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CAPITAL AND SUSTAINABILITY: SOME THOUGHTS ON THE OPERATIONALISATION OF SOCIAL CAPITAL

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1. Introduction

The concept of sustainable development is prominently positioned on the political and academic agenda. The recommendations of the Brundtland Commission (World Commission 1987), as formulated in the famous report 'Our Common Future', are still an integral part of the debate. Literature on sustainable development emphasises the question as to what extent choices that are made at present, may make it more difficult or even impossible for future generations to realise *their* welfare goals. Societal development is only *sustainable* provided that it is not achieved at the expense of the resources available for future generations. Because of the focus on the resource base of society, this type of operationalisation of sustainable development is commonly referred to as the 'capital approach'. Only in case that the amount of capital per caput remains constant, the criterion of sustainability is satisfied. In this situation future generations are provided with at least the same amount of capital which it can use to realise their welfare goals (for a more detailed discussion, see Smits and Hoekstra 2009).

The capital approach builds on the work of one of the founding fathers of capital theory, Sir John Hicks (Hicks 1939). Initially capital was confined to physical (economic) capital, but gradually the capital concept has been widened by also taking human and natural capital into account. Social capital is the most recent addition, it relates to the social relations that individuals have and focuses on the creation of social networks. The social capital literature claims that these networks serve an important purpose in generating welfare. However, the ways in which social capital impacts on welfare is not clearly conceptualised. And even worse, it is often not clear to which aspects the term social capital actually refers.

This paper aims to operationalise social capital and link it to welfare issues in general and sustainable development in particular. In section 2 we will give a short overview of the social capital literature in order to find out whether the concept 'social capital' really relates to any meaningful social phenomenon or that it is just a vague metaphor. It is concluded that sociologists, political scientists and economists have come to a clear understanding that social capital can be interpreted in terms of social participation and networking and the effects in which these social interactions result (i.e. the building of generalised trust and of shared norms and values). Section 3 argues that social capital can be truly seen as a form of capital, because a clear distinction between investments and a resulting stock can be made. In section 4 the main channels are being identified through which social capital may have an impact on welfare. Section 5 presents the operationalisation of social capital. For three categories, the social capital of citizens, firms and the society at large we present a set of indicators. The conclusion identifies areas for further research.

2. What is social capital?

Social capital has its roots in sociology (Bourdieu 1986, Coleman 1988 and 1990), but has also become an important topic for political scientists and economists (Putnam 1983 and 1995, Fukuyama 1995). A survey of the literature reveals that social capital is a multi-dimensional phenomenon. A careful study of the literature indicates that there are four main areas of discussion which should be taken on board in a proper operationalisation:

1. *Social capital as a micro or macro phenomenon*. Bourdieu (1986) explicitly defines social capital as an individual asset. In his view individuals participate in social networks in order to improve their competitiveness vis-à-vis others. Putnam (1983 and 1995), however, points at the more collective characteristics of network creation.

2. *Networks versus trust*. Originally, the sociologically inspired literature strongly emphasised network creation as the main aspect of social capital. On the other hand, Fukuyama (1995) puts more emphasis on the trust that is accumulated within these networks. Social networks are not a goal in itself, but rather a means on the basis of which individuals through repeated interactions are able to build trust. Putnam even labels social capital as a necessary lubricant of society. Woolcock (2001) sees trust as a result of investments in social capital. Others rather see is as a component of the shared norms and values which function as a determinant of social capital. A third group stresses the dynamic interdependency between social capital and trust (Cote en Healy 2001). Of course, a basic level of trust is needed before individuals invest in the creation of networks. But undoubtedly, the deepening of these networks leads to in increase in the level of trust between the participants and eventually results in high levels of generalised trust. Essentially, the discussion on networks versus trust is linked to the underlying –and more fundamental- question whether social capital should be seen as an individual asset, or rather a collective, public good.

3. *The importance of (positive) external effects*. The discussion on the nature of social capital as an individual or a public good, essentially deals with the importance of external effects. Dasgupta (2003) argues that social capital should be defined in terms of a system of inter-personal relationships and strongly emphasises the

incidence of external effects. In case the external effects he proposes to define the capital in terms of *human* capital (as the effects of network creation primarily have an impact on the individual level). However, when there are large spill-over effects, one can speak of social capital. Dasgupta compares this last form of capital with Multi Factor Productivity (MFP), a measure of economic efficiency. In a context where repeated interaction between individuals result in the creation of general trust and the strengthening of shared norms and values, these externalities result in a decline of transaction costs which in its turn enables the social system to function more smoothly.

