

# Money, Sociability and Happiness: Are Developed Countries Doomed to Social Erosion and Unhappiness?

## Time-series Analysis of Social Capital and Subjective Well-being in Western Europe, Australia, Canada and Japan

Francesco Sarracino

Accepted: 19 June 2011 / Published online: 7 July 2011  
© Springer Science+Business Media B.V. 2011

**Abstract** Discovering whether social capital endowments in modern societies have been subjected or not to a process of gradual erosion is one of the most debated topics in recent economic literature. Inaugurated by Putnam's pioneering studies, the debate on social capital trends has been recently revived by Stevenson and Wolfers (2008) contending Easterlin's assessment. Present work is aimed at finding evidence for the relationship between changes in social capital and subjective well-being in western Europe, Australia, Canada and Japan between 1980 and 2005. In particular, I would like to answer questions such as: (1) is social capital in western Europe, Canada, Australia and Japan declining? Is such erosion a general trend of modern and richer societies or is it a characteristic feature of the American one? (2) can social capital trend help explain subjective well-being trend? Therefore, present research considers three different set of proxies of social capital controlling for time and socio-demographic aspects using WVS-EVS data between 1980 and 2005. Present results are encouraging, showing evidence of positive correlation between several proxies of social capital and both happiness and life satisfaction. Furthermore, results show that during last twenty-five years people in some of the most modern and developed countries have persistently lost confidence in the judicial system, religious institutions, parliament and civil service.

**Keywords** Subjective well-being · Social capital · Relational goods · Easterlin paradox · Time-series · Economic development · EVS · WVS

---

This research is part of the VALCOS project supported by the Luxembourg 'Fonds National de la Recherche' (contract FNR/VIVRE/06/01/09) and by core funding for CEPS/INSTEAD from the Ministry of Higher Education and Research of Luxembourg. Francesco Sarracino is supported by an AFR grant (contract PDR-09-075) by the National Research Fund, Luxembourg cofunded under the Marie Curie Actions of the European Commission (FP7-COFUND).

---

F. Sarracino (✉)  
CEPS/INSTEAD, 3, Avenue de la Fonte, Esch-sur-Alzette, Luxembourg  
e-mail: francesco.sarracino@ceps.lu

## 1 Introduction

Discovering whether social capital (SC) endowments in modern societies have been subjected or not to a process of gradual erosion is one of the most debated topics in recent economic literature. This new stream of research has been inaugurated by Putnam's pioneering studies about SC trends in the United States. Considering numerous proxies of SC, Putnam (2000) argues that during last thirty years US experienced a decline in social relationships and in its system of shared values and beliefs. Much of the subsequent literature on SC tries to find evidence to support or to contend this statement. For a comprehensive review of such literature see Stolle and Hooghe (2004). Putnam's finding has been carefully scrutinised by Paxton (1999), Robinson and Jackson (2001), Costa and Kahn (2003), while Ladd (1996) criticised this evidence. Some recent studies by Bartolini et al. (2008) using the US General Social Survey (GSS) data suggest that between 1975 and 2004 US experienced a substantial reduction in many proxies of SC. The authors conclude that "on balance, social capital has been confirmed as declining in the US, although not so dramatically as Putnam claimed."<sup>1</sup> Present conclusion is further confirmed using data from the World Values Survey integrated data-set (WVS).<sup>2</sup>

All these studies are focused on US since similar research asks for a generous data-base and the GSS offers a long lasting temporal data-series. Consequently, we don't have much information about what happened in other countries in the same period. For that reason the first question I would like to answer is: what is happening in other developed economies such as Europe, Canada, Japan and Australia? is SC declining? is such erosion a general trend of modern and richer societies or is it a characteristic feature of the American one?

To my knowledge only a few authors paid attention to this aspect since only a few data-sets can be used to establish a clear long-term pattern. OECD<sup>3</sup> dedicated to this topic a publication in which, beyond others, dealt with the theme of trends in five European countries: United Kingdom, Netherlands, Sweden, France and Germany. The report assesses that in general SC declined, in particular in United Kingdom, while remaining countries show a more mixed pattern.

Another general perspective is offered by Leigh (2003). Contributing to an entry on "Trends in social capital" he identifies three common patterns of declining trust, political participation and organizational activity across industrialized countries in the period between 1980 and 1990. Among the five reviewed European countries (Britain, France, Germany, Spain and Sweden) only the Scandinavian one seems to have a positive trend even if civic engagement is declining. For what concern Australia, it seems that since 1960s Australia has been experiencing a decline in membership in labor unions, political parties and churches. Similarly also confidence in politics and trust in others seems declining, while volunteering seems to have remained stable from 1980s onward (Leigh 2003; Pink 2008).

On the contrary, Japan shows a stable trend for civic engagement since World War II and for trust and confidence in political institutions since 1980s. Takashi and Akiyoshi (2002), observing different proxies of social capital in the Japanese Survey on Time Use and Leisure Activities since 1976, find out an overall mixed pattern. Their data suggest that the number of people involved in voluntary activities increased (this has been the case especially for young people), while the time spent for social activities doesn't show a clear

<sup>1</sup> Bartolini et al. (2008).

<sup>2</sup> Please, refer to Appendix 7 on page 22 for a discussion of the trends of SC in US using WVS data.

<sup>3</sup> OECD (2001b).

increasing trend. In the same period, political participation (as proxied by the voting rates) appears downwarding. Finally, the two authors find evidence of an increasing trend for trust and fairness indicators reverting after the middle of 1990s. These results have been subsequently confirmed by Leigh (2003).

Much less is known about SC trends in Canada. This country has been carrying on an interesting research project on SC focusing mainly on its correlates and measurement (Research Initiative 2005). Main results suggest that social capital plays an important role for people's well-being and that government policies and programs can significantly affect patterns of SC development. In particular, public policies aimed at enhancing SC can play a key role in helping populations at risk of social exclusion, supporting key life-course transitions and promoting community development. Nonetheless, to the best of my knowledge there is not any study concerning the evolution of SC over time for Canada.

Further studies about Europe have been conducted by Norris (2004), Delhey and Newton (2005) but these studies focused on particular indexes of SC or only on generalised trust and were based on old data from the WVS. A deeper analysis was conducted by Morales (2004) on trends and levels of associational participation in Europe. Looking at trends between 1980 and 2002 from the WVS and the European social survey (ESS) she concludes that it is not possible to state whether a clear increase or decrease in general levels of membership exists. Anyway, her analysis is merely descriptive and, even if she focuses on a broad set of countries, her conclusions may be affected by sample selection bias.

A more recent article by Adam (2008) observes trends of generalized trust and membership in voluntary organizations using data from WVS in the period 1980–2000. The author finds evidence of a non eroding SC in Europe even if he warns about signs of decline as well as improvement: the decline in trust in individuals is quite visible, while associational involvement shows a more complex but on average positive trend. Adam's work is, to my knowledge, the most up-to-date and complete research on European trends of SC. Anyway, it suffers some limitations. First of all it is based on mean variations between the starting and ending period. This is quite comprehensible since the second aim of the author was to test the reliability of the WVS vis-a-vis other data-bases (i.e. ESS), but in general this approach does not allow to check for other factors and sample bias; secondly the author adopts only some of the available proxies of SC, namely generalized trust, membership in voluntary organizations and unpaid voluntary work; finally, Adam focuses on a large number of European countries including transition countries: this is an interesting point, but misses to account for different economic realities (developed and transition countries) preventing a more detailed knowledge of what has happened to SC during last twenty years.

In order to overcome these limitations, Sarracino (2010b) considers three different set of proxies of SC controlling for time and socio-demographic aspects in 11 western European countries using data from the first four waves of WVS-EVS. The paper points out some important aspects: 1. trends of social relationships and networking are increasing Europe wide, with just one notable exception: Great Britain. This is the only country, among the investigated ones, showing declining trends for every proxy of SC; 2. between 1980 and 2000 European citizens have persistently lost confidence in the judicial system, religious institutions, armed forces and in police.

The recently released fifth wave of the WVS allows to extend previous analysis both in terms of years (investigating a longer time-span) and of countries (including some new countries for which enough data are available to assess long period trends). Using the five

waves integrated data-set, I am able to investigate trends for different SC proxies on a twenty-five years period.

The second question I would like to answer is whether SC trend can help to explain subjective well-being (SWB) trend. In a pioneering work Easterlin (1974) discovered that, using cross-section data, on average richer people are also happier than poorer ones; but a life-cycle analysis on the same sample shows that during time income grew up while happiness stayed constant. Such a puzzle is currently known as the “Easterlin paradox”.

