SOCIAL CAPITAL, HUMAN CAPITAL and HEALTH

What is the Evidence?

OECD IRDES

Centre for Educational Research and Innovation

Aknowledgments

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Foreword

Joseph Chamberlain, Mayor of the English city of Birmingham 1873-1876, was a successful capitalist – the major screw manufacturer in England – and a non-conformist Christian. Appalled at the rising toll of contagious disease in the poorest parts of the city, he took the water companies into public ownership (as he did the gas companies) and was accused of gas and water socialism (Szreter 2005). He declared: "We have not the slightest intention of making profit … We shall get our profit indirectly in the comfort of the town and in the health of the inhabitants".

Chamberlain's relevance to the benefits of social capital is twofold. First, social capital is important not because it might lead to financial profit, but because it might improve the well-being of the population – Chamberlain's justification for public ownership. Second, Szreter argues that Chamberlain's success in Birmingham in reducing water born diseases was the result of a social movement of which Chamberlain was a part. Social capital was necessary for the interventions that improved the quality of civic life and hence improved health.

The present review deals with three key questions. Going beyond 19th Century Britain, It shows the importance for health of social capital at times and places where the major disease burden is not contagious disease. Indeed, the literature reviewed here points to social and psychological support as a major mechanism by which social capital might improve mental and physical health and well-being. Second, it asks how social capital interacts with education – there is clearly more to learn here. If it is the case that those with higher education benefit more from social capital, considerations of equity lead us to ask how social capital can be improved for all sectors of society. The answer to this third question seems to be: we don't know yet. The evidence contained in this Review suggests that answering that question – showing how to build social capital, particularly at the community level – is a most important next step.

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Preface

This report takes inspiration from a workshop of the Social Capital Global Network, organised in Paris by IRDES and the OECD in October 2008. The presentations and discussions from this workshop provide an important basis to better understand the complex relationship between social capital and health, and the role education may play in this nexus.

The OECD Centre for Educational Research and Innovation (CERI) has been analysing these issues under the Social Outcomes of Learning (SOL) project launched in 2005. The project focuses on two domains: health and "civic and social engagement" to evaluate the state of the evidence-base on whether and how education plays a role in improving these outcomes and clarifying the underlying conditions that help make this happen. The findings of the SOL project were presented at the *International Conference on Education, Social Capital and Health* jointly organised by the Norwegian Ministry of Education and Research and CERI in February 2010. The discussion at this conference highlighted the broad consensus among policy-makers and researchers working in the fields of education and health regarding the prominent role education can play in fostering social capital and health. It also highlighted the highly complex and non-linear nature of the interactions between education, social capital and health, as well as the critical role family and the community play in enhancing these interactions. CERI will release a synthesis report of the SOL project in summer 2010.

The studies presented at the 2008 workshop provide an important contribution to the knowledge-base on education, social capital and health. They enhance our understanding of the concepts involved in describing the relationship between social capital and health, provide new empirical evidence and clarify empirical challenges that may hamper future progress in research. While this report presents major strides in our understanding of this complex issue, it also suggests that significant challenges remain in furthering the ambitious yet indispensable agenda to help improve well-being and progress of our lives.

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Introduction

Overview

The inspiration for this report came from the 2008 Social Capital Global Network Workshop on Social Capital and Health, which was held in Paris, in October 2008. The workshop, jointly sponsored by the Institute for Research and Information in Health Economics (IRDES) and the Organisation for Economic Co-operation and Development (OECD), featured presentations from 28 leading researchers in the field of social capital. The presentations documented the still-emerging yet robust correlation among social capital, education and health. The authors of this report all participated in the workshop's planning, execution and/or presentations, making this effort a natural outgrowth of the wrkshop.

This introduction provides an overview of social capital, education and health. It begins with a brief history of the development of the field of social capital research, taking as its departure Robert D. Putnam's international bestseller, *Bowling Alone: The Collapse and Revival of American Community.* The Introduction includes a description of the Petris Social Capital Index, documents major developments and advances in the field, examines the ongoing controversies among economists over the use of the term social capital, and illuminates the issues with case studies from the social capital literature.

Chapter 1 examines the relationships among human capital, social capital and health, a new and rapidly expanding area of research in the field. This section includes a discussion of the literature analysing the effects of human capital, specifically education, on social capital, and their interrelated influences on both physical and mental health outcomes. Most interestingly, research is beginning to suggest that the links between education levels and health are only partially explained by the increased income that highly educated individuals earn, and that there might in fact be a direct, causal effect of education and learning on health behaviours and outcomes.

Chapter 2 analyses social capital research from an international perspective. Though much of the early social capital research occurred in the United States and United Kingdom, a new set of research has examined social capital issues in a number of other countries, of differing national income averages, at both the individual and community levels. This research also appears to support the notion that social capital can have a beneficial impact on individual and community health. This section also provides a cogent discussion of the World Health Survey, conducted by the World Health Organisation in 70 countries, a valuable source for comparative social capital research. An important yet uncompleted step of social capital and health research has been to extend that research beyond the correlations that exist between social capital and improvements in community health, to the use of instrumental variables to help establish causality.

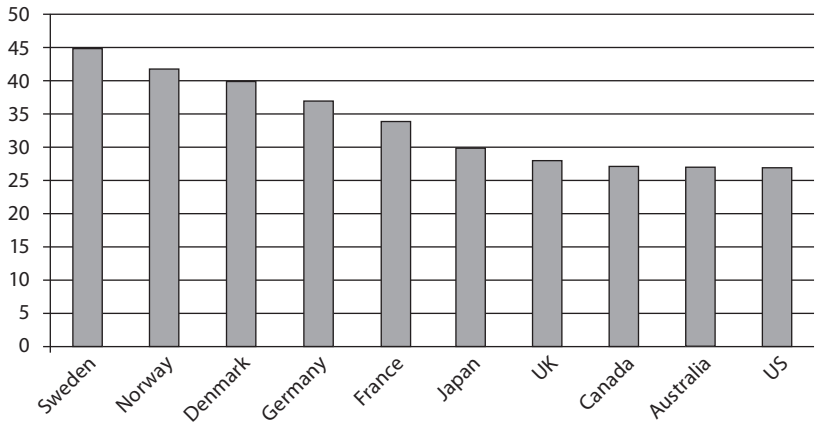
Chapter 3 discusses the implications of social capital research for policymakers. This section highlights the need for policymakers to employ a nuanced understanding of social capital, health and education in crafting policies to improve their communities' status in these important areas.

Defining social capital

The term social capital was first discussed at length in Robert D. Putnam's national bestseller, *Bowling Alone: The Collapse and Revival of American Community*. Here, the act of bowling alone – a reference to the disintegration of US after-work bowling leagues – is a metaphor to illustrate the decline of social, political, civic, religious, workplace connections in the United States. Putnam describes social capital as a sociological concept used in business, economics, organisational behaviour, political science, public health and the social sciences in general, to refer to connections within and among social networks. The core idea is that social networks have value. Similar to physical and human capital, social contacts can increase the productivity of individuals and groups. Putnam's most poignant example of the positive effects of social capital involves his story of John Lambert and Andy Boschma, who knew each other through their local bowling league in Ypsilanti, Michigan. Lambert was a 64-year-old retiree of the University of Michigan Hospital, who had been on a kidney transplant waiting list for three years when Boschma, a 33-year-old accountant, casually learned about his need and unexpectedly approached him with an offer to donate one of his own kidneys. The story is moving, but in addition to their differences in profession and generation, Boschma was white and Lambert was African American. The fact that they bowled together in a league made all the difference in their connection.

Since the publication of Putnam's landmark book, the study of social capital and health has been growing throughout the globe (Brown *et al*., 2006). Yet, there is evidence to suggest that connections between individuals, even within families, have significantly declined. Recent data shows that roughly 25% of all US households are occupied by a single person (see Figuree 0.1). In Germany, the number is more than 35%, and in Sweden, 45%. These are perhaps shocking numbers to most of us. Individuals are not only more likely to be bowling alone but living alone.

Figure 0.1. **One-person households as proportion of all households, 2007**



Source: Euromonitor 2008.

The social capital controversy

The use of the term social capital has received considerable attention in the past 20 years among social scientists (primarily sociologists), economists, political scientists and social epidemiologists. Economists, however, are conflicted about the use of the term. In 1997, the World Bank hosted a workshop, "Social Capital: Integrating the Economist's and Sociologist's Perspectives", in which the reluctance of economists to accept the analog of social capital to human capital and physical capital became clear. In his 2000 paper, "Observations on Social Capital", Kenneth Arrow, a Nobel Prize-winning economist at Stanford University, suggested the abandonment of the term "social capital", saying that the term "capital" implies "extension of time; deliberate sacrifice in the present for future benefit; and alienability." Arrow pointed out the failure of deliberate

sacrifice in the present for future benefit aspect of social capital, by reminding us that social networks are built up for reasons other than their economic value to the participants. Social capital is argued not to have the characteristics of "capital" as defined by economists.