4. *Social capital as a 'civil society' indicator or is a more general approach needed?* The OECD works with a 'civil society'-type of definition which focuses on networks between different social groups. The World Bank uses a much broader definition which also incorporates formal organisations such as the state. Portes and Landolt (1996) stress that the forces that bind individuals in networks might be of an entirely different nature, than the forces which allow for strong ties between citizens and the state.

This short survey of the literature enables us to identify two important aspects that should be taken on board when defining and operationalising the concept of social capital. First of all we should focus on the networks as well as the trust that is generated within these networks. Besides, measures of social capital should also relate to the relationship between state and society.

3. Can social capital really be seen as a form of capital?

Even though most economists and social scientists agree that social capital has a decisive impact on welfare, some argue that it can not be seen as a form of capital in the strict sense of the word (Quibria 2003). We should therefore focus on the definition of capital within the framework of the System of National Accounts (SNA) in order to find out to what extent the problems concerning social capital are indeed unique, or that they are of a more general nature and can also be noticed by other types of assets.

Few papers which deal with capital explicitly discuss the properties or definition of capital. Economists will probably stress three properties as articulated by Arrow (2000): (1) There is a time dimension; (2) consumption is delayed in order for growth in future; and (3) ownership can be transferred from individual to the other. This narrow economic interpretation is also reflected in the definition of assets in the SNA: assets are entities functioning as stores of value and over which ownership rights are enforced by institutional units, individually or collectively, and from which economic benefits may be derived by their owners by holding them, or using them, over a period of time (the economic benefits consist of primary incomes derived from the use of the asset and the value, including possible holding gains/losses, that could be realised by disposing of the asset or terminating it).

It is clear that this definition is too restrictive when it comes to the three other forms of capital. This strict legalistic definition clearly has merit because it is at the base of the National Accounting system which aims to produce internationally comparable statistics. However, the necessity to broaden the scope of the asset boundary is already acknowledged in the System of Economic and Environmental Accounts (SEEA, version 2003), which justifies the broader concept by stressing the environmental functions that are provided by the environment rather than aspects of ownership.Yet, it does not provide an alternative formal definition. Since a broader definition of an asset would greatly enhance the theoretical and statistical basis of the capital approach, we will explore four aspects: ownership; spillovers and capital complementarities; stocks and flows; and investments/rewards.

Ownership

The SNA definition of capital stresses that "ownership rights are enforced by institutional units" and that these rights are transferable and enforceable. Clearly it is this characteristic which many natural, human and social assets do not posses. The first point that we make is that ownership, even within the realm of economic capital, is more complex than this definition suggests. Ownership rights will usually be interpreted as the legal documents and contracts with which ownership is governed. Clearly, from the point of view of fixed capital (machines, buildings and land) this is a definition that makes sense. However, for intangible assets, such as knowledge, the possibilities to legally "own" the asset are limited. In fact, knowledge can only be legally protected if it is unique (through patents and copyright registration for example). However, a large portion of innovations is not protectable, while it will still clearly be regarded as an asset by companies.

There are however informal mechanisms by which companies may protect their knowledge. For instance, a widely used way of protecting knowledge is through secrecy. Well-known examples are the Coca Cola recipe; the Google search algorithm and the source code for the Windows operating system. Clearly, these companies have an "ownership right", but from a legal standpoint they cannot exclude others from using the knowledge once the secrets are revealed.

The revision of the SNA 1993 includes R&D in the asset boundary. Insofar as innovations are included which are not legally protected, this expansion implies a broader asset boundary.[2] This shows that even in the realm of economic assets the issue of ownership rights is not as clear-cut as economic theory or the SNA 1993 suggest. In the realm of natural capital the issue of ownership becomes even more complex because these assets are, in many cases, public goods. Not only are they not attributable to individuals or companies, but in the case of climate or biodiversity, it is even hard to attribute them to countries. These are truly global commons. Nevertheless, these assets are being incorporated in the SEEA.

In many cases, social capital will have the characteristics of a public good over which the ownership rights are not clearly defined. In these cases social capital is similar to natural capital as defined in the SEEA. But in some cases, such as the personal network of a person, or the knowledge networks of a company, the networks can actually be "owned" to some extent. Furthermore, laws and institutions themselves are often themselves regarded as social capital. They are the rules and norms which govern the networks and relationships between people, organisations and governments. In other words, there may be "problems" regarding the property rights but they are by no means more serious than they are in the case of R&D and natural capital, assets which are already included –or about to be included- in the official national accounting systems of the SNA and SEEA.