Starting from this point an even more consistent part of the economic literature flourished trying to solve the problem. Many different theories coming from manifold scientific fields have been advanced so far, but so far they failed to fully explain the paradox.<sup>4</sup> Recently, Stevenson and Wolfers (2008) and Sacks et al. (2010) revived the debate challenging the existence of the paradox. Considering Europe and Japan they argue that societies get happier as they become richer. That is to say that “money can buy happiness”. Unfortunately, at the same time they state that “the failure of happiness to rise in the United States remains a puzzling outlier.”<sup>5</sup> In this way the Easterlin paradox remains unsolved and also its non existence is not demonstrated.

There is a need to further look into the “black box” of the American case. From this point of view, some recent contributions by Helliwell (2001, 2006) propose SC as an important aspect for SWB arguing that money can not explain the whole variation in people well-being.

To my knowledge, the paper tackling most successfully with the challenge settled by Helliwell is Bartolini et al. (2008) which argues that SC, and in particular relational goods, is important for SWB. They do not deny the importance of income for happiness, but using data from the American GSS between 1975 and 2004 they find out that U.S. SWB is largely explained by four forces acting in different directions: (1) income growth; (2) decreasing relational goods; (3) decreasing confidence in institutions; (4) social comparisons. These four groups of variables allow to explain quite the whole variation in SWB. In other words, the three authors suggests that American happiness did not grow up together with economic growth because the positive effect of income growth was counterbalanced by the declining availability of SC which negatively affects SWB. This result has been successively confirmed by Bartolini et al. (2010) using data from the German Socio-Economic Panel (GSOEP) on Germany between 1994 and 2007. This evidence provides a convincing and powerful explanation of the Easterlin paradox giving SC a new role: a higher income increases happiness as long as it does not undermine SC. If this hypothesis were corroborated by further research, policy agendas should start considering also the effects of economic policy on the preservation and the provision of social capital. Hence, SC can become an important aspect of future development policies.

The theory proposed by Bartolini et al. (2008) can help to explain what happened in US. A few example can probably be convincing. Estimates from the three authors suggest that in presence of a stable endowment of SC, and in particular of relational goods, American SWB would have been higher than the actual one. Similarly, if income growth should compensate for the effect of the reduction of SC on happiness, keeping this variable stable to its 1975 levels, then the growth rate of GDP should have been more than 10%. Finally, they also estimate that the positive effect of income growth on SWB has been counter-balanced by the increase of other’s people income (which offsets 2/3 of the effect of

<sup>4</sup> For a review of the main theories proposed so far, please refer to Sarracino (2010a).

<sup>5</sup> Stevenson and Wolfers (2008, p. 16).

income growth) and by the decrease in relational goods and confidence in institutions (which accounts for 5/6 of the total effect of social comparisons on SWB).

Concluding, contributions by Bartolini et al. (2008, 2010) and Sarracino (2010b) suggest that differences in SC trends can help to explain differences in SWB trends. The aim of this work is to provide further evidence to support this hypothesis looking at some western European countries using a longer time span of about 25 years and extending this analysis to other developed countries for which enough data are available.

Main results of my research are the following:

1. trends of SC in western Europe, Australia, Canada and Japan are generally positive. In some cases, such as Great Britain, overall positive trends come out after a period of steady decline strongly reverting by the end of 1990s;
2. trends of SWB as proxied by “happiness” and “life satisfaction” are consistent with each other and correlated with trends of SC across all the sampled countries. In other words, SC and SWB trends are compatible with a relational explanation of the Easterlin paradox;
3. between the beginning of 1980s and the second half of the 2000s, people’s confidence in judicial system, religious institutions, parliament and civil service in all the considered countries has been declining.

Present work is structured in six sections: the first section outlined my research questions and motivations behind them; Sect. 2 summarizes the theoretical background in which present research is grounded; the following two sections point out respectively data adopted for my research and methodological aspects; Sect. 5 reports results from different regressions considering various proxies of SC and SWB as dependent variables and adopting time dummies and socio-economic conditions as independent variables. Finally, some concluding remarks will follow in Sect. 6.

## 2 Theoretical Background

### 2.1 Social Capital

Although SC has been longly a much debated topic, actually it still lacks a commonly agreed definition (Van Deth 2008). This topic has been developed and applied in many different social disciplines hence different definitions have been advanced so far. Some of the fathers of this concept propose different definitions for it. For example, Pierre Bourdieu, probably the first scientist introducing this term, defines social capital as “the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition... which provides each of its members with the backing of collectively-owned capital.”<sup>6</sup> Such a definition focuses on three important aspects of social capital: (1) the existence of a network of individuals; (2) participation in this network and (3) social capital as a public good. Nonetheless, Bourdieu misses to precisely identify social capital pointing on its sources: “the network of relationships.” Differently, James Coleman proposes the following definition: “social capital is the set of resources that inhere in family relations and in community social organization and that are useful for the cognitive or social

<sup>6</sup> Quoted in Schuller et al. (2000, p. 5).

development of a child or a young person.”<sup>7</sup> In Coleman’s view the network aspect is less emphasized while he stresses the importance of the group in which social relations constitute useful capital resources. Such a concept can be related to the category of “*bonding*” social capital in contrast with that one of “*bridging*” social capital.

Bonding refers typically to “relations among members of families and ethnic groups. Bridging social capital refers to relations with distant friends, associates and colleagues.”<sup>8</sup> These are two different forms of social capital that should be considered mutual. In fact, while the first form gives particular groups of people “a sense of identity and common purpose, without bridging ties that transcend various social divides (e.g. religion, ethnicity, socio-economic status), bonding ties can become a basis for the pursuit of narrow interests, and can actively exclude outsiders.”<sup>9</sup> Such groups can be characterized by strong and co-operative norms, but low trust and co-operation with the rest of society becoming a barrier to social cohesion and personal development. Taking this aspect to the extreme, strong group ties can bring to neglect wider “public” interests promoting socially destructive “rent-seeking” activities (Olson 1982).

Finally, Robert Putnam defines social capital the “features of social life - networks, norms, and trust - that enable participants to act together more effectively to pursue shared objectives”.<sup>10</sup> In this way the author identifies crucial aspects of social capital specifying their role in social relationships: they enable different people to co-operate (even unconsciously) to reach common goals. Very close to the definition adopted by Putnam et al. (1993) is the one adopted by OECD (2001a) considering social capital as “network together with shared norms, values and understandings that facilitate co-operation within or among groups”. More recently, Bartolini et al. (2008) propose a more operating definition of SC as “the stock of both *non-market relations* and *beliefs concerning institutions* that affect either utility or production functions.”<sup>11</sup> Hence, the authors adopt the framework proposed by Putnam (i.e. networks, norms and trust) comprising all those aspects—material and immaterial—that can contribute to develop mutual trust and co-operation.

In particular, they point to two main aspects of SC: (1) every non-market relationships among individuals which allow people to communicate each other and to develop mutual trust. They define this aspect *relational SC*; (2) the system of values or beliefs that makes people act coherently. Moreover, the authors propose a further distinction in intrinsically and extrinsically motivated *relational SC* depending on whether the incentives to act come from within or outside the individual. They define *intrinsic SC* (alternatively defined as *relational goods*) those components “that enter into people’s utility function;”<sup>12</sup> by *extrinsic SC* they mean those components that do not “directly enter into people’s utility functions but are instrumental to something else that may be considered valuable.”<sup>13</sup>

This distinction allows to go deeper in the analysis of the category of relational SC. In fact, quoting Deci’s work (1971), they focus on the non-instrumental nature of intrinsic motivated activities. This peculiarity allows to focus on a broader point: non-market

<sup>7</sup> Quoted in S. Baron, J. Field and T. Schuller, *Social capital: critical perspectives*, Oxford University Press, Oxford, 2000, p. 6.

<sup>8</sup> OECD (2001b, p. 42)

<sup>9</sup> OECD (2001b, p. 42).

<sup>10</sup> Putnam et al. (1993, p. 56).

<sup>11</sup> Bartolini et al. (2008, p. 5).

<sup>12</sup> Bartolini et al. (2008, p. 5–6).

<sup>13</sup> Bartolini et al. (2008, p. 5–6).