Similarly, in his "Notes on Social Capital and Economic Performance", MIT economist Robert Solow, also a Nobel laureate, asks, "Just what is social capital a stock of? Any stock of capital is a cumulation of past flows of investment, with past flows of depreciation netted out." On this point both Solow and Arrow agree. In addition, they agree on the importance of social capital, but reject the analogy to capital as used by economists; however, the term remains pervasive.

The Petris Social Capital Index (PSCI), which measures the supply side of social capital, may pass the Arrow-Solow test of how "capital" is defined by economists. The Petris Social Capital Index (PSCI) was created by researchers at UC Berkeley's Nicholas C. Petris Center for Health Care Markets and Consumer Welfare (Brown *et al*., 2006). The index looks at 18 community voluntary organisations using public data available for the entire United States. Investment in these organisations has a strong correlation to physical capital in that there is something tangible that exists (church, YMCA) which can be invested in. Moreover, the Petris Index has been shown to be highly correlated with Putnam's measures of social capital, such as trust (Scheffler *et al*., 2008).

The Roseto mystery

The concept of community social capital is vividly illustrated in Malcolm Gladwell's best-selling book, *Outliers: the Story of Success*, where he discusses the Roseto Mystery. Roseto Valfortore is a community 100 miles southeast of Rome. Beginning in 1882, many Roseto residents set sail for New York, and eventually settled into a tight-knit community in Bangor, Pennsylvania. They erected churches and established festivals and spiritual societies. The new Rosetans grew their own vegetables and raised their own livestock. The town came to life. Years later, Stewart Wolf, a young physician was astonished to note that in Roseto, virtually no one under age 55 had died of a heart attack or showed signs of heart disease. Surprisingly, there was no suicide, no alcoholism, no drug addiction and very little crime. It would seem that this small community was reaping the health benefits of community social capital. Unfortunately, as community members left (for a variety of reasons, including education), they returned to Roseto with more income and less conformity to the social norms. Over time, the health of Roseto began to look more like that of the surrounding communities.

Community social capital: a tale of two communities

This is the tale of two cities, actually two Metropolitan Statistical Areas (MSAs), in California. These two MSAs (Communities A and B) had average annual household incomes that varied by less than 10% in 2007, but since 1999 average annual household income in Community A grew by USD 7 797, while in Community B growth in average annual household income was only USD 4 401. However, the opposite occurred with respect to community social capital as measured by the PSCI. In Community A, the PSCI increased by 0.04% (four extra employees in voluntary organisations per 10 000 people), while in Community B, the PSCI increased by 0.10% (10 extra employees in voluntary organisations per 10 000 people) – two and a half times higher than the increase in Community A. One community was stronger in income growth while the other was stronger in the growth of community social capital. What was the result in terms of health behaviour and outcomes? By 2007, both communities improved in each outcome, but the community with larger growth in community social capital improved more than the community with larger income growth.

When comparing the two communities in terms of an important preventive behaviour, obtaining a flu shot, Community B improved by 12 percentage points, while Community A improved by only 9 percentage points. When comparing the two communities in terms of a dangerous

Table 0.1. **Characteristics of metropolitan statistical areas**

	PSCI (%)			Average annual household income		
Area	1998	2006	Change	1999	2007	Change
Community A Riverside and San Bernardino	0.52	0.56	0.04	USD 38 084	USD 45 881	USD 7 797
Community B San Francisco, Alameda, Contra Costa, Marin, San Mateo	0.86	0.95	0.10	USD 46 263	USD 50 664	USD 4 401

Table 0.2. **Health behaviours and outcomes**

	Obtained flu shot (%)			Smoker (%)			Overweight or obese (%)		
Area	1999	2007	Change	1999	2007	Change	1999	2007	Change
Community A Riverside and San Bernardino	27	37	9	22	18	-4	83	77	-7
Community B San Francisco, Alameda, Contra Costa, Marin, San Mateo	34	47	12	18	10	-8	79	70	-10

health behaviour, smoking, Community B saw the prevalence of smoking decline by 8 percentage points, while Community A experienced a decline of only 4 percentage points.

Finally, when comparing an important health outcome, being overweight or obese, prevalence declined by 10 percentage points in Community B, while in Community A it declined by only 7 percentage points. Community B, which had the smaller increase in income and the larger increase in community social capital, enjoyed greater community health benefits (see Tables 0.1 and 0.2).

This simple example illustrates the power of community social capital in affecting health behaviours and outcomes. As noted earlier, the PSCI is a supply-side measure of community social capital, measuring the social resources in a community in terms of employees in voluntary organisations as a percentage of the population. It includes 18 different types of social organisations, from churches to parent associations to self-help groups.

Research has found that the PSCI is associated with the reduced use of cigarettes by smokers (Brown *et al.,* 2006), reduced psychological distress among low-income individuals (Scheffler *et al*., 2007) and reduced cardiovascular disease among low-income individuals (Scheffler *et al*., 2008).

While the above research measures community social capital for a relatively large geographic area, community social capital can be measured at virtually any level, with individual cities perhaps being the most useful for policy purposes. Surveys which include individual measures of PSCI also allow for measures of community social capital that relate to important aspects of social interaction, such as bonding (social connections between individuals who are similar), bridging (social connections between individuals who are dissimilar), or linking (social connections across different levels of social status).

The outcomes of interventions that seek to improve the health of an area, such as a city, are highly likely to be affected by the specifics of its community social capital. As illustrated in Figure 0.2, community social capital may positively affect the diffusion of health information within a community. It may also affect the level of psychosocial support, which enables

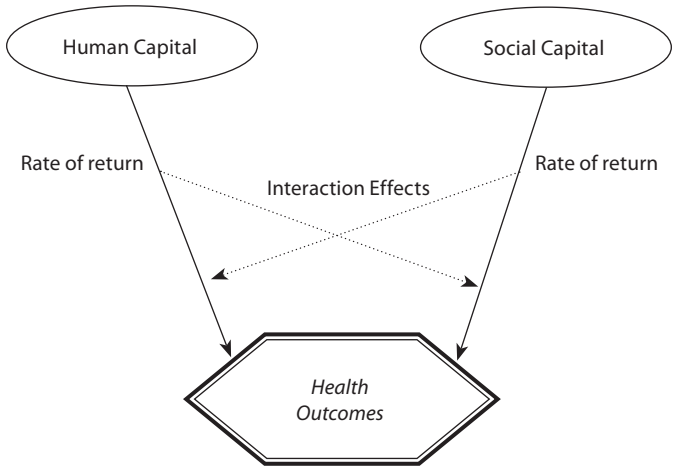
individuals to make the often difficult changes in personal habits that allow for positive changes in health. Community social capital may itself be a target of intervention, given its likely complementary nature with other health interventions.

Finally, community social capital is related to potential political strength. Areas with greater social connections may often be more easily organised politically, which can help draw health-care resources to those areas. Measures of social capital, such as the PSCI, are an integral part of community intervention research.

The interaction between social capital and education

Human capital is the investment in training and education, which was popularised in Gary Becker's book, *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*, for which he was awarded a Nobel Prize in Economics. However, we have less knowledge of the interaction among social capital, human capital and health. We know already that human capital has an important and direct effect on health, but its relation to social capital is less well understood. It is possible for example, that human and social capital could be substitutes or complements for each other. If a community has a higher level of social capital,

Figure 0.2. **Interrelationships among human and social capital and health**



Source: Miller *et al*. (2006), "Social Capital and Health in Indonesia".

could it have a lower level of human capital and still obtain the same level of health? If this were the case, then social capital could be considered a substitute for human capital. Alternatively, do higher levels of human capital improve the efficiency of social capital, making them complementary? If this were the case, then social capital and human capital could be both substitutes and complements for each other.

Figure 0.2 illustrates the basic model behind the relationship between human and social capital and health, and their interactions. It shows that both human capital and social capital may be inputs to health. Further, the model shows the interaction effect between human capital, social capital and health.

Conclusion

It can be as simple as a walking group that meets each week or a book club. Farmers markets provide healthy foods and foster social connections. Churches and religious organizations are also a good source of community social capital. The rest of this report shows what mechanisms are at work, how important social capital is to health, and what role is played by education.

Chapter 1

The relationship between social capital, human capital and health

Introduction

The study of the interrelations between human capital, social capital and health is a relatively new and growing area of research, whose methods are becoming more rigorous over time (Mouw, 2006). This review, while not intended to be comprehensive, provides a brief overview of current understandings of the connections among social capital, human capital and health.*

The relationship between human capital and social capital

Several recent studies have investigated the relationship between education** and various health outcomes and behaviours (see Grossman, 2000, 2005 for literature reviews). Such studies generally highlight a positive association between education and health status. Moreover, they suggest that the education-health link is only partially explained by the increased income that highly educated individuals earn, and might stem from a direct, causal effect of education and learning on health (Grossman and Kaestner, 1997).