Spillovers and capital complementarities

A spillover is also known as an external effect which occurs when an economic activity results in external costs or external benefits to a third party. For example, companies will innovate but are unable to prevent knowledge spillovers to other companies. This means that other companies are able to take advantage of the knowledge created elsewhere. An example of external costs is when economic growth leads to environmental damage. Capital complementarities refer to the fact that capital stocks are not independent of each other but work together. For example,

[2] The asset boundary would be expanded even further if "freely available R&D" is included. This is currently a debate in the SNA revision. Its inclusion would imply a further expansion of the asset boundary because it clearly has the characteristics of a public good with no clear ownership rights.

the extent to which the skills of the labour force are compatible with prevailing technologies is very important in the amount of welfare generated (Goldin and Katz 1999).

The issue of spillovers is also very relevant for social capital. This is best illustrated by the concept of "generalized trust", which is a term which refers to the overall level of trust between the people within a country, whether you know them or not. The literature has shown that this is an important factor in raising welfare. Of course trust is generated at the (micro) level by individuals, but as an external effect it raises the (macro) level of generalized trust. Social capital is also an important "enabler" of other forms of capital. Social capital stimulates the growth of other forms of capital (and therefore has a favourable impact on welfare). However, such spillover effects can also be found in other forms of capital (R&D). The same holds for the issue of complementarities (see the capital-skill complementarity).

Stocks and flows

In the SNA and SEEA the capital account shows how the opening and closing stocks are linked by the flows (investments, revaluations, depreciation etc.). For the economic assets the stocks and flows are often associated with the same institutional sector. However in the broader capital context this does not have to be the case. Take for example human capital. While the capital stock is owned by individuals, the investments are done by individuals; governments (state-funded education); and companies (on-the-job training). Clearly each of the agents is also rewarded through wages, taxes and value added in the production process respectively.

Social capital should be defined in terms of networks as well as the trust that is being generated within these networks. The inclusion of trust is important as it comes closer to the concept of capital in an economic sense. From an investment perspective, one may prefer to focus on networks (see Bourdieu 1986: individuals invest in networks as they expect network participation to increase their competitive strength). However, capital theory also shows us that the investments result in building up a capital stock. The changes in the size of the capital stock can be followed in the course of time. From a capital stock perspective (following Fukuyama (1995 and 2000) and to some extent Putnam 1993 and 2000), a focus on trust (and possiblly norms and values) is needed. Rising or declining levels of trust can be interpreted in terms of a change in the volume of capital, whereas a change in the size of a network in itself has no meaning (a network can increase in size, while the frequency of contact between its members actually declines).

Investments and rewards

The SNA uses a rather strict definition for the rewards and investments. Only economic (monetary) benefits and investments are included. However, for a proper analysis of sustainable development a broader welfare concept is needed. This also implies that rewards and investments can be non-monetary. For example, individuals may invest their *time* instead of only money, in order to increase their human or social capital.

Van Ark (2002) argues that ‘trust’ as an indicator for social capital is of limited importance as it only deals with the rewards of investments and ignores the costs that were made. However, by analysing social capital using the investment perspective (the extent to which individuals participate in social networks) as well as the stock perspective (the generalised trust that is built up on the basis of repeated interactions between individuals within those networks) a cost-benefit analysis can be made. The benefits of social capital can be monetary (because of lower transaction costs) or non-monetary (because of the direct effect on happiness of socially embedded people). Besides, it must be stressed that costs are made in terms of time, which is sometimes also valued in monetary terms by using opportunity cost calculations. The use of statistics on time-use is therefore of the utmost importance when compiling statistics on social capital formation.