**Table 1** Summarizing scheme of the different constituents of social capital

Relational social capital	Membership	
	Unpaid voluntary work	
	Trust in others	
Non relational social capital	Confidence in	Religious institutions Armed forces Police Press Educational system Parliament Social security system Civil service Judicial system Labor unions Political parties Major companies

relations are not always intrinsic; there can be extrinsic relational SC (or purely extrinsic) as well as intrinsic one.<sup>14</sup>

Measurement of SC is a further critical aspect of this kind of literature. Different proposals have been advanced, but recently some consensus has been reached on proxies of SC. For example, following Putnam (2000) main measures of SC centre around proxies of trust and levels of engagement or interaction in social or group activities. Nonetheless, when trying to observe SC we should keep in mind the following aspects (OECD 2001b):

- we should pay attention to causal connections since sources, functions and outcomes may be confused;
- SC is mainly characterized by tacit and relational aspects which are naturally difficult to observe, to measure and to codify;
- usual variables of SC (trust, membership, voting, etc.) provide proxy measures and should not be confused with the underlying concept.

## 2.2 Subjective Well-being

Subjective well-being literature is a relatively new concept developed in sociological and psychological studies and recently widely explored also in economic field. Thanks to fundamental contributions from different disciplines, particularly from psychology, some economists are reconsidering the meaning of the term well-being and are proposing new tools to help accounting for it.

In this context, the words “happiness” and “subjective well-being” are considered synonyms and are generally referred to as an evaluation of one’s own life regarded as a whole. These kind of data revealed to be precious and reliable sources of information concerning people’s well-being. Their reliability has been tested in many ways: data about

<sup>14</sup> Please refer to Table 1 for a summarizing scheme.



SWB have been found consistent with more objective measures of well-being (heart rate, blood pressure, duration of Duchenne smile, neurological tests of brain activity) (Blanchflower and Oswald 2008a; van Reekum et al. 2007), they show a high correlation with other proxies of SWB (Schwarz and Strack 1999; Wanous and Hudy 2001; Schimmack et al. 2009) and are consistent with evaluations about the respondent's happiness provided by friends, relatives or clinical experts (Schneider and Schimmack 2009; Kahneman and Krueger 2006; Layard 2005).

Furthermore, these data revealed to be widely available and easy to collect being increasingly available also in Less Developed Countries (Blanchflower 2008). Not only, but many of the so-called "happiness studies" showed that SWB data reveal interesting stories about our societies (Diener and Suh 1997; Diener et al. 2009).

Probably, the aspect that most captured the attention of academicians as well as policy-makers and media concern the so-called "Easterlin paradox". In his pioneering study using SWB data in US, Easterlin (1974) showed that, just as we could expect, on average richer people are happier than poorer ones, but over time this relationship disappears: after the Second World War income in US (and many industrialized countries) grew up, while happiness stayed constant. Starting from this point, a large part of the economic literature focused on the "Easterlin paradox" either searching for corroboration of this phenomena (Di Tella et al. 2001; Blanchflower and Oswald 2004) or attempting to solve the puzzle (Easterlin 2001a; Frank 1997; Bruni 2002).

Currently, a considerable part of the explanations focus on the role played by relational goods and, in general, by social capital in determining happiness. This part of the literature argues that efforts to increase income may turn out in reducing quantities and quality of human relationships negatively affecting individual SWB (Bruni and Stanca 2008; Bartolini et al. 2008, 2009 and 2010; Becchetti et al. 2006; Helliwell 2002).

Further studies have been proposed in order to assess the impacts of other non-economic aspects on individual happiness. One of the first contributions from this point of view is proposed by Oswald (1997), who explored the relationship between socio-demographic aspects (such as age, gender, marital and employment status, income and education level, traits and cognitive dispositions) and happiness.

Another field in which happiness economics is providing interesting insights is macro-economics. Observing directly individual response to different macro-economic variables has proved to be a good way to evaluate economic policies. For example Di Tella et al. (2001, 2003) and Di Tella and MacCulloch (2006) first confirm Easterlin observation and then assess the impact of inflation and unemployment on individual happiness. From a different perspective, Kenny (1999) tries to assess the effects of economic growth on happiness and subsequently focuses its analysis on less developed countries searching for a connection between economic growth and SWB (Kenny 2005). Alesina et al. (2004) pose their attention on the relationship between inequality and happiness in Europe and US. Their general finding is that "individuals tend to declare lower happiness levels when inequality happens to be high".<sup>15</sup>

Further research has been developed to evaluate the effects of particular policies on people. This is the case, for example, of some applications about airport noise or other environmental aspects.

Finally, a more substantial part of literature focused on how political institutions affect subjective well-being (Frey and Stutzer 2000, 2002b, 2007).

<sup>15</sup> Alesina et al. (2004, p. 2035).



**Table 2** Number of available observations for each country over waves

	1981–1984	1989–1993	1994–1999	1999–2004	2005–2007	Total
Australia	1,228	0	2,048	0	1,421	4,697
Belgium	1,145	2,792	0	1,912	0	5,849
Canada	1,254	1,730	0	1,931	2,164	7,079
Denmark	1,182	1,030	0	1,023	0	3,235
Finland	1,003	588	987	1,038	1,014	4,630
France	1,200	1,002	0	1,615	1,001	4,818
Germany	0	3,437	2,026	2,036	2,064	9,563
Ireland	1,217	1,000	0	1,012	0	3,229
Italy	1,348	2,018	0	2,000	1,012	6,378
Japan	1,204	1,011	1,054	1,362	1,096	5,727
Netherlands	1,221	1,017	0	1,003	1,050	4,291
Norway	1,051	1,239	1,127	0	1,025	4,442
Spain	2,303	4,147	1,211	2,409	1,200	11,270
Sweden	954	1,047	1,009	1,015	1,003	5,028
Great Britain	1,167	1,484	1,093	1,000	1,041	5,785
Total	17,477	23,542	10,555	19,356	15,091	86,021

### 3 Data

The analysis of SC and SWB trends for Australia, Canada, Japan and the group of western European considered countries asks for a generous data-set. The integrated World Values Survey (WVS)—European Values Study (EVS)<sup>16</sup> data base is the most comprehensive data-base offering a wide compilation of surveys collected in more than 80 countries representing more than 80% of the world's population.

It collects information on sociocultural and political change observed on a randomly selected sample of 300 to 4,000 individuals per country. In particular the database provides information on “individual beliefs about politics, the economy, religious, social and ethical topics, personal finances, familial and social relationships, happiness and life satisfaction.”<sup>17</sup> Data have been collected in five waves (1980–1982; 1990–1991; 1995–1997; 1999–2001; 2005–2006) for a total of 344,173 observations covering quite a long period of time—about 25 years. However, the sample available for present study is smaller since I focus on the trend of SC and SWB indicators in a small subset of available countries, namely: Australia, Belgium, Canada, Denmark, Finland, France, Germany, Great Britain, Ireland, Italy, Japan, Netherlands, Norway, Spagna and Svezia. Table 2 summarizes the numerosity of the sample across countries and waves.

A detailed list of considered countries including waves of observations, summary statistics and percentage of missing data is omitted from present paper for reasons of space. All these figures are available on request to the author.

According to the vast majority of the literature on SC (Paxton 1999; Costa and Kahn 2003; Van Schaik 2002), I observe the *beliefs* component of SC through several reports of

<sup>16</sup> The five waves WVS data-set together with detailed instructions on how to integrate it with EVS data-set is freely available on-line. For more details, please refer to: <http://www.wvsevsvdb.com/wvs/WVSDData.jsp>.

<sup>17</sup> Bruni and Stanca (2008, p. 6).

confidence in institutions, namely armed forces, police, parliament, civil services, press, ecclesiastic, judicial system, education system, labour unions and major companies. Answers to these questions range on a 1–4 point scale going from *none at all* to *a great deal*.

To measure *non-market relations*, I use trust in individuals (represented by a dummy variable), membership and unpaid voluntary work in various groups and organizations. Given the multiple nature of this third aspect, I adopt the mentioned distinction between intrinsically and extrinsically motivated group membership (Bartolini et al. 2008).

Voluntary organizations entering the first set are labelled Putnamian groups, while those entering the second set are named Olsonian groups (Knack 2003). This distinction is based on the works of the two authors: Olson (1982) emphasizes the tendency of associations to act as lobbies to get policies that protect the interest of special groups at the expenses of the society as a whole. Consequently, I include in Olsonian groups all those organizations which are extrinsically motivated since it is supposed they are experienced only for instrumental reasons.

