941
3	argentina	1 552	373	101	63	2 089
4	armenia	1 548	208	67	20	1 843
5	australia*	904	829	559	564	2 856
6	azerbaijan	1 555	137	27	6	1 725
7	bangladesh	660	338	195	203	1 396
8	belarus	1 765	149	16	7	1 937
9	bosnia and herzegovin	1 525	423	145	113	2 206
10	brazil	991	811	375	342	2 519
11	bulgaria	1 556	121	25	16	1 718
12	burkina faso	557	231	79	57	924
13	canada*	1 524	777	521	532	3 354
14	chile	1 618	848	301	221	2 988
15	china	1 422	491	190	281	2 384
16	colombia	1 853	675	248	186	2 962
17	cyprus	685	183	78	51	997
18	czech republic	590	217	45	14	866
19	dominican republic	95	95	66	73	329
20	egypt	2 872	126	26	21	3 045
21	estonia	834	108	31	4	977
22	ethiopia	674	281	121	209	1 285
23	finland*	968	449	182	91	1 690
24	georgia	3 135	208	16	11	3 370
25	germany*	1 766	936	360	169	3 231
26	ghana	236	491	219	283	1 229
27	india	3 251	708	519	788	5 266
28	indonesia	643	396	275	292	1 606
29	italy*	379	149	73	29	630

30	japan	1 542	315	102	49	2 008
31	kyrgyzstan	833	104	34	16	987
32	latvia	949	127	46	10	1 132
33	lithuania	737	79	16	2	834
34	macedonia republic o	1 175	251	120	83	1 629
35	malaysia	847	157	89	102	1 195
36	mali	244	124	72	169	609
37	mexico	1 318	784	463	537	3 102
38	moldova	1 963	566	172	126	2 827
39	morocco	939	122	41	13	1 115
40	new zealand	239	224	154	147	764
41	nigeria	217	589	329	417	1 552
42	norway*	832	558	251	200	1 841
43	peru	2 029	1 056	400	290	3 775
44	philippines	524	392	128	142	1 186
45	poland	631	155	36	20	842
46	puerto rico	567	496	293	297	1 653
47	romania	2 125	427	95	56	2 703
48	russian federation	1 561	209	37	15	1 822
49	rwanda	309	386	189	195	1 079
50	s korea	1 499	585	205	103	2 392
51	serbia/serbia&montenegro	3 528	460	125	38	4 151
52	singapore	909	298	106	83	1 396
53	slovakia	642	179	51	8	880
54	south africa	2 723	2 715	1 060	1 027	7 525
55	slovenia	545	235	102	55	937
56	spain*	2 057	478	137	101	2 773
57	sweden*	1 081	804	341	207	2 433
58	switzerland*	695	570	287	267	1 819
59	taiwan	1 386	317	106	66	1 875
60	tanzania	181	222	151	451	1 005
61	thailand	1 000	168	73	203	1 444
62	trinidad and tobago	395	310	120	148	973
63	turkey*	2 547	276	75	48	2 946
64	uganda	116	179	113	116	524
65	ukraine	2 735	291	49	20	3 095
66	united states*	1 069	892	577	928	3 466
67	uruguay	1 253	375	134	86	1 848
68	venezuela	614	272	107	112	1 105
69	vietnam	1 156	579	317	368	2 420
70	zambia	184	306	195	224	909
71	zimbabwe	310	368	87	48	813
	Total	**82 919**	**29 480**	**12 801**	**12 449**	**137 649**
*oecd-country						