4. The welfare impact of social capital

After having identified to what the concept social capital actually refers and now that is established that social capital can indeed be seen as capital, we should now try to identify the channels through which social capital impacts on welfare. It is only when we understand these mechanisms, that the inter-generational issues relating to sustainable development can be discussed properly. Essentially there are three channels through which social capital may increase welfare:

(1) Social capital, in terms of the creation of social networks, may have a direct welfare effect as individuals who are strongly embedded in societal networks tend to be happier and more satisfied with life than those who are less integrated in society;
(2) Social capital can stimulate increases in other types of capital;
(3) Due to network externalities, social capital formation may lead to general increases in efficiency and a decline in transaction costs.

ad 1: The direct welfare effects of social participation

Social production funtion literature shows that social participation has a direct welfare effect (Lindenberg 1989; Ormel et al. 1997). For the Netherlands Van Bruggen (2001) operationalised this function. The social production function builds on the basic notion that individuals produce their own well-being. Van Bruggen defines some first-order instrumental goals that individuals aim to achieve in order to increase their well-being. In the definition of the main goals a broad welfare concept is used. Apart from the aspects which are part of the traditional utility function (such as the consumption of goods and services), also the quality of social networks –and the well-being that individuals derive from them- is included. Empirical research by Statistics Finland also shows that those who are strongly embedded in social networks tend to be more satisfied with their life (Lisaka 2006).

Besides, the Finnish report reveals that it is important to distinguish between different types of networks. In the Finnish case local networks seem to be the most welfare enhancing. Another reason to differentiate between different types of networks is that network creation necessarily implies that there are people who are being excluded. Following Gitell and Vidal (1998) we should make a distinction between 'bonding', 'bridging' and 'linking' capital and strongly focus on those networks that aim to connect different groups in society as these networks can expected to generate relatively high levels of generalised trust and may therefore also have the highest impact on welfare.

ad 2: The impact of social capital on the accumulation of economic, human and natural capital

Grootaert (1997) remarks that social in itself may not be that important. He arggues that social capital becomes most valuable in case it is linked to other forms of capital. Not only does social capital stimulate the accumulation of the other forms of capital (physical, human and natural capita), but it also makes that these investments become more productive. In the following it will be shown how social capital may have an impact on other factors that are part of the production function:

Labour: Granovetter (1975) points at the importance of social networks in facilitating the search for new jobs;

Economic capital: Literature on national systems of innovation (Lundvall (1992), Edquist (1997) as well as Soete and Freeman (1997)) shows that co-operation between firms as well as between firms and universities, does stimulate the creation and diffusion of knowledge. In case of the Netherlands the relatively low levels of R&D intensity are clearly partly to be explained from the weakly developed knowledge networks (Gelauff 2001), whereas in the case of the very innovative Finnish economy rather strong linkages between different actors in the knowledge economy can be discerned (Lisaka 2006);

Human capital: Teachman et al (1997) indicate the importance of social capital in the process of human capital formation. Besides, Coleman (1988) stresses how important it is that parents are closely involved in the education of their children. The closer the community and family structures are, the better the children perform at school. However, there are also indications that human capital may stimulate the accumulation of social capital. Halpern (1999) and Putnam (2000) argue that education is an important determinant of social capital because of the norms and values that children develop at school and which enable them to properly participate in society as adults. There is also ample evidence that higher levels of social capital have a favourable impact on people's health (Lomas 1998; Elliot 2001).

Natural capital: To a large extent the environmental problems we face can be described in terms of a 'tragedy of the commons'. By creating networks in which environmental friendly norms and values are built up and in which the over-exploitation of non-renewable resources is checked, a more sustainable use of natural resources can be stimulated (Ostrom and Ahn 2001).

ad 3: The effect of social capital on general socio-economic efficiency

It can be expected that the most far-reaching impact of social capital in welfare stems from the effects of network externalities. It is also for this reason that in our attempts to operationalise the concept of social capital, we should not restrict to the quantification of social networks but also pay due attention to the generalised trust that is being built up in these networks. Halpern (1999) argues that transaction costs may decline under the influence of social capital. Generalised trust and the creation of commonly shared norms and values result in informal sanctions on the breach of promises. These informal checks on the behaviour of actors prove to be far less costly than in the case of formally institutionalised transactions based on contracts, formal sanctions and legal systems as is pointed out by Douglass North in his work on long-run institutional development (North 1990). Also Fukuyama (1995) argues that informal contacts, due to the generalised trust that has been created, proves to be a less costly alternative. Besides, Durlauf and Fafchamps (2004) point at other efficiency increasing effects of social capital such as the sharing of information and the creation of group identity (with shared norms and values) which all facilitate smooth social and economic transactions.