On the contrary, Putnam et al. (1993) identify in associations a source of general trust and of social ties leading to governmental and economic efficiency (Bartolini et al. 2008). In this paper membership and performing unpaid voluntary work in a Putnamian group is interpreted as intrinsic SC supposing it is experienced only for the pleasure of being a member. Among Putnamian groups I include: social welfare service for elderly, church organizations, sport clubs, art and literature clubs, fraternal groups and youth associations, human and animal rights. Among Olsonian groups I include fraternity associations, unions, professional organizations and farm organizations, organization concerned with health and consumer groups. Finally, there are some groups that were left unclassified and labeled as *other groups* because it is not clear whether they constitute intrinsic or extrinsic RSC, although they are part of RSC. In this latter group I included veterans associations, political parties and “other groups”. Each option between these three groups of variables is expressed with a dichotomous variable.

Finally, SWB is proxied by two different variables. The first one is *happiness* as measured on a scale ranging from 1 to 4 and based on answers to the following question: “All considered you would say that you are: 1. very happy; 2. pretty happy; 3. not too happy; 4. not at all happy?”. This variable has been properly recoded so that the category “very happy” corresponds to the highest value in the scale and the category “not at all happy” corresponds to the lowest. The second proxy of SWB is *life satisfaction*, a variable ranging from 1 = “dissatisfied” to 10 = “satisfied” depending on the answers to the following question: “all things considered, how satisfied are you with your life as a whole these days?”.

#### 4 Methodological Aspects

In order to study SC and SWB trends from 1980 to 2005 for each considered country, I followed two approaches<sup>18</sup>: I first regress the proxies of SC and SWB on time dummy variables (see Eq. 1). In this way trends are based on mean values; than I regress the same proxies on different groups of control variables (age, gender, number of children, attending religious services, marital status and work status) to account for specific individual and social aspects. In particular, age is considered linearly and with its square; a dummy on

<sup>18</sup> Aguiar and Hurst (2006).

male is introduced as well as a control for the number of children and a dummy on the frequency of attending religious services. Indeed, as clearly put forward by Lim and Putnam (2009), religiosity plays a positive role in enhancing people’s well-being by promoting participation in religion related groups. Thus countries may result different in their trends of SC and well-being because of the more or less strong role played by religion. In order to account for these differences I created a new variable coded 1 if the respondent declared to attend religious services at least once a month, 0 otherwise. Finally, I included controls for both marital and employment status.

Since I have different indicators of SC and two proxies of SWB, my regression methodology varies depending on the nature of the outcome variable: in case of a dummy variable (i.e. trust in others and membership or unpaid voluntary work in groups and organizations), I adopted a probit model with robust standard errors reporting marginal effects.<sup>19</sup> The resulting equation is:

$$Pr(Proxy_i^j = 1|time) = \phi\left(\alpha^j + \beta_1^j \cdot D_{i,w_2} + \beta_2^j \cdot D_{i,w_3} + \beta_3^j \cdot D_{i,w_4} + \beta_4^j \cdot D_{i,w_5} + \gamma^j \cdot \mathbf{X}_i^j + \mu_i^j\right) \tag{1}$$

where  $\phi$  is a normal cumulative distribution function.

In case of an ordered dependent variable taking discrete values on a scale from 1 to 4 (i.e. studying confidence in institutions or happiness) or from 1 to 10 (i.e. life satisfaction) the best regression techniques are ordered probit or logit models (Ferrer-i Carbonell 2005). However, it is now well documented that in similar cases the use of OLS is equivalent to the use of these alternative techniques (Ferrer-i Carbonell and Frijters 2004; Blanchflower 2008) and it has a strong advantage: the OLS allows a direct comparison between regressors from different regressions. Since the aim of present work is to evaluate the evolution of SC using several proxies of SC and comparing these results across countries, I opted for an OLS model. In this case I estimated the following equation:

$$Proxy_i^j = \alpha + \beta_1^j \cdot D_{i,w_2} + \beta_2^j \cdot D_{i,w_3} + \beta_3^j \cdot D_{i,w_4} + \beta_4^j \cdot D_{i,w_5} + \gamma^j \cdot \mathbf{X}_i^j + \mu_i^j \tag{2}$$

Finally, in order to summarize the overall evolution of each proxy, the average yearly trend is simply obtained by regressing the dependent variable over a time variable containing all the years when the outcome variable has been observed for a given country. Formally I estimate the following Eqs. 3 and 4:

$$Pr(Proxy_i^j = 1|TIME_i^j) = \phi(\beta^j \cdot TIME_i^j + \mu_i^j) \tag{3}$$

for dummy dependent variables.  $\phi$  is again a normal cumulative distribution function. Marginal effects of coefficients are subsequently computed.

In case of an ordered dependent variable, I adopt the following linear model:

$$Proxy_i^j = \alpha + \beta^j \cdot TIME_i^j + \mu_i^j \tag{4}$$

<sup>19</sup> I am aware that marginal effects (MFX) estimated at the mean value of the independent variable are not the best tool to allow comparisons across time, countries and models. Average marginal effects (AME) would best accomplish this task by providing the effect over the dependent variable when the independent moves from its minimum to the maximum value. Still, a comparison between MFX and AME shows that MFX are a good approximation of AME for what concern both the significance and the magnitude of the coefficients (Mood 2010). The advantage in using MFX is that Stata provides a better framework to store and deal with these results.

In all the equations index  $j$  stands for the different proxies of SC and SWB and index  $i$  stands for individuals. In each equation four dummy variables have been introduced to account for the five waves. Where possible I kept the first wave as the reference period. When information about the first wave were not available, I adopted the second wave as a reference period. Finally,  $\mathbf{X}$  is a vector of control variables including: age, age<sup>2</sup>, male, number of children, frequency of attending religious services, dummies on being married, divorced, separated, living together as a couple, widowed and dummies on being part-time worker, self-employed, retired, housewife, student, unemployed or other.<sup>20</sup>

When dealing with these data we have to be careful because, although the WVS-EVS is the most complete database on our topic, it has some deficiencies. In particular, we have to keep in mind that observations about Belgium, Denmark and Ireland are missing in the third and fifth waves; Australia was not observed in the second and fourth wave; Canada, France and Italy are missing in the third wave; data about Germany are missing in the first wave, while Norway was not observed in the fourth wave. In these cases data are *missing completely at random*<sup>21</sup> since they have not been observed by design. As such, they are not liable to bias estimates. Overall, the pooled dataset contains 86021 observations.

## 5 Results

### 5.1 Relational Social Capital Trends

I report and discuss results from several regressions following Eqs. 1 and 2. Results of each regression are omitted in present article for reasons of space, but are available on request to the author. Here I discuss directly my conclusive results which are summarized in figures from 8 on page 24 to 37 on page 53 in the [Appendix](#). Charts report two information: on the left axis there is the overall average growth of the dependent variable whose regression line is represented by a solid black line together with its own area of confidence interval (see Eqs. 3 and 4); on the right axis I report the marginal effects for the coefficients of the year dummy variables. They are represented by two different lines representing the variations of the dependent variable for a given year with respect to the base year (the first year in which the dependent variable was observed). The two slash-dotted lines report the trends for both Eqs. 1 and 2. Finally, 90% confidence interval for each of these two lines are represented by triangles and dots.

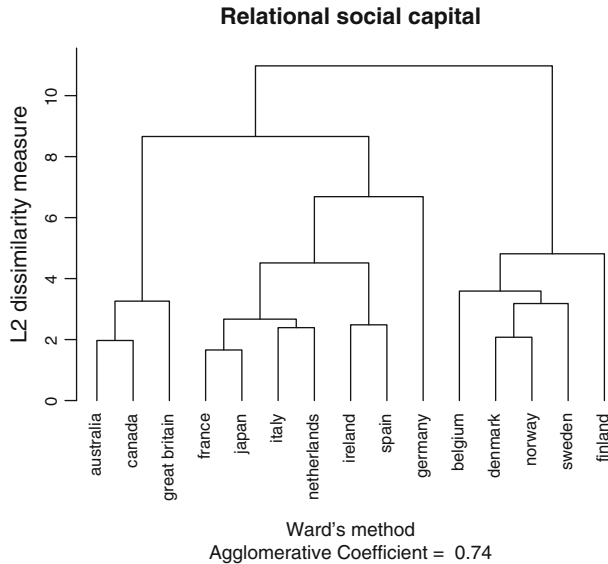
The evolution of *trust in others*, *membership* and *unpaid voluntary work in groups and associations* in the sample of available countries make a quite clear pattern in which three big groups of countries can be identified: continental western Europe and Japan, Scandinavian countries and anglosaxon countries (Australia, Canada and UK).