A few studies have attempted to identify the pathways through which education might operate. Educated individuals may be more efficient producers of health, and as a result obtain better health with the same amount of resources, all else being equal (Grossman, 1972). Education also may lead individuals to make better health choices; for example, consuming plenty of fruits and vegetables, exercising and avoiding tobacco use (Rosenzweig and Schultz, 1983). In practice, more education generally translates into greater access to better information and greater processing abilities to act upon such information (Brunello, 2008; Goldman and Smith, 2005). Education also may alter risk perceptions, and by doing so may render individuals more likely to invest in their health. Finally, education has a significant impact on wages, and the ability to purchase health-enhancing goods and products. In sum, education may shape people's life chances, and by doing so may contribute to establishing conditions that are conducive to better health.

One of the specific ways in which education may shape individual life chances is through the accumulation of social capital. Empirical studies of individual-level correlates of social capital have found that education is one of the most consistent predictors of social capital, both at the individual and area levels (Smith, 1994; Wilson, 2000; Jones, 2006; Andreoni *et al*., 2004; Putnam, 2000; McPherson *et al*., 1996; Lipset, 1976; Wolfinger and Rosenstone, 1980; Putnam, 2001). Evidence on the causal effect of education on social capital accumulation, however, is only beginning to emerge and the findings are mixed. While some studies highlight a positive impact of education on some forms of Social capital and civic participation (Milligan *et al*., 2004; Dee, 2004), others find no significant causal effect (Milligan *et al*., 2004; Siedler, 2007; Touya, 2006).

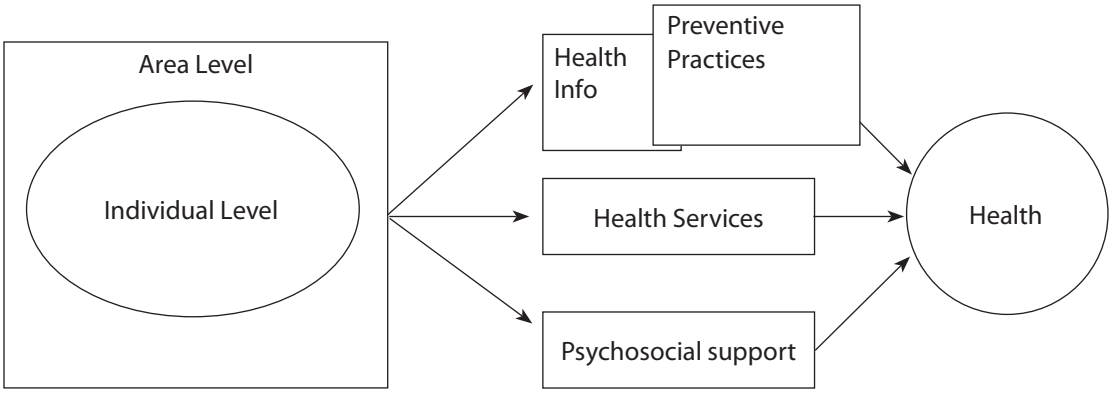
*The social capital literature is extremely large and a comprehensive review is beyond the scope of this chapter (see Scheffler and Brown, 2008).

**For the purposes of this chapter, we limit our review to formal education as the primary source of human capital accumulation.

Education may promote social capital accumulation directly, by helping individuals develop the civic skills and cognitive capacities that facilitate participation in groups and associations. It also may do so indirectly, by lowering the opportunity costs of engaging in civic activities. Education may foster civic skills directly through the curriculum, for example, by providing individuals with opportunities to discuss social and political issues in the classroom; by promoting habits of associational involvement, whereby students are encouraged to volunteer in their communities; and finally, by developing bureaucratic competencies. More educated individuals may enjoy higher levels of social capital also because they hold jobs that allow for greater flexibility in time management; that encourage, rather than hinder, the development of strong links with others through membership groups and associations; and that promote formal participation in social networks.

Theoretically, the benefits of social capital on health may flow to the individual through a number of pathways (Kawachi and Berkman, 2000; McKenzie, 2006). Figure 1.1 details three primary pathways that link social capital and health status. First, social capital may increase the diffusion of information on behaviours that improve health. More individuals will thus come into possession of such information, and can then apply it to improve their health. For example, studies have found that membership organisations often serve as conduits of health information (Stephens *et al*., 2004; Viswanath *et al*., 2006).

Figure 1.1. **Pathways between social capital and health**



Source: Adapted from Scheffler and Brown (2008).

Second, social capital can provide opportunities for psychosocial support, which if accessed, will tend to reduce stress and improve health (Kawachi and Berkman, 2001). Third, social capital will tend to make political organising more likely, which may result in more health resources being brought into a given area. More health resources will tend to improve access to health care, and thus improve health (Kawachi and Berkman, 2000).

Human capital, social capital and physical health

Human capital and health status

A stream of recent empirical studies has extended the traditional labour economics framework that analyses the relationship between education and wages to examine whether education is associated with health status (see Grossman and Kaestner, 1997; and Cutler and Lleras-Muney, 2006 for reviews of recent studies). Several studies suggest that the relationship between education and health is not solely caused by the education-income link, and that education might play a direct role in determining health status that goes beyond providing better employment opportunities (Grossman

and Kaestner, 1997). While most existing studies are correlational, a growing body of evidence suggests that the relationship between education and health status might be causal (see, for example, Lleras-Muney, 2005).

Several studies have attempted to identify the intergenerational effects of education. The findings suggest that the more educated parents are, the greater the likelihood that their children will become healthy adults. The evidence emerging from developing countries indicates that maternal education is a powerful predictor of infant mortality and child health (Desai and Alva, 1998; Frost *et al*., 2005; Thomas *et al*., 1990, 1991; Mosley and Chen, 1984; Chou *et al*., 2007). Educational programmes that specifically target girls have been and are increasingly used as strategies to reduce long-term infant mortality. Fewer studies have examined the parental education-child health link in developed countries. Some of these studies fail to find a strong impact of maternal education on child health (Chernichovsky and Coate, 1980, 1983). However, others document positive associations between maternal schooling and child and adolescent health (Shakotko *et al*., 1981), and a reduction in the probability that women will smoke during pregnancy, which benefits both maternal and fetal health (Currie and Moretti, 2003).

Social capital and health status

Most of the available evidence on the association between area-level social capital and physical health is based on cross-sectional data and results differ greatly across studies: while some identify a positive association between area level social capital and health (Kawachi *et al*., 1997; Kawachi *et al*., 1999; Poortinga, 2006a; Sundquist and Yang, 2007), others find little or no association (Poortinga, 2006b; Subramanian *et al*., 2002; Veenstra *et al*., 2005; Engstrom *et al*., 2008). Research based on longitudinal data appears to suggest that the association between area-level social capital and health status can vary greatly depending on the measure of social capital used (Snelgrove *et al*., 2009). The literature Studies also indicate that individual level social capital is associated with good health (Hyppa and Maki, 2001, 2003; Lindström, 2004; Mohseni and Lindström, 2007; Rose, 2000) and that this association is robust to the level of egalitarianism in a country (Islam *et al.,* 2006).

Human capital, social capital and mental health

Human capital and mental health

In general, people with low educational attainment, low income and who live in deprived neighbourhoods are more likely to suffer from mental health problems than the general population, although the socio-economic gradient in the prevalence of mental illness varies greatly by condition (see Yu and Williams, 1999; Lorant *et al.,* 2003a; and Muntaner *et al*., 2004; for reviews on the different associations between socio-economic status and various mental health conditions). Other studies also have made similar findings on this topic (Marmot, 2005; Wilkinson *et al*., 2003). The literature indicates that education and mental distress are negatively related; higher education is in general associated with a lower prevalence of mental health problems (see Ross and van Willigen, 1997 for a review; also Chevalier and Feinstein, 2007), although the relationship appears to be less strong than in the case of physical health. Overall, however, education does not appear to be a major determinant of other indicators of well-being, such as life satisfaction and happiness (Witter *et al*., 1984; Veenhoven, 1996; Hartog and Oosterbeek, 1998; Gerdtham and Johannesson, 2001).