The political economy literature emphasises the importance of a good relation between state and society (Alesina en Rodrik 1994; Drazen 2000). Acemoglu et al (2004) even built a model in which favourable institutional growth paths are linked to societies in which their is a proper balance of power between state and society. These theoretical notions can also be demonstrated empirically. For example, Evans (1996) shows how harmonious state-society relations can be seen as an important explanation of the economic success of many of the East Asian Tigers. These findings support the World Bank view that social capital should also relate to the quality of state-community relationships. The idea that institutional quality is narrowly related to the concept of capital may come as a surprise to some. However, in his majestic 'The Mystery of Capital' Hernando de Soto offers powerful arguments to do so. On theoretical as well as empirical grounds he shows how much time and financial resources are lost due to institutional rigidities and a lack of trust in society. De Soto shows how much capital is lost because of such inefficiencies and labels this as 'moribund capital'. We therefore argue that "institutional quality" should be seen as an integral part of social capital.

5. Operationalising social capital

A proper operationalisation of social capital should take into account two factors which were discussed in the previous sections:

1. Social capital should be defined in terms of networks as well as the trust and the shared norms and values that are being generated within these networks. The inclusion of trust is important as it comes closer to the concept of capital in an economic sense. From an *investment perspective*, one may prefer to focus on networks (see Bourdieu: individuals invest in networks as they expect network participation to increase their competitive strength). However, capital theory also shows us that the investments result in building up a capital stock. The changes in the size of the capital stock can be followed in the course of time. From a capital *stock perspective* (following Fukuyama and to some extent Putnam), a focus on trust is needed. Rising or declining levels of trust can be interpreted in terms of a change in the volume of capital, whereas a change in the size of a network in itself has no meaning (a network can increase in size, while the frequency and quality of contact between its members actually declines);

2. Social capital should refer to citizens, institutions as well as firms. The indicators suggested for the social capital of citizens and on institutions are in line with the recommendations of the Working Group on Statistics for Sustainable Development (2009) and of the report by the Commission Stiglitz-Sen-Fitoussi (2009).

Citizens	**Generalised trust citizens**	**ESS**
	Shared norms and values	
	Time use (on social interaction)	MTUS
	People living in jobless households, by age group	Eurostat
	Discrimination	EU Barometer
	Trust between different social groups (bridging social capital)	ESS
Institutions	**Trust in institutions**	**EU Barometer**
	Voter turnout in national and EU parliamentary elections	Eurostat
	Citizen's level of interest in politics?	ESS
	Contacts with politicians or government officials	ESS
	Cost of business start-up procedures (% of GNI per capita)	WDI
	Time required to enforce a contract (days)	WDI
	Time required to register property (days)	WDI
	Time required to start a business (days)	WDI
Firms	**Knowledge networks**	**CIS**

MTUS- Multinational Time Use Survey

ESS – European Social Survey

WDI – World Development Indicators

CIS- Community Innovation Survey

Social capital citizens

We suggest **generalised trust** as well as **shared norms and values** as headline indicators for this category. These indicators can be seen as 'stocks' which are being built up because of the time that citizens spent on social interaction and participation. The repeated interactions result in the building up of trust and shared norms. Data on trust and norms can be derived from the European Social Surveys. The information on time-use can be taken from the MTUS dataset. The relevance of time-use for research into welfare has been demonstrated by Kooreman and Kapteyn (1987) and Gamermesh and Pfann (2005). Some attempts at bringing time-use data in a national accounts perspective are made by Kazemier and Exel (1992) and Gringhuis and Van Rooijen-Horsten (2002).

Apart from focusing on society at large, there are strong arguments for focusing on specific groups in society and on the ways in which they interact. We plead for additional indicators on 'bridging social capital', in the light of the broad social concern with the lack of interaction between different social (often: ethnic) groups in society and the resulting low levels of trust and shared norm- and value systems. Data on discrimination (EU Barometer) and on trust between different social groups (European Social Survey) are a good source of information.

These data on the social capital of citizens provide important information for the analysis of welfare and sustainability. First of all because social participation is an important determinant of current welfare. But it also has a long-run impact, as the generalised trust and the shared norms and believes that are built up in processes of social interaction lead to more social stability, to lower transaction costs and higher social efficiency. This social stability should not be seen as "given". Each and every generation needs to make investments in order to sustain the (high) levels of trust and of shared norms. Knack and Keefer (1997) have given strong empirical support to the notion that 'trust' is an important asset and that it has far-reaching effects on the levels of income that societies can achieve.

Berger-Schmitt (2002) argues that investments in social capital are needed in order to guarantee sufficient levels of social cohesion in society. Loury (1977) points at the relevance of social capital in order to minimise the risk of social exclusion. Investments in (bridging) social capital in the here and now are needed in order to enable future generations to have the disposal of the same amount of social capital which is needed to generate welfare.