This result is confirmed by cluster analysis, a statistical technique allowing to group statistical units with similar characteristics. In present case, statistical units to be grouped are countries, while their observations are the overall average growth of each of the relational SC proxies. In other words, the standardized coefficients from Eqs. 3 and 4 are the observations used in the cluster analysis to assess the level of similarity among various countries.

<sup>20</sup> Detailed summary statistics for each considered country are available on request to the author.

<sup>21</sup> For a more detailed discussion on pattern of missingness and their implication for econometric analysis, please refer to Schafer (1997, 1999), Allison (2001).

**Fig. 1** Dendrogram from cluster analysis on relational social capital proxies



The similarity among units is assessed using some measures of “distance”. Several algorithms are available to define the clusters. In present case, groups are determined using the Ward’s method. This algorithm starts from single observation units and proceed by aggregating units that are “similar enough”. Ward’s algorithm optimizes clusters of units: the more homogeneous are the units within clusters and the more different they are across clusters, the better are the clusters. Therefore, this algorithm minimize the within groups variance. Two countries are grouped together if the increase in the within variance due to their grouping is small.<sup>22</sup>

The outcome of a cluster analysis can be graphically summarized using a dendrogram (see Fig. 1), a hierarchical tree that, starting from the single statistical units at the bottom of the chart, groups countries in clusters that are less homogeneous the more we move towards the top of the chart.

Each branch of the tree represents groups of countries that are “similar enough” on the basis of their observations.

In present case, the clustering algorithm identified three big clusters confirming the intuition from Fig. 8 on page 24 to 37 on page 53 in the [Appendix](#).

Each cluster groups countries with similar characteristics in terms of average growth rate for each of the considered proxy of SC. Therefore, it is possible to summarize this information reporting the average growth rate for each proxy of SC for each group (see Table 3).

For each of the three clusters (reported in column 1) three lines inform about numerosity of the countries in each group, the mean value of the growth rate and its standard deviation. Columns from three to nine report such statistics for each proxy of SC.

The largest group collects countries from continental western Europe and Japan. These are countries experiencing an overall moderate, but positive evolution of all relational SC proxies. Figures 2, 3 and 4 show this result graphically. They report coefficients from

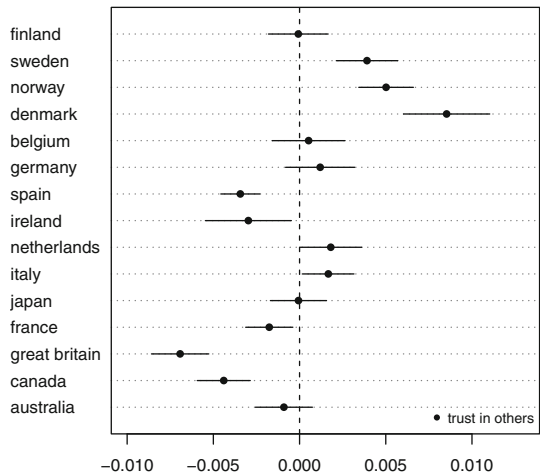
<sup>22</sup> Present results are confirmed also by using different clustering algorithms such as the single and the complete linkage ones.

**Table 3** Characterization of groups after the cluster analysis using marginal effects of probit regression of the dependent variable over a time variable

Clusters	Stats	Trust in others	Putnam groups	Olson groups	Oth. groups	Putnam vol. work	Olson vol. work	Other vol. work
1	N	3	3	3	3	3	3	3
	Mean	-0.004	0.013	0.003	0.004	0.016	0.007	0.001
	sd	0.003	0.002	0.004	0.002	0.001	0.001	0.001
2	N	8	8	8	8	8	8	8
	Mean	-0.001	0.009	0.000	0.003	0.007	0.003	0.001
	sd	0.002	0.005	0.005	0.004	0.004	0.001	0.002
3	N	4	4	4	4	4	4	4
	Mean	0.004	0.025	0.005	0.001	0.013	0.001	0.005
	sd	0.003	0.006	0.003	0.003	0.002	0.001	0.002
Total	N	15	15	15	15	15	15	15
	Mean	0.001	0.014	0.002	0.005	0.011	0.002	0.002
	sd	0.004	0.008	0.005	0.005	0.004	0.003	0.002

Groups are aggregated using the Ward's method

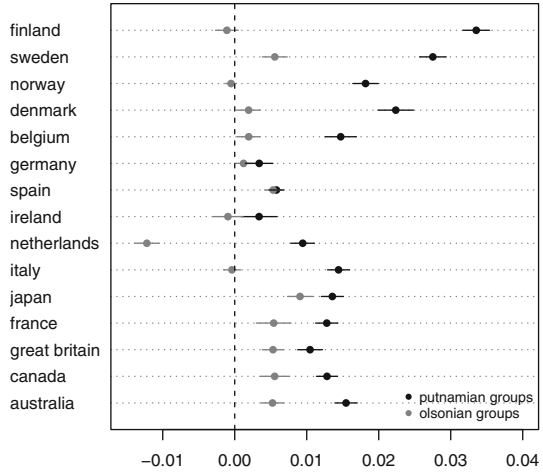
**Fig. 2** Marginal effects with relative  $\pm 2$  standard errors of the "time" coefficient of trust in others



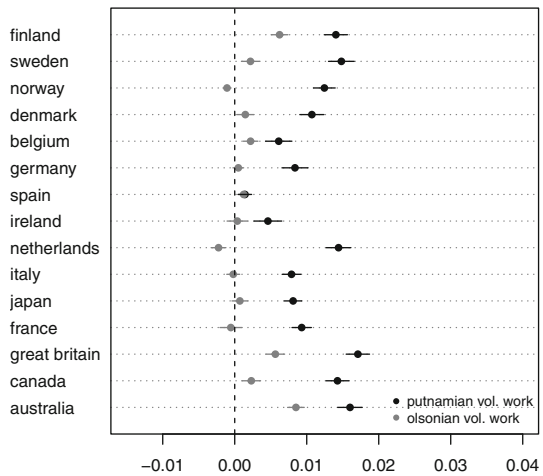
Eqs. 3 and 4 across countries. These pictures show countries on the y-axis and the overall average growth for each proxy of SC on the x-axis. Hence, it is possible to easily compare the evolution of the various proxies of SC across countries.

Belgium, France, Japan, Italy and Netherlands experienced on average an yearly growth of 1.3% of *membership in putnamian groups* and 0.9% for *unpaid voluntary work* in putnamian associations. The evolution of *trust in others* is more modest and, in some cases, it follows specific patterns: (1) it has a reversed-U shape for Italy and Netherlands. In the first case *trust* grew up until 1990 and then it smoothly decreased, while it strongly reverted after 2000 in Netherlands; (2) it is negative for France and Japan (-0.09% per year). The latter country deserves further attention as the wave by wave trends differ substantially once I include control variables. Indeed, the wave by wave variations are barely significant and very close to zero, but when controlling for socio-demographic variables, these

**Fig. 3** Marginal effects with relative  $\pm 2$  standard errors of the “time” coefficient of membership in putnamian and olsonian groups



**Fig. 4** Marginal effects with relative  $\pm 2$  standard errors of the “time” coefficient of unpaid voluntary work in putnamian and olsonian groups



variations turn to be very significant and the trend deeply negative. Something similar happens also for remaining variables concerning Japan, but in this case with positive evolution over time (see Fig. 26 on page 42 in the Appendix). In particular, France and Japan report an increase in membership and unpaid voluntary work in putnamian groups of about 1.3% and 0.8%, respectively. These coefficients are in line with those for other considered European countries. Beside France and Japan, countries in this group experience an average growth of trust in others of about 0.1% per year. Finally, trends of membership in putnamian and olsonian groups have a reversed-U shape, growing until 1995–2000 and then decreasing (see Fig. 30 on page 46 in the Appendix).

In the same group, but more isolated, stand out Spain, Ireland and Germany. The first two countries experienced a more pronounced drop than France in trust in others (−0.3% yearly) and very modest, but negative trends of both membership and unpaid voluntary work in olsonian groups and associations. These two countries are characterized by increasing, but lower than the European average, trends of participation and voluntary work in putnamian groups and associations (see Figs. 32 and 34 on pages 48 and 50, respectively).