One of the pathways through which education may promote good mental health is by enhancing individual and area-level social capital. Individuals with more education may be more likely than less educated individuals to be socially integrated, and to have opportunities to meet socially within their communities, factors that promote social capital accumulation at the individual level. They may also be more likely to receive adequate emotional support; because of homophily,

educated individuals are more likely to have meaningful social contacts with individuals who also possess a high level of education (McPherson *et al*., 2001). Given that most individuals rely on the support of those around them to deal with mental distress, if greater education translates into higher quality psychological support, homophily will mean that educated individuals will receive better support than those with low levels of education (Angermeyer *et al*., 1999). Individuals who live in communities where the average educational attainment is high also are more likely to enjoy better mental health than individuals in communities with lower education levels. Communities where the average educational attainment is higher may in fact be more inclusive and less stigmatising towards individuals who have mental health problems, and provide greater practical and emotional support to all their citizens.

Social capital and mental health

The evidence on the relationship between social capital and mental health is generally more consistent than that on the relationship between social capital and physical health and overwhelmingly supports the hypothesis that individuals with higher levels of social capital or who live in areas with high levels of social capital enjoy good mental health.

Studies of individual-level social capital and mental health generally find that individuals with high levels of social capital are less likely to suffer from mental disorders than individuals with low levels of social capital (see De Silva *et al*., 2005; and Almedon, 2005 for good reviews of this stream of literature). However, strong evidence that social capital promotes mental health and protects from the risks of developing mental illness is currently lacking (Whitley and McKenzie, 2005) especially among individuals who face a high risk of developing mental health conditions in adulthood (Borgonovi and Huerta, 2008).

The literature that measures social capital at the area level is much smaller than the literature that measures social capital at the individual level. Findings somewhat vary with respect to the strength of observed associations depending on the geographical context, the choice of the geographical unit at which social capital was measured as well as the specific measures of social capital and mental health conditions employed in empirical analyses. However, they confirm the protective role of area level social capital on mental health: high levels of area-level social capital are associated with less psychological distress (Araya *et al*., 2006; Miller *et al*., 2006); hospitalisation for psychosis (Lofors and Sundquist, 2006) and incidence of psychosis (Boydell *et al*., 2002); suicide (Desai *et al*., 2005); mental illness (Cutrona *et al*., 2000) and child mental health (Drukker *et al*., 2003). Just as for individual level social capital, area-level social capital may not protect everyone equally from the risks of developing mental health conditions. Froe example, a study examining the relationship between area-level social capital and non-specific psychological distress using data from 59 Metropolitan Statistical Areas in the United States found a negative association only for those with family income below the median (Scheffler *et al*., 2007) while the relationship between social capital and the incidence of schizophrenia in neighbourhoods in South London appears to be U-shaped (Kirkbride *et al*., 2008).

Human capital, social capital and health behaviours

Human capital and health behaviours

As previously highlighted, evidence is emerging on the role of education in promoting a long and healthy life. New evidence also suggests that educational attainment plays an important role in influencing health-related behaviours. However, the relationship is complicated between education and specific behaviours, such as smoking, alcohol abuse, poor nutrition and lack of physical activity. Better educated individuals appear to be somewhat more likely to engage in some forms of risky behaviours, such as consuming alcohol and drugs (Cutler and Lleras-Muney, 2007), but they are also somewhat better at managing their behaviours, by keeping consumption

low, or stopping consumption before problems escalate (Cutler and Lleras-Muney, 2006; Webbink *et al*., 2008). Generally, however, the evidence on the relationship between education and health habits is in expected direction and indicates that the better educated are more likely to exercise and are less likely to be overweight or obese (Cutler and Lleras-Muney, 2006; Webbink *et al*., 2008), or to smoke (DeWalque, 2007; Grimard and Parent, 2007).

Social capital and health behaviours

The evidence suggests that social capital might play an important role in promoting a healthy lifestyle. Both individual and area-level social capital are negatively associated with smoking (Lindström and Isacsson, 2002; Lindstrom, 2003, 2004; Lindstrom *et al*., 2003a, 2003b; Brown *et al*., 2006). Area-level social capital also has been negatively linked with binge drinking in college (Weitzman and Kawachi, 2000). However, as already discussed for the relationship between social capital and health, the evidence suggests that results depend on how social capital is measured. Research based on Swedish data for example found that high level of social participation but low social trust was positively associated with high alcohol consumption among men (Lindstrom, 2005). Similarly, while studies appear to indicate that area-level social capital is positively associated with exercise (Wen *et al*., 2007; Fisher *et al*., 2004), individual social capital (social participation) is negatively associated with the consumption of fruits and vegetables (Lindstrom *et al*., 2001).

Conclusion

Empirical research investigating the interrelations among education, social capital and health has flourished in recent years. Broadly speaking, the consensus emerging from these studies is that better educated individuals, and individuals with more social capital, enjoy a longer, happier and healthier life than their less educated and less socially integrated counterparts. While the overall message is that more education and greater social capital go hand in hand with better physical and mental health and a healthier lifestyle, the strength of associations among education, social capital and health differs greatly across studies. Methodological aspects also mean that only in few cases the interpretation of associations among education, social capital and health can be done though a causal lens on the sole basis of empirical considerations. A sounder methodological basis, which identifies the mechanisms at work, is clearly needed.

Chapter 2

The international dimension

Introduction

There is now compelling evidence from a number of studies that social capital is associated with improved health, and there is at least some evidence that the direction of causality is mostly from the former to the latter (see Chapters 1 and 2). Studies also have shown that social capital often acts as a substitute for human capital, income, or wealth. In this, social capital helps those with lower levels of education, and in poorer socio-economic circumstances, to achieve health outcomes similar to those of their better-off counterparts (*e.g.* Pevalin and Rose, 2000). For this reason, social capital tends to be associated with a lower degree of inequality, including smaller health disparities and less segregation (see World Health Organisation, 2003, for further discussion of the contribution of social support and its contribution to health).

However, most aspects of social capital are associated with higher levels of education, and there is at least some evidence that social capital mediates the effect of education on health, which helps explain why highly educated individuals tend to have better health outcomes (Ross and Wu, 1995).

Although much of the research on the links among social capital, human capital and health has been undertaken in the United States and, more recently, in the United Kingdom, a number of studies have reported similar findings in other countries, at different levels of income. A presentation of the most salient international findings follows below, along with a discussion of some of the issues involved in measuring social capital and its impact on health across countries. Social capital has been viewed mainly as a determinant of broad social, political and economic outcomes, so its measurement has tended to focus on collective phenomena.

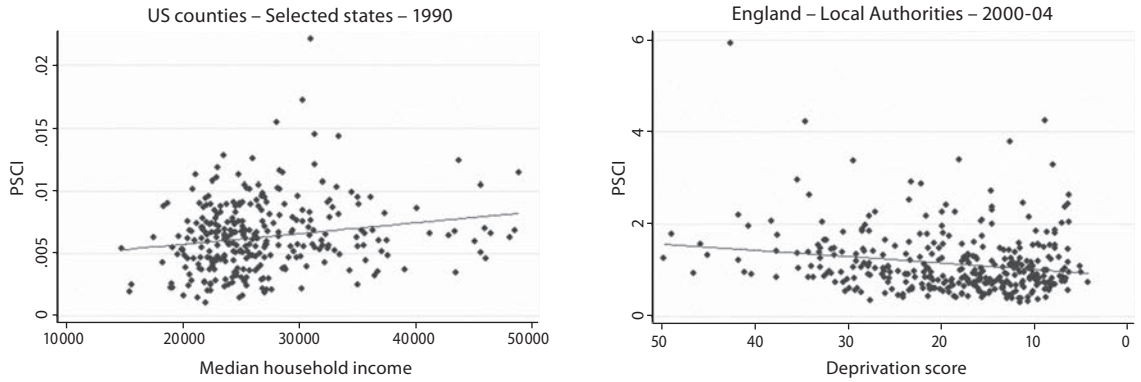
Community social capital

Social capital may be viewed as a characteristic of communities, either geographic (neighbourhoods, areas, countries, etc.), or defined more broadly, as networks of individuals linked by social ties and interactions. This view leads to a concept of community social capital, that is not merely a sum of the social capital of the individual members of that community. For this reason, measurements of community social capital that are based simply on an aggregation of individual social capital indicators tend to be viewed as second-best, although they are often used as proxies for more relevant community-based measures.