Social capital of the society at large (institutional capital)

Following the recommendations of the World Bank, also the relationship between state and society and the quality of institutional arrangements of the society at large are taken into account. We use the **trust in institutions** as the headline indicator. This indicator, which is taken from the EU barometer, can be broken down into several components such as the trust that citizens have in different types of governments (ranging from local administrations to the EU Commission). Just as in the case of social capital of citizens, here the data on trust are compared with indicators which give an idea of the extent to which citizens participate in the political process, see the number of contact that citizens have with politicians (ESS), the voter turn out during different types of elections (Eurostat) and the citizen's level of interest in politics (ESS).

However, institutional capital deals with more than just the trust that citizens have in their governments (and other institutions). It also deals with the institutional quality of the society at large. In the previous section it was shown how much capital is "lost" due to institutional rigidities and a lac of trust within society. This of course results in substantial welfare losses over time. Data on the time which is required to enforce a contract, to register a property, to start business, they all give insight in the institutional quality of society. They may also give an indication about the risk a society runs to waste assets and to run into the problem of moribund capital, and subsequently the depletion of the total capital stock, as described by De Soto (see the previous section).

Social capital firms

Innovation literature strongly emphasises the importance of co-operation between different actors in the knowledge infrastructure. Especially the sharing of knowledge between firms and co-operating in the field of R&D is seen as important in National Systems of Innvation literature (Edquist 1997; Lundvall 1992; Soete and Freeman 1997). For the Netherlands this is a very relevant area to focus on. Not only are the Dutch levels of R&D intensity quite low by OECD standards, but this also coincides with low levels of co-operation between firms in the field of knowledge creation and diffusion. Internationally comparable data on the extent to which firms join forces with other companies in order to build up new technological expertise, can be derived from the Community Innovation Surveys. The social capital of firms, measured in terms of the building-up of **knowledge networks** between firms, is highly relevant for sustaining our knowledge economy in the long run.

6. Conclusion

In this paper we have tried to demonstrate that social capital is not a vague metaphor as is sometimes argued by scholars who are hesitant to include social phenomena in a capital framework. Yet, there seems to be a broad consensus in literature that social capital clearly relates to social participation and networking, as well as on what is generated in the course of such social interactions in terms of the building-up of generalised trust and shared norms and values. Besides, there are no clear objections to include social capital in a SNA-based capital framework. We do acknowledge the well-known problems regarding ownership and spill-over effects, but conclude that these are not limited to social capital but that they can also be noticed for R&D and natural capital, assets which are (about to be) included in the SNA or SEEA. Last but not least, the large and rich body of literature enabled us to identify the main channels through which social capital influences welfare. On the basis of these considerations we arrived at an operationalisation in which three different dimensions are distinguished, i.e. social capital of citizens, firms and the society at large. This conceptualisation is broadly in line with work done by the Working Group on Statistics for Sustainable Development and with the recommendations as formulated in the Stiglitz-Sen-Fitoussi report.

We feel confident that this report provides a sound basis for further work in the field of social capital and its impact on welfare and sustainable development. However, further work needs to be done in the following fields[3]:

1. We need to build up a dataset, based on the primary sources mentioned in the text above. However, additional work is needed in order to build time-series which are necessary in order to find out to what extent we are actually building-up or depleting our social capital stock. Besides, a further disaggregation of time-use data might be interesting in order to distinguish different dimensions of social participation (family, work, neighbourhood, politics).

2. Robustness checks are needed in order to test the plausibility of our approach. First of all, rough tentative calculations of social capital can be made on the basis of time-investments of citizens in social activities. By linking these estimates with opportunity costs and using PIM assumptions as is done in the calculations of conventional capital stocks, some "educated guesses" of the development of the social capital stock can be made. Such "guestimates" can be compared with the development of generalised trust over time. Besides, the outcome of this experiment in monetisation can be compared with the estimates of capital from human resources made by the World Bank (Kunte et al 1998). These exercises are not primarily aimed to arrive at new statistics which are meant to monetise social capital, but to check the plausibility of the approach we have chosen.

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[3] This research will be done in close co-operation with our SRS colleagues Hans Schmeets, Saskia te Riele and Tineke de Jonge.

3. Last but not least, the causal relations as suggested in the literature should be tested by systematically comparing levels of social participation with data on trust and the reported happiness of citizens.

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