Germany represents a more specific case because from 1990 onward it experienced a stronger decline in participation and voluntary work in olsonian groups and association than the other European countries ( $-1.2\%$  and  $-0.2\%$  per year respectively). In the same period, Germany experienced an overall increase in all other proxies of relational SC (see Fig. 36 on pages 52).

It is worth highlighting that both Spain and Germany show high variations over time: Spanish trends of *membership* and *unpaid voluntary work* are decreasing between 1980 and 1990, turn positive by mid '90s, revert again until 2000 and finally they turn positive again by 2005. *Trust in others* follow the same pattern, but this time the trend ends up being negative (see Fig. 34 on page 50); Germany is following almost the same pattern with the difference that in this case observations start in 1990 and, excepting *membership* and *unpaid voluntary work* in olsonian groups, all trends end up being positive (see Fig. 36 on page 52).

A second well-defined group includes four Scandinavian countries: Denmark, Finland, Sweden and Norway. These northern European countries experienced the strongest increase in *trust in other* ( $0.4\%$ ) (see Fig. 2 on page 14), *membership* ( $2.5\%$ ) (see Fig. 3 on page 15) and *unpaid voluntary work* ( $1.3\%$ ) in putnamian groups and associations (see Fig. 4 on page 16), while all other proxies of relational SC are positive and in line with the trends of other European countries. Relational SC trends for Scandinavian countries are also specific because involvement in *putnamian* groups or associations grew much more than involvement in *olsonian* ones (see Figs. 3 and 4 on pages 15 and 16), while in the rest of considered countries trends of the two groups are very close to each other.

In this group of countries, Finland stands out as the only one characterized by monotonic positive trends of relational SC. All other countries are characterized by growing trends until mid '90s, but, from this point onward, their trends flatten (see Fig. 18 on page 34, Fig. 14 on page 30 and Fig. 16 on page 32).

Finally, A third cluster is formed by Australia, Canada and Great Britain. This group of countries is characterized by the strongest negative trends of *trust in others* ( $-0.4\%$ ) (see Fig. 2 on page 14) of the all sample and by positive trends of involvement in putnamian groups ( $1.2\%$ ) (see Fig. 3 on page 15) and voluntary organizations ( $+1.5\%$ ) (see Fig. 4 on page 16). Also in this case, overall trends hide some more specific variations across waves.

To start with, the negative australian trend of *trust in others* reverts after 1995 although its variation in 2005 is still negative and weakly significant. All other Australian relational proxies grow up until mid '90s and then they slightly revert (see Fig. 10 on page 26).

Canada is basically characterized by positive monotonic trends except for *membership in olsonian groups* whose trend flattens after 2000 (see Fig. 8 on page 24). Finally, Great Britain stands out as an exception: notwithstanding its overall positive trends of relational SC, trends of *membership in groups and associations* appear to be decreasing until 2000, strongly reverting and turning positive by 2005 (see Fig. 12 on page 28).

## 5.2 Non Relational Social Capital Trends

Trends of confidence in institutions are more mixed both across variables and countries. Nonetheless, some general trends arise quite clearly. Results suggest that during last twenty-five years citizens from almost all considered countries have persistently lost confidence in the *judicial system*, *religious institutions*, *parliament* and *civil service*. At the same time, respondents in 11 out of 15 countries reported an increase in their confidence in *army* and *police*.

There are only few countries excepting this rule. The first one is Italy having experienced a substantially improvement of confidence in almost all considered institutions. Trends are steadily growing for confidence in *religious institutions*, *civil services* and *labor*

*unions*; they are U-shaped for confidence in *armed forces, police, educational and judicial system* reaching their negative peak in 1990s and then slightly reverting; finally, confidence in *parliament, major companies and press* revert during 1990s (see Fig. 29 on page 45). The second exception is Great Britain showing declining trends for every considered proxy of confidence in institutions: only confidence in *religious institutions* and in *judicial system* are reverting after 2000 although staying negative (see Fig. 13 on page 29).

Summing up, despite some peculiarities and a mixed pattern regarding confidence in institutions, results suggest that, between 1980 and 2005, Australia, Canada, Japan and western Europe experienced an improvement of their endowments of SC, in particular of relational SC. When compared with other countries, Great Britain comes out as the biggest exception since its positive patterns are the result of a strong reversal taking place around 2000. Up to that year, almost every proxy has been decreasing.

### 5.3 Social Capital and Subjective Well-being

Results on trends of various proxies of SC across several western and developed countries convey a framework in which relational SC increases between 1980s and the second half of 2000. As reported, some specificities arise, but overall present results suggest that the evolution of SC across the considered countries is positive and quite different from what documented for US (Putnam 2000; Bartolini et al. 2008).

Regressions about trend of SWB in the same countries confirm a similar pattern. In fact, SWB - as proxied by reports on individual happiness, increases in every considered country. The group of Anglosaxon countries is worth mentioning. Indeed, happiness in Australia follows an inverted-U shaped pattern increasing up to 1995 and subsequently it turns negative with a net negative trend; well-being in Great Britain is declining until the second half of 1990s. From that point onward, the trend reverts turning positive; finally, Canada shows a decline reverting only after 1990 and a flattening of the trend from 2000 onward. Also in this case the overall trend is positive.

Previous results are confirmed whenever *life satisfaction* is substituted for *happiness* as a proxy of well-being. Indeed, trends of these two variables follow very similar patterns in Denmark, Ireland, Netherlands, France, Belgium and Spain. Figures 5 and 6 report a scatterplot showing the correlation between the variation over time of the two proxies of SWB: feeling of happiness on the y-axis and satisfaction with life on the x-axis.

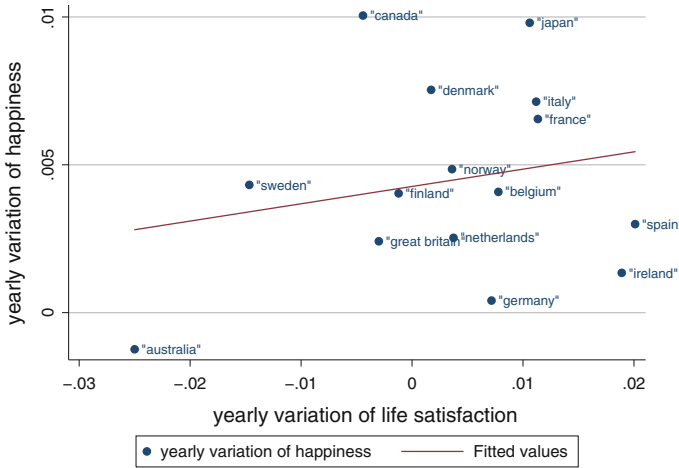
Figure 5 shows the correlation among coefficients from Eq. 4, that is to say the correlation of the overall average variation of SWB proxies. Figure 6 reports the correlation of shorter term coefficients as obtained from Eq. 2.

Both figures inform that there is a positive correlation between the variation over time of the two proxies of SWB. In other words, the two proxies convey similar information for what concern the evolution over time of SWB in the investigated countries.<sup>23</sup>

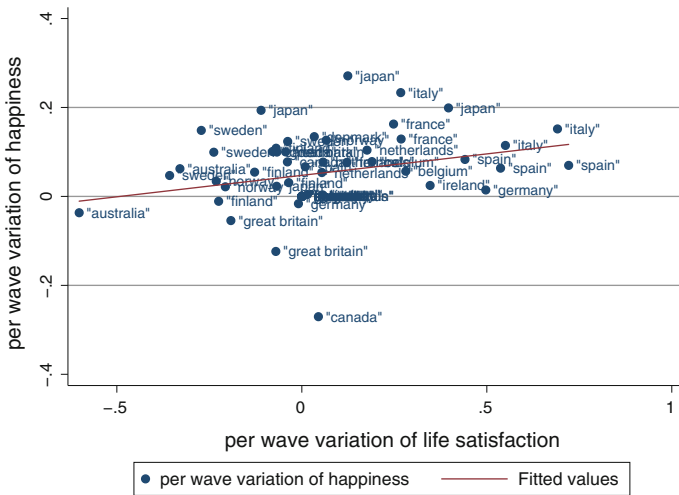
Trends for Italy and Norway are positive as well although the evolution of *life satisfaction* in Italy slightly decreases after 1990, while it follows a U-shaped curve in Norway.