Robert Putnam's ground-breaking study of communities in Italy found that democratic institutions work better, and more efficiently, where civic communities are more developed (Putnam, 1993). Putnam defined these developed civic communities as those with a richer associational life. Putnam later developed what is known as Putnam's Instrument, a measure of social capital based on membership in a range of organisations, which reflect individuals' desire for social engagement (Putnam, 1996). Another valuable step forward in the measurement of community social capital was made with the development of the Petris Social Capital Index (PSCI), which is discussed in the Introduction. The PSCI provides a supply-side measure of participation in

membership organisations, the phenomenon that Putnam's instrument aims at measuring. The PSCI, which is based on administrative data available in many countries, makes the measurement approach more generalisable, and facilitates comparisons across countries. However, whether the same measure means the same thing in different settings is still an open question. In particular, comparisons have been made between the United States and England, which show important differences in the way the PSCI behaves in the two countries. First, using a comparable approach in its calculation, values for the PSCI are substantially lower in England than in the United States (mean 3.7 vs. 9.8). This may be due to a lower diffusion of membership organisations in England, but also to a different balance between paid and voluntary labour in such organisations there, compared with the United States. A second issue concerns the relationship between the PSCI and socio-economic conditions. While in the United States a higher average income in a given area is associated with a larger value of the PSCI, in England it is more deprived areas which tend to have larger PSCI values, as illustrated in Figure 2.1. A possible explanation is that the nature of membership organisations is not the same in the two countries. Membership organisations may employ more staff in deprived areas in England because they use paid staff to provide services to those most in need, while this may be a less prominent feature in the United States.

Figure 2.1. **Relationship between the PSCI and measures of socio-economic status across areas in the United States and England**



Source: Analysis of data from County Business Patterns (US Census) and Annual Business Inquiry (England).

The PSCI has now been used in several countries to assess the link between health and social capital. However, in cross-country comparisons, membership in organisations like those identified by Putnam as a source of social capital was not found to be linked with trust, another important aspect of social capital, and with economic performance (Knack and Keefer, 1997). OECD reviews of the empirical evidence of determinants of economic growth identified trust as a key aspect of social capital, with a significant influence on growth in a cross-country perspective (Ahn and Hemmings, 2000; Temple, 2000). Measures of trust used in comparative research range from simple indices, which reflect the proportion of individuals in a given population who are prepared to assert that most people can be trusted, to more detailed measures based on the prevalence of actual fraudulent behaviours.

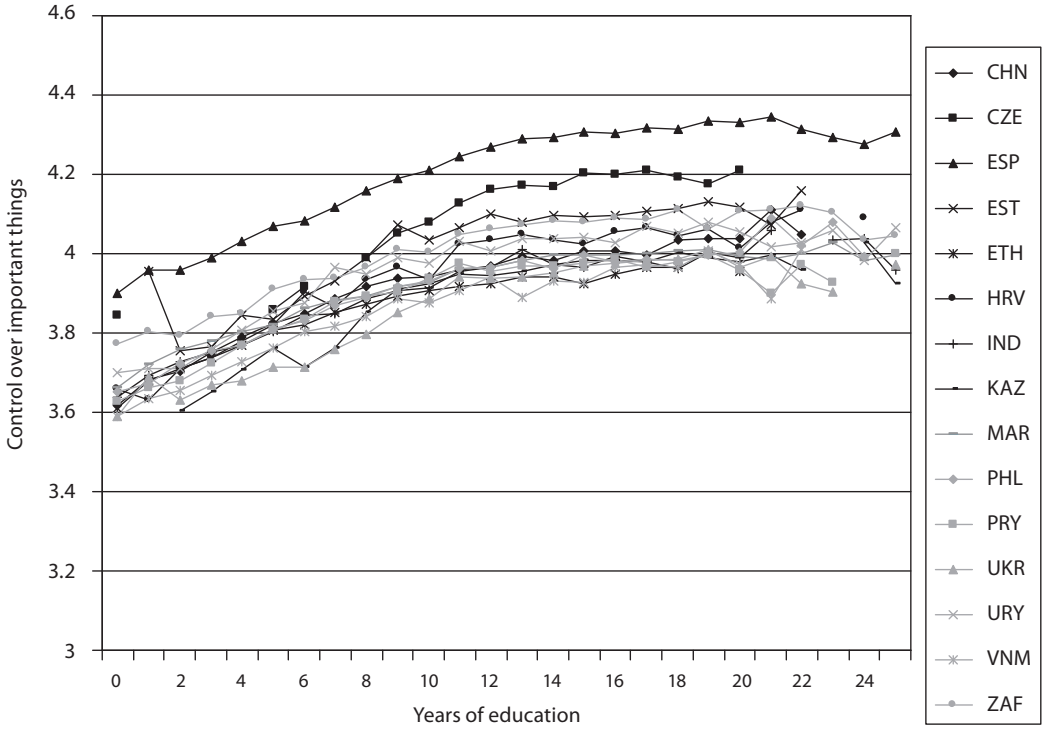
Individual social capital

In the early 2000s, the World Health Organisation (WHO) conducted the World Health Survey (WHS), a global health survey that was fielded in 71 countries. In addition, WHO implemented a specialised social capital module in 54 of the 71 WHS countries, which provides the most comprehensive geographical coverage to date of the influences of social capital on health. The module design takes stock of advances in research on social capital and health, and includes questions covering a range of aspects of social capital expected to be relevant to countries at different levels of income.

These aspects covered in the survey are as follows:

1. *Control over important things in life*. This aspect has a critical influence on health, as demonstrated by a vast amount of evidence on health inequalities within social hierarchies, summarised in the recent work of the WHO Commission on the Social Determinants of Health (CSDH, 2008). Arguably, this variable may be viewed as an outcome, as well as a measure, of social capital. In particular, mutual trust and social participation may confer a higher degree of control. Thus, the latter may be viewed mostly as a marker of more basic aspects of social capital, a marker that is strongly associated with health. Control increases with education, as shown in Figure 2.2, in a subsample of 15 WHS countries (China, Croatia, Czech Republic, Estonia, Ethiopia, India, Kazakhstan, Morocco, Paraguay, Philippines, South Africa, Spain, Ukraine, Uruguay and Viet Nam – individual countries are not identified in Figures 2.2 and 2.3), roughly up to median levels of education. However, it is not enhanced further by higher levels of education. The positive correlation observed here between education and social capital is in line with a more general trend described in the literature assessing links between the two domains.

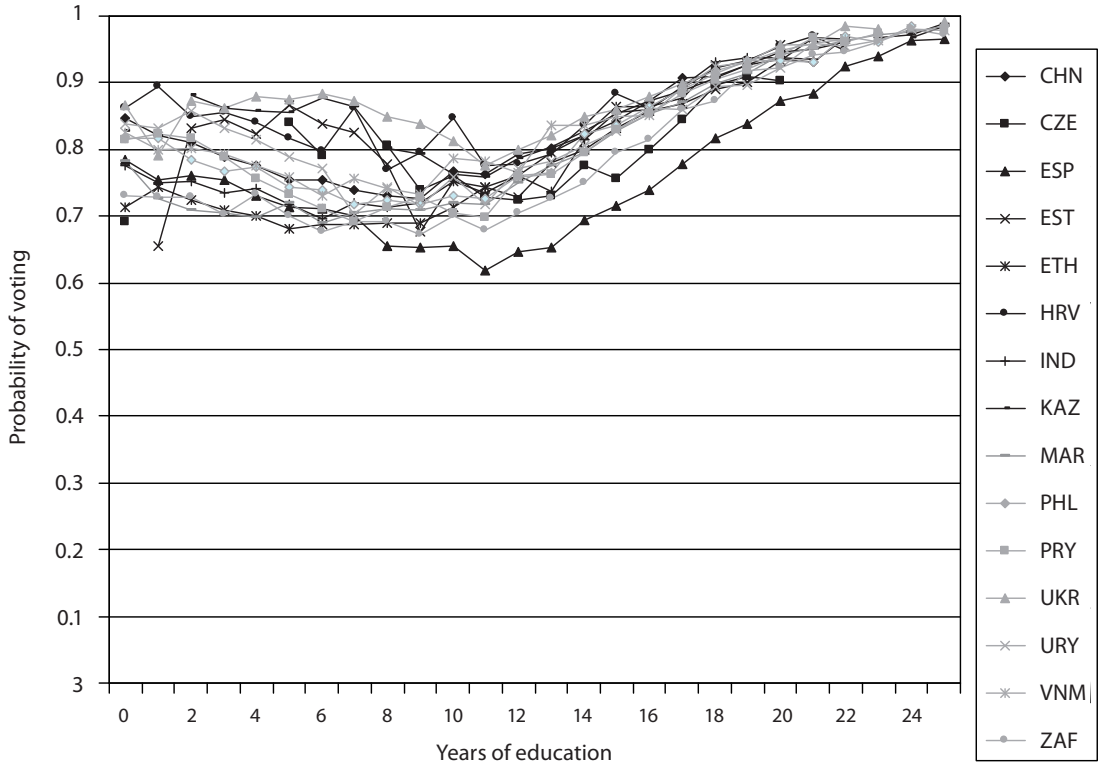
Figure 2.2. **Relationship between education and control over important things in life in 15 countries, based on WHS data**



Source: Analysis of World Health Survey (2003) data.