For what concern Finland, Germany and Great Britain, overall trends of either *happiness* or *life satisfaction* are not significant, while trends wave by wave report similar and significant patterns for the two variables in both countries. In particular, trends for Great Britain are consistent and declining up to the end of 1990s. From that time onward, both *happiness* and *life satisfaction* revert and tend to become positive.

<sup>23</sup> For the detailed trends of the two proxies in each country, please refer to figures from 8 on page 24 to 37 on page 53 in the [Appendix](#).



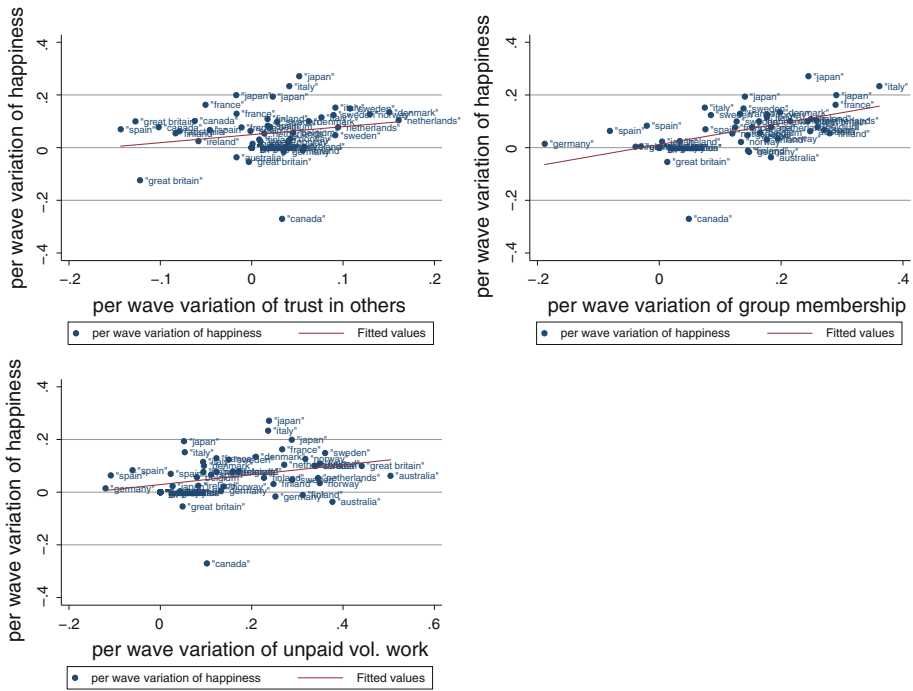
**Fig. 5** Correlation of long term variations of life satisfaction and happiness



**Fig. 6** Correlation of shorter term variations of life satisfaction and happiness

Sweden, Canada and Japan are the only cases out of 15 countries in which the trends of the two proxies of well-being are not concordant: in these three cases *happiness* trends are increasing, while *life satisfaction* is declining. It is worth highlighting that in case of Canada, trends for *life satisfaction* are not significant, while trends wave by wave for Japan reveal that *life satisfaction* declined.

Overall, these results confirm previous finding from the literature: (1) trends of SWB over time differ across countries; (2) the evolution of relational SC and feeling of happiness are consistent (Stevenson and Wolfers 2008; Sarracino 2010b; Bartolini et al. 2009). In this case, the availability of a new wave of data, besides enlarging the available sample of countries and time span, points out that happiness and SC trends are highly correlated also in the shorter term. Figure 7 reports three scatterplots showing the relationship between shorter term trends of happiness (on the y-axis) and three proxies of SC (trust,



**Fig. 7** Cross-countries correlations of shorter term variations of happiness and SC proxies

group membership and unpaid voluntary work are reported on the x-axis of the first, second and third chart, respectively.) Coefficients are obtained from Eq. 1 for the proxies of SC and Eq. 2 for happiness. Charts confirm a clear and positive relationship between shorter term trends of happiness and the three proxies of SC.

### 6 Conclusions

The aim of present study was first to point out trends of social capital for some of the most developed world economies checking whether the US negative trends of SC are common to modern and richer societies or rather they are a characteristic feature of only some of them. The second aim of this work was to search for evidence to support the thesis that SC trends can help to explain SWB trends over countries. In this way SC gains a new relevance: it is not only a general feature enhancing economic efficiency. It is an important correlate of people’s well-being. If present thesis will find further support, SC could play a central role in the definition of policy agendas aimed at improving quality of lives in developed countries.

Using different regression techniques, following the nature of the dependent variables, I assessed the trends of several proxies of SC for each considered country in the period between 1980 and 2005. Following a broadly accepted approach in the literature (Paxton 1999; Costa and Kahn 2003), I used the following variables: *trust in individuals*, *membership ed unpaid voluntary work* in eighteen different voluntary organizations and *confidence* in ten institutions. Results are quite innovative for at least two reasons. First, contemporary literature largely focused on trends in USA. This is mainly due to the fact that for USA there exist large data-bases allowing such analyses for longer periods of time (for example the US GSS).

Second, when compared to the debate on the Easterlin paradox, my results suggest that we can not discard the hypothesis that trends of SC are an important determinant of trends of SWB. Nonetheless, I stress that in present work I am not performing a causal analysis, rather I am assessing SC and SWB trends noticing that in each country signs of SC trends are concordant with signs of SWB trends. If such evidence would be supported by future research on causal relationship, we could say that USA do not represent a “puzzling outlier” since “income growth is desirable as far as it is not associated with a deterioration of SC.”<sup>24</sup> For the time being, the question whether SC trends can help to explain SWB trends remains open and asks for further and deeper research.

Summarizing, my findings are the following:

1. Trends of relational SC in Australia, Canada, Japan and western Europe are generally positive;
2. Between the beginning of 1980s and the second half of the 2000s, people’s confidence in the judicial system, religious institutions, parliament and civil service in all the considered countries has been declining. The only exception is Italy, whose trends are mainly positive. Nonetheless, also in that case there are some changing signs starting from 1990s;
3. trends of relational SC are positively correlated with trends of the two most common proxies of SWB: happiness and life satisfaction. This relationship holds in 14 out of 16 countries. Thus, the hypothesis that SC trends can help to explain SWB trends can not be rejected.

Further two more general aspects arise from present work. The first one is that in many of the considered countries, the end of 1990s represent turning point. Indeed, many trends change or even revert in this period probably reflecting some deeper phenomena affecting western societies in that period. A second interesting point is that SC changes over time even in a relatively short term. This suggests that SC is not crystallized, but actually it is possible to affect it with proper policies. In other words, if trends of SC are correlated with trends of SWB, it is possible to pursue higher quality of life by enacting proper pro-SC policies.

Concluding, present research shows that some of the richest and more modern societies in the world are following different patterns from the American one in terms of both SC and SWB. While the crisis of the confidence in some institutions seems to be widespread, present study shows that SC and SWB in richer countries are not deemed to erosion or stagnation. Differences in trends within the sample of considered countries, suggests that the quality of the development process matters in determining both SC and SWB. The evidence I provided shows that Scandinavian countries rank better than other European and Anglosaxon countries in terms of evolution of social relationships and well-being.

Nonetheless, it is worth being prudent since these figures need further investigation simply providing evidence of correlations among trends. For the time being, present results push future research in the following directions: (1) to enlarge present research to discover trends for other countries; (2) to investigate why US is experiencing such different trends. Which forces pushed toward an increasing erosion of SC in US? (3) Why did the trend of SC and SWB in some countries radically revert after 2000? (4) Do SC trends explain SWB trends in Europe?

**Acknowledgments** The author would like to thank Stefano Bartolini, Ennio Bilancini, Jaime Diez Medrano, Malgorzata Mikucka, Nizamul Islam and the VALCOS team for their advices, comments on every step of present work and data management support. The usual disclaimers apply.

<sup>24</sup> Bartolini et al. (2008, p. 26).

## Appendix: Is American social capital declining?

EVS-WVS data-set allows to check whether claims about declining SC in US are confirmed.

Using Eqs. 3 and 4, I estimated trends of several proxies of SC in US. The investigated period is limited by data availability and ranges between 1982 and 2006. Regression coefficients are reported in the second column of Table 4. Coefficients are interpreted as average yearly variations of given proxy for the available years. Therefore, they are labelled “time trends”. The third columns of Table 4 reports standard errors.

Data suggests that US confidence in institutions declined steadily and significantly. In line with previous results from GSS studies, the only institution whose confidence has been increasing is the army (Bartolini et al. 2008).