2. *Voting behaviour*. This aspect too is often viewed as an outcome, rather than a dimension, of social capital (Frey and Stutzer, 2000). Again, in the context of research on the link between social capital and health, voting behaviour may act as a marker for more basic aspects of social capital. However, voting may be associated with factors that bear little relation with social capital, such as social control in totalitarian regimes. The relationship between voting and education is consistently U shaped in the same sample of 15 WHS countries, as shown in Figure 2.3. This finding is a clear indication that the relationship between social capital and education may vary, depending on what aspect of social capital is considered. This must be taken into account when exploring the relative influences of social and human capital on health and interactions between those influences.

Figure 2.3. **Relationship between education and voting in 15 countries, based on WHS data**



Source: Analysis of World Health Survey (2003) data.

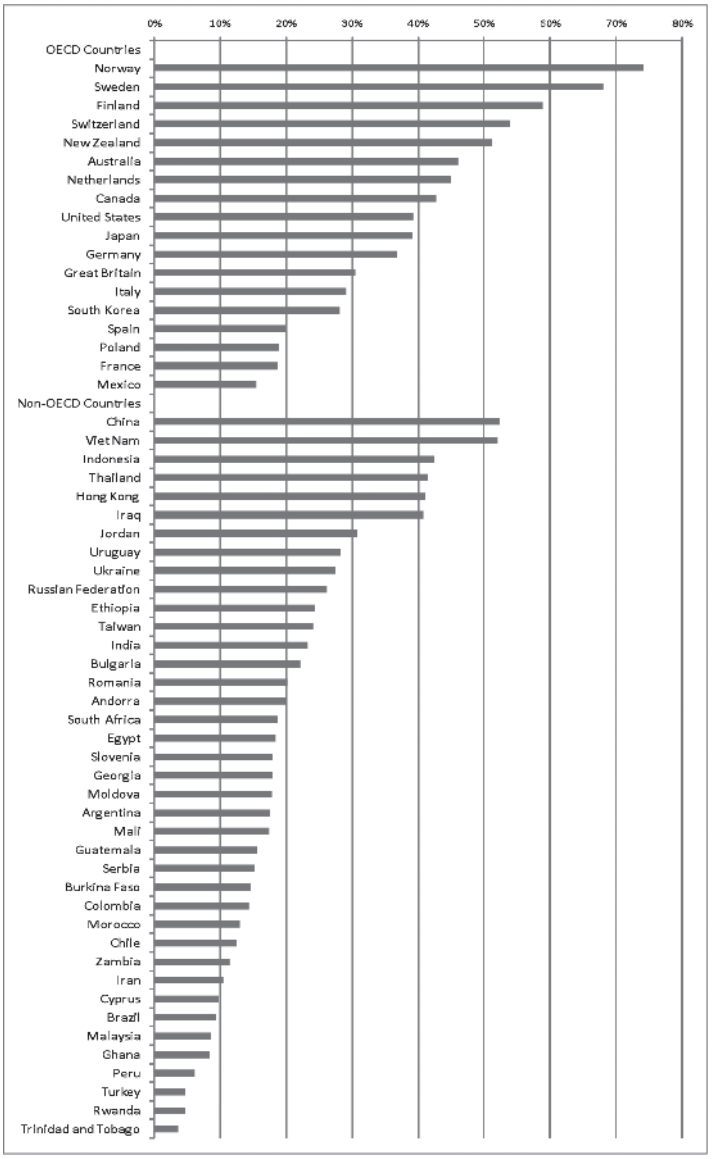
3. *Trust*. The WHS includes trust in local and national government, rather than more widely used measures of trust in "others." In the context of studies of social capital and health, trust in government may be relevant as a measure of confidence that individuals' basic needs will be addressed collectively, as measurements of more general trust in others may reflect individuals' ability to obtain needed health resources through social interactions. Comparisons of trust levels across countries are possible on the basis of a range of international surveys. Figure 2.4 shows the proportions of respondents feeling that "most people can be trusted" in a range of countries covered in the World Values Survey (WVS). Trust in government has generally diminished over time in OECD countries and so has the education gradient in trust (Dalton, 2005). While the most educated used to have more trust in government, recent surveys have found that differences between people with varying levels of education gradually have disappeared and even reversed in some countries (*e.g.* in the United States).

4. *Say in getting government to address issues of interest and freedom of expression without fear of reprisal*. These indicators complement voting behaviour and trust in government in drawing a picture of how individuals relate to political institutions. Better education tends to be associated with a greater say in government action and perceived freedom of expression.

5. *Perceptions of safety (at home, out after dark) and being the victim of crime*. This indicator measures one of the classical dimensions of social capital. It reflects both the quality of one's own neighbourhood and, indirectly, the prevalence of anti-social behaviour and crime. Safety tends to be negatively correlated with education, since more deprived neighbourhoods, where average education is generally poorer, also tend to be less safe than wealthier neighbourhoods.

The measures reviewed in this section reflect a wide range of options for assessing social capital at the individual level, in a cross-country perspective. Cultural and economic differences

Figure 2.4. **Average levels of trust in others in different countries, based on WVS data**



Source: Analysis of World Values Survey (2005) data.

among countries are likely to have at least some influence on the meaning of those measures. However, existing empirical evidence shows that broadly comparable measures can be obtained, which makes cross-country comparisons possible and meaningful. While measures of trust have been used in a large body of empirical research, which focuses on the economic outcomes of social capital, control over important things in life and social networks probably reflects the aspects of social capital that are most closely related to individual health outcomes.

Social capital, human capital and health in selected countries

The link between social interactions and health has been explored in the United States since at least the 1970s, initially at the individual level. Individuals with strong social and community ties were shown to have lower mortality rates than others over a defined period of time, and not just because they were healthier or made a better use of health care (Berkman and Syme, 1979; House *et al*., 1988). Those who are part of strong social networks were shown to be less likely to suffer from conditions such as cardiovascular disease and stroke, and to die because of these conditions (Kawachi *et al*., 1996; Eng *et al*., 2002). Empirical evidence from the United States showed that

average levels of health reported by individuals living in different states were strongly related with aspects of social capital at the state level (Kawachi *et al*., 1999; Mellor and Milyo, 2005), and similar relationships were found at smaller community levels (Subramanian *et al*., 2002). Neighbourhood social capital, in the form of reciprocity, trust and civic participation, was shown to be associated with lower mortality rates (Lochner *et al*., 2003), a lower incidence of disease and a greater diffusion of healthy behaviours and lifestyles (Brown *et al*., 2006).

Some of the work based in the United States has shown that social capital has a greater effect on health in the most disadvantaged groups or areas (Scheffler *et al*., 2008). However, another study found that the beneficial effect of community social capital on aspects of lifestyle such as diet and physical activity was greater in those with a better education, and absent in those with less than a high-school education (Yoon, 2008).

In the United Kingdom, the relationship between health and aspects of social capital has been studied using both longitudinal and cross-sectional data. A pooled analysis of British Household Panel Survey data found that most measures of social capital (social participation, frequency of contact with close friends, perception of crime in the neighbourhood, social support) were associated with a reduced incidence of mental illness and a reduced likelihood of poor self-assessed health (Pevalin and Rose, 2000). The study showed strong moderating effects of social capital with regard to aspects of socio-economic condition; for example, it found that social participation made the health gap virtually disappear between the employed and the unemployed. In 2000, a new module on social capital was introduced in the Health Survey for England (HSE). Based on this data, one study showed marked effects of social support, trust and participation in membership organisations on a range of health outcomes (Boreham *et al*., 2000), while another found self-assessed health to be associated with collective social capital, particularly aggregate trust, participation in membership organisations and perception of one's neighbourhood, beyond the effect of individual social capital (Poortinga 2006a). However, a third study, using data from the Health and Lifestyle Survey, found little support for a link between survival and area measures of social capital. These social capital measures included participation in voluntary activities, presence of community spirit, voting in general elections, feelings of belonging to the neighbourhood and frequency of contact with locals (Mohan *et al*., 2005).

Although much of the existing evidence of the link between social capital and health comes from the United States and United Kingdom, studies in other OECD countries have come to similar conclusions. A major study of 2.8 million individuals in Sweden found that differences in social capital among neighbourhoods were associated with differences in the incidence of coronary heart disease (Sundquist *et al*., 2006). These findings were complemented by additional studies of self-assessed health and mental health outcomes (Sundquist and Yang, 2007; Lofors and Sundquist, 2007; Engström *et al*., 2008). Further studies have found significant associations between social capital and health in countries as diverse as Canada (Veenstra *et al*., 2005) and Portugal (Nogueira, 2009). At the 2008 OECD/IRDES Workshop on social capital and Health, findings were reported based on data from 13 countries, as well as the WHS and EU-based surveys, many of which addressed the complex relationships among social capital, human capital and health.

Research in low- and middle-income countries is less developed and has not always led to consistent results. Evidence of a significant effect of social capital on health is available from rural China (Yip *et al*., 2007; Wang *et al*., 2009) where downstream markers of social capital such as collective action and emotional support were found to be associated with higher education levels. Evidence of a significant link between social capital and health also exists in studies from former Soviet Republics (d'Hombres *et al*., 2009) and Indonesia (Miller *et al*., 2006), where interactions between social and human capital were identified in their effects on improvements in health status.

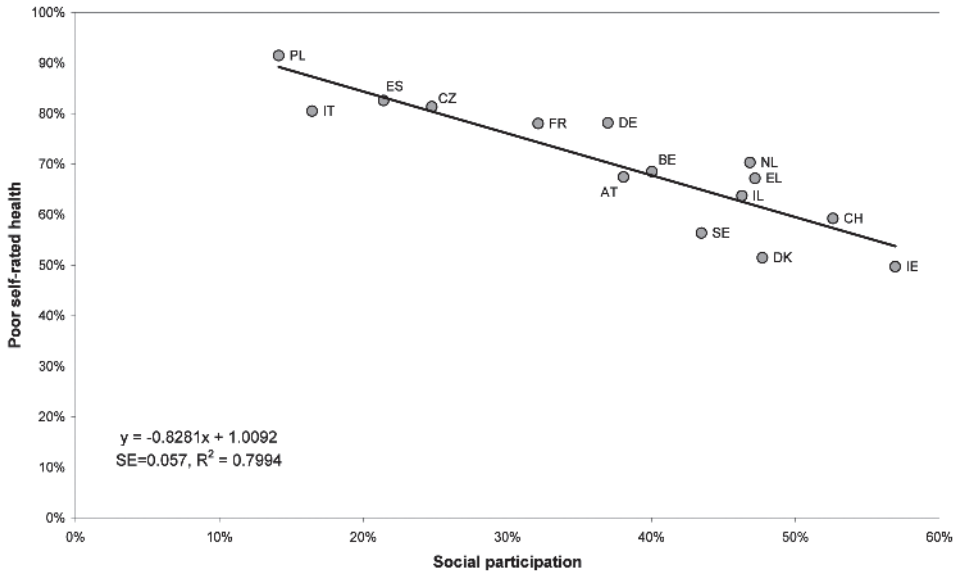
Are countries with more social capital in better health?

A large number of studies of the links among social capital, human capital and health in different countries provide solid evidence of such links. However, demonstrating that similar links exist across countries is substantially more challenging. Issues such as heterogeneity among countries, particularly along social and cultural lines, made more marked when comparing countries with different levels of per-capita income, make cross-national empirical studies difficult. There are suggestions that social capital may be one of the main contributing factors to the link, found in many cross-country studies on socio-economic inequalities and health (Kawachi *et al*., 1997). However, the evidence of this is still largely anecdotal.

When crude correlations between broad average measures of health and social capital are sought across countries with similar levels of income and similar political and social characteristics, findings suggest the existence of a striking relationship. Figure 2.5 provides one example. Social participation displays a clear relationship with self-assessed health in a set of European countries, with poorer average levels of health in countries where social participation is lower (Sirven and Debrand, 2008). Another study, with a broader set of European countries, drew a similar picture in relation to the effect of trust on self-assessed health (Rocco and Suhrcke, 2008). The two studies demonstrate that the relationship holds when examined at a finer level of detail, confirming previous findings of a significant relationship between social capital and health across European countries, based on multi-level models (Poortinga, 2006b; Olsen and Dahl, 2007).

On the other hand, a study of 15 geographically and socially diverse countries with different levels of income, based on WHS data, showed that health benefits are associated with most aspects of individual social capital, particularly perceptions of fairness of government and political process, across countries, and that social capital mediates part of the effect of education on health. However, the analysis did not identify a consistent pattern linking residual differences in

Figure 2.5. **Relationship between social participation and self-rated health (SRH) in a set of European countries**



Source: Analysis of data from the Survey of Health, Aging and Retirement in Europe, 2004-06.

Social participation is the proportion of survey respondents in a country who are either members of voluntary organisations or provide help to family, friends, or neighbours. Data from the Survey of Health, Aging and Retirement in Europe, 2004-2006, individuals age 50+.

average health among countries to differences in overall levels of social capital in those countries (Sassi, 2008). These results are consistent with those of a larger study of 45 countries at different levels of income based on WVS and World Bank data, which showed that contextual aspects of social capital, measured at the country level, were inconsistently related to self-assessed health (Mansyur *et al*., 2008).

Conclusion

From an international perspective, the research on the links among social capital, human capital and health provides important insights into the strength of those links. The evidence also shows that aspects of individual social capital are consistently associated with health status, when this relationship is explored in different countries. Measures of community social capital are similarly associated with health outcomes in most, although not all, instances. The fact that these relationships are found consistently across countries, using a range of alternative measures of health and social capital, confirms the relevance of the findings. The studies that addressed the relationship between social and human capital, in their effects on health, mostly concluded that social capital has a moderating effect on the relationship between education (or, more broadly, socioeconomic status) and health, leading to greater health improvements among the worse off, compared to the less educated and those in poorer socioeconomic circumstances. However, most aspects of social capital are positively correlated with education (*i.e.* the more educated enjoy greater levels of social capital than others), and social capital appears to partly mediate the effect of education on health. Many of these findings hold in a cross-country perspective, indicating that countries with more social capital tend to have better health on average, although the relationships are clearer in comparisons of countries with similar income levels.

The replication of findings across countries is an important confirmation of the strength of the links among social capital, human capital and health. However, it is not a sufficient condition for asserting the causal nature of those links. Only a minority of the studies goes beyond the assessment of statistical correlations, and attempts to identify the extent and direction of causality of the effects observed. In fact, adopting a cross-country perspective makes the latter even more cumbersome, as heterogeneity increases, and the identification of natural experiments or instrumental variables which may be relevant in diverse settings becomes challenging.

Chapter 3

Methodological issues and public policy

Introduction

How best can planners and policy makers use research results on social capital, education and health to better inform policymaking? This part discusses three questions that arise from social capital research. First, should social capital be fostered at the community level, or through incentives to individuals? Second, does social capital improve community health, or is it health that can improve social cohesion? Third, what lessons can be learned here for public policy?

Individual vs. collective social capital

Social capital has been defined at various levels, ranging from an individual characteristic, to a state- or country-level feature. For example, social capital has been conceived, assessed and studied within the family (Coleman, 1988), at work (Okasen, 2008), within the neighbourhood, the so-called "community" (Kawachi, 2008) or the city. For each of these levels, specific pathways between social capital and income or health have been hypothesised and tested (Scheffler, 2008).

Individual social capital refers essentially to individual networks and personal involvement in society. At this level, social capital can become a component of human capital, alongside other skills and knowledge sets (such as education) that favour productivity, career and social inclusion. One possibility is that individual social capital can be an alternative resource for individuals, to counterbalance a lack of education. If this were the case, individuals with less education would rely more on social supports and networks to meet the challenges of daily life. Alternatively, people with higher education, being more able to find and understand information by themselves, may utilise social capital less than their lower-education counterparts. It is also possible that social capital acts as a complement to education, meaning that educated individuals also have more robust networks and social participation. Empirical studies have favoured the latter alternative, with education being shown a determinant of social participation (Helliwell, 1999). In the consideration of health, individual social capital may preserve health through social networks and support, and preserve cognitive functions for the elderly. Health status itself has a clear facilitating effect on access to social capital, with poorer health status limiting an individual's social participation.

At the family level, social capital also has been shown to have an impact on health. For example, although familial context does not refer explicitly to social capital, it has been shown to have an impact on smoking and drinking habits (both positive and negative), through the transmission of familial lifestyle norms.

At the community level, studies of social cohesion, through associative participation, women or minority empowerment, have been linked to levels of interpersonal trust, crime rates, etc. (Buonanno, 2009). Community social capital can affect community health through the diffusion of information on health, healthy behavioural norms, promotion of access to local social services

and psychosocial support. Just as with family social capital, the role of community social capital on health can be negative, as community values may convey unhealthy norms.

It is worth noting that the interactions among the inner dimensions and the various scales of social capital (see Introduction) also can be of interest. Low levels of trust and high social participation within small groups, such as within the family, may be viewed as the "miniaturisation" of society. Social capital at a larger scale may in turn influence the creation of local social capital through pro-association policies, which themselves may promote social capital at the individual level. Finally, local social capital can mediate and strengthen bottom-up collective action among a population to obtain resources from higher-level institutions. For example, such bottom-up activities may prod the state to enhance its response to health care resource issues.

Reconciling individual and contextual approaches

Until quite recently, studies on social capital and health have been undertaken either at the individual or the community levels (see Chapters 1 and 2). At an individual level, there is a large consensus which argues that social networks provide their members with social support, influence healthy behaviour, etc. This is known as the "compositional effect" of social capital. At an aggregate level, this effect is challenged by the "environmental effect" of social capital. A high level of social capital within a society may generate social cohesion, which in turn may improve the health status of the whole population. Whether the effects of social capital are direct (compositional) or not (environmental), empirical findings give substance to the assumption that "in none is the importance of social connectedness so well established as in the case of health and well-being." (Putnam, 2000).

Ecological and individual studies both have their limitations. Many ecological works have assessed links between social capital and health, but their results can reflect compositional as well as environmental effects. On the other hand, individual approaches obliterate contextual effect measurement, which can lead to overestimating the strength of the link at the individual level. One of the most salient new strands of research investigates simultaneously joint individual and contextual effects of social capital on health (Kawachi, 2008).

A stream of studies long has favoured the search for a contextual effect, in which a high level of social capital within a society may generate social cohesion, which in turn may promote the health of the whole population. Indeed, community social capital and health have been shown to be statistically associated. Nonetheless, joint studies have shown a different picture. Individual social capital tends to overlap the community social capital effect. On the whole, social capital eventually appears to be more important at the individual level. Joint approaches not only disentangle individual from contextual links between social capital and health, but also can detect more complex cross-level interaction effects. For instance, they may show that the influence of contextual social capital affects only more socially favoured subgroups, who may better use these collective resources (Kawachi *et al*., 2008).

Does social capital determine health? The causality issue

An important yet uncompleted step of social capital and health research has been to go beyond correlations that exist between social capital and health. One reason why the relationship between social capital and health is often so significant at the individual level lies in the fact that both concepts strengthen each other in a reciprocal pattern. It is indeed more likely that people in good health are more able to take part in social life; and similarly, those who are more involved in social activities are expected to benefit more from social support than others. This double causality mechanism has major consequences on theoretical and public policy issues. Should higher-level institutions invest in health for a more cohesive society, or should these efforts focus on investments in social capital, to improve health in the society?

The recourse to instrumental variables (IV) can shed some light on the still unclear causal relationships between social capital and health. An instrument (a variable that has an impact on social capital but has no a priori effect on health) constrains the influence of social capital to factors that cannot be influenced by health, in order to restrict the pathway between social capital and health from the former to the latter. This ensures that the effect of social capital is not confounded by other variables. This correction for omitted variable bias is the greatest threat to the validity of the social capital and health hypothesis (Folland, 2007).

However, it is difficult to find a suitable instrument at the individual level, *i.e.* a variable that is related to social capital and not to health, and this is why most instruments used in this still scarce literature refer to the aggregate level. For instance, measures of a community's heterogeneity can be calculated in terms of religious beliefs, education levels, or income distribution (D'Hombres *et al.*, 2009). Other measures, such as the extension of a regional network of roads, the percentage of residents without Internet access, or the percentage of residents with the status of citizens, also have been used as instruments.

On the one hand, some of these instruments make more sense than others. In the case of the "relative education" hypothesis, the individual level of education (relative to others) in a given area may be of a much more significant influence on the individual's decision to get involved in social activities than his or her "absolute" level of education (Helliwell and Putnam, 2007). On the other hand, variables such as "heterogeneity of the communities in terms of the religious beliefs", or "the share of residents with the status of citizens", may be a form of social capital. If this were true, the instrument would not be useful. In this latter case, such a conceptual proximity between the instrument and the social capital variable would be avoided, with other instruments being given preference.

By and large, a review of these studies would appear to confirm that social capital has, in general, a positive causal effect on health status (see Chapter 1). However, confidence in the causal effect of social capital can erode when the review extends to the details of the analyses. The use of the IV technique does not itself definitively establish the influence of social capital on health; it could be overestimated (Folland, 2007), underestimated, or in fact be a mixed bag, since different variables are used to represent social capital (D'Hombres *et al.*, 2009). Nevertheless, the implementation of IV to test for the causal effect of social capital on health is still at an exploratory stage, and should not be rejected (see Introduction). Rather, confidence in the social capital and health hypothesis ultimately may come from a combination of various approaches (time based-causality, natural experiment), and should be assessed for different populations (in age, gender, geographical areas, etc.).

Education, social capital and health interactions: what can policymakers learn?

Does causality go from health to social capital, or from social capital to health? Is the relationship individual or contextual? Answers to these key questions provide hints on which typed of policies are likely to be most effective. The main results of empirical studies to date can be summed up as follows. First, both individual social capital and community social capital are, when taken separately, correlated with health. Second, when both levels are taken into account simultaneously, contextual effects tend to fade away. Third, at the individual level, a causality relationship from social capital to health has been identified. However, the absence of evidence for a sound contextual effect does not imply there is no room for public action. A public policy focusing on increasing individual social capital could have an impact on community health, or on the distribution of health within the community. To increase social participation, such a policy could target the determinants of individual social capital (or individual social capital itself) through individual incentives aiming at favouring social participation.

Targeting education as a determinant of social capital

As education appears to be an essential determinant of social participation, policymakers may consider an education policy targeting deprived groups. Increased education levels would lead to healthier lifestyles and greater use of preventive services, which would positively influence overall community health. Education also has an indirect effect, because it increases the use of social capital, which in turn improves health.

But how would an increase in the education level of the poorest community members influence community health as a whole? The results may diverge according to the way education shapes social capital (Helliwell, 2007; Putnam, 2007). Indeed, for some, the effect of education on social capital may be an absolute effect, meaning that an additional year of average education increases the average level of social capital, too. An education policy of this type therefore would increase the social participation and health status of a community's poorest members, while not having a negative impact on the health of the rest of the population. This would generate an increase in average health and a decrease in health inequalities. However, the effect of education on social capital might also be a relative effect, whereby social participation would be a mere reflection of one's social position, and therefore education, relative to others. If this were true, education policies may have uncertain effects on social capital. In sum, these results are promising but clearly there is more work to be done to fully understand how the mechanisms linking human capital, social capital and health really work.

Annex A

Programme of the 2008 Social Capital Global Network Workshop on Education, Social Capital And Health, Paris, October 2008

General introduction

Richard M. Scheffler, Nicholas C. Petris Center on Health Care Markets and Consumer Welfare.

Education, Social Capital and Health Care

"The Impact of Education and Social Capital on Treatment Outcome for Patients with Colorectal Cancer"
— Eline Aas, University of Oslo; and Tor Iversen, University of Oslo

"Social Integration, Social Capital and Access to Health"
— Paul Dourgnon, IRDES; Michel Grignon, McMaster University; Florence Jusot, Université Paris Dauphine, IRDES; and Caroline Berchet, Université Paris Dauphine

"Aging, Social Capital, and Utilization of Health Services in Canada"
— Audrey Laporte, University of Toronto; Eric Nauenberg, University of Toronto; and Leilei Shen, University of Toronto

"Study on Social Capital and Health Care Quality"
— Chris Brown Mahoney, Petris Center; and Timothy T. Brown, Petris Center

Child Health Outcomes and Their Relationship with Social Capital or Social Capital and Education

"The Relationship Between Social Capital and the Health and Educational Outcomes of Children: the Role of Parental Education"
— Richard M. Scheffler, Petris Center; Brent Fulton, Petris Center; and Timothy T. Brown, Petris Center

"Family Health and Social Capital"
— Hope Corman, Rider University; Kelly Noonan, Rider University; Nancy Reichman, Robert Wood Johnson Medical School; and Jennifer Schultz, University of Minnesota

Social Capital and Health across Europe

"Social Capital, Religion, and Health. Exploring the Endogeneity Issue at the Individual Level"
— Nicolas Sirven, IRDES and Thierry Debrand, IRDES

"Education, Health and Social Capital: A Cross-Country Analysis"
— Franco Sassi, OECD

Policy Implications of the Findings on Education, Social Capital and Health

Tom Schueller, OECD

Education, Social Capital and Health: Empirical Framework

Donald Kenkel, Cornell University, NBER

Education, Social Capital, Health and Lifestyle Choices

"Social Capital, Education and Health in Argentina"
— Lucas Ronconi, University of California, Berkeley; Richard M. Scheffler, Petris Center; and Timothy T. Brown, Petris Center

"An Inquiry into the Relationship between Education and Health and Social Capital"
— Francesca Borgonovi, OECD; and K. Miyamoto, OECD

"On the Mechanisms that Link Area-Level Social Capital and Health: Education and Healthy Lifestyles"
— Jangho Yoon, Petris Center

"Does Social Capital Make You Healthier?"
— Beatrice D'Hombres, CRELL; Lorenzo Rocco, University of Padova; and Marc Suhrcke, University of East Anglia

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SOCIAL CAPITAL, HUMAN CAPITAL and HEALTH

What is the Evidence?

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