Moreover, data document declining trends of trust in others. On the contrary, considered proxies of membership in groups and associations report positive coefficients. In other words, between 1982 and 2006 US participation in groups and associations has been increasing. This result is at odd with evidence from previous studies. Nonetheless, two aspects have to be taken in to account: the first one is that coefficients are very small, thus suggesting that the growth rate has been very modest and close to zero; the second one is that the US GSS data-set is a better tool to analyze US trends. In fact, the GSS is collected every year and for a longer time span. Therefore, the difference we are observing using EVS-WVS might be due to a different time period or to a smaller number of available waves. In the considered period, US data have been collected in five waves (1982, 1990, 1995, 1999 and 2006).

Concluding, present data support the US decline in SC although not as dramatically as found in earlier literature. Discrepancies arising for the proxies of membership in groups or associations must be considered carefully in the light of the limitations of EVS-WVS data-set. Nonetheless, magnitude of the coefficients suggest a modest increase over time.

**Table 4** US Social capital trends between 1982 and 2006 using EVS-WVS data

Variable	Time trend	Robust S.E.
Trust in others	-0.00224	0.000767
Putnamian groups	0.00943	0.000719
Olsonian groups	0.00499	0.000749
Other groups	0.0191	0.000769
Putnamian unpaid vol. work	0.0150	0.000817
Olsonian unpaid vol. work	0.00526	0.000583
Other unpaid vol. work	0.00931	0.000515
Confidence: churches	-0.0125	0.00138
Confidence: armed forces	0.00322	0.00124
Confidence: education	-0.0255	0.00380
Confidence: the press	-0.0221	0.00114
Confidence: labor unions	-0.00529	0.00125
Confidence: the police	-0.00786	0.00121
Confidence: parliament	-0.0218	0.00116
Confidence: civil services	-0.0116	0.00119
Confidence: major companies	-0.0108	0.00116
Confidence: justice system	-0.00662	0.00132

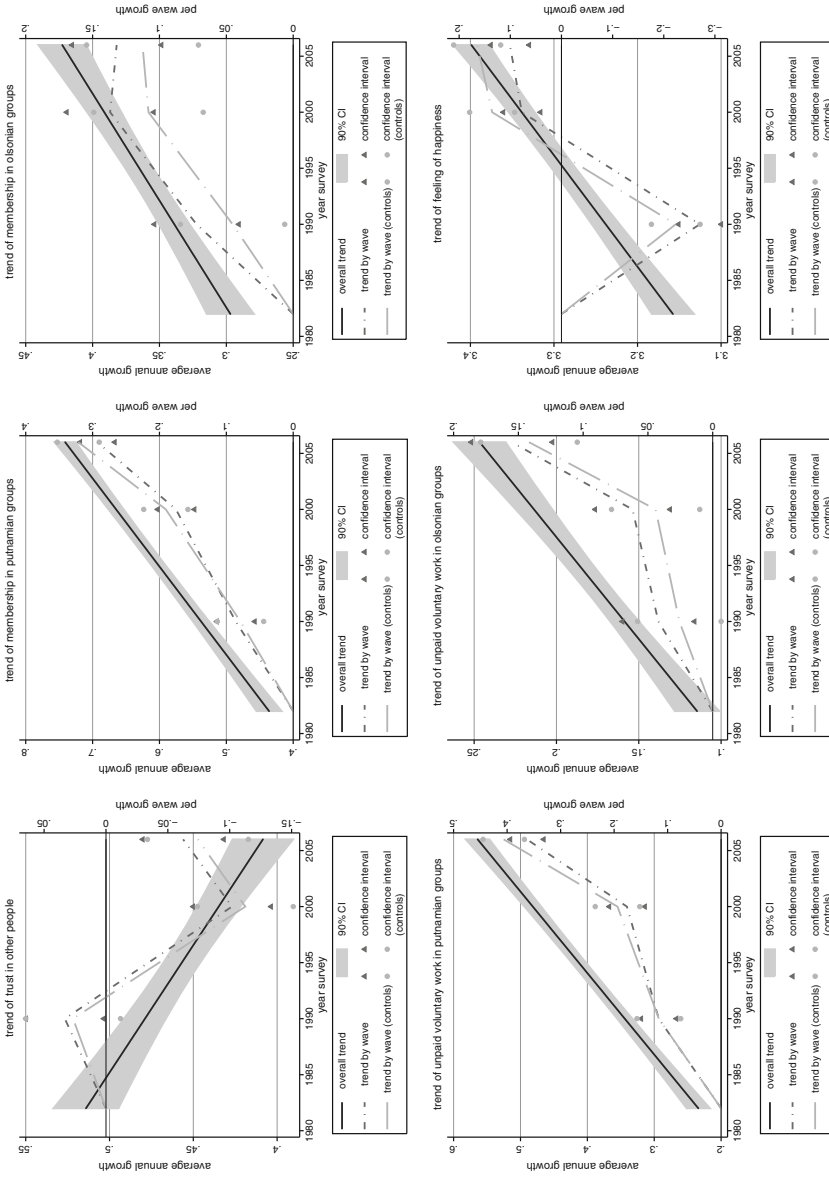


Fig. 8 Relational social capital and subjective well-being trends for Canada from 1980 to 2005



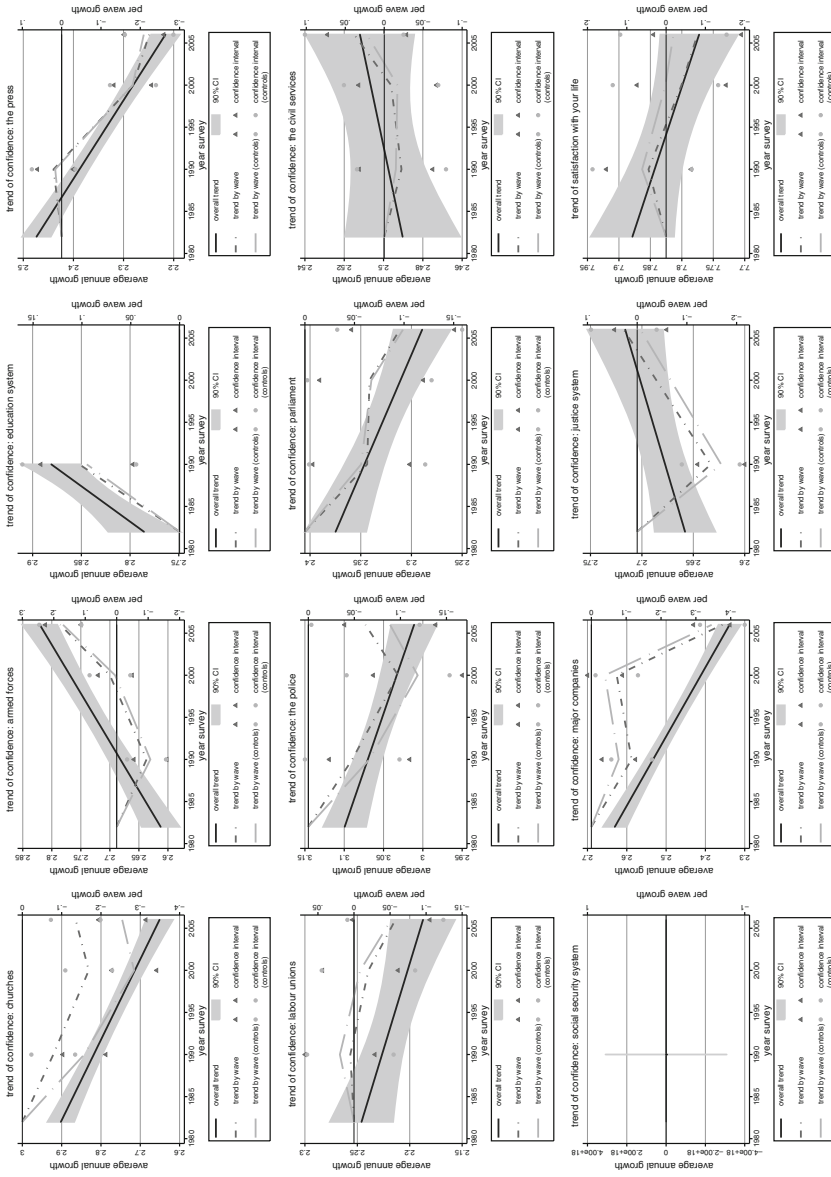


Fig. 9 Non relational social capital trends for Canada from 1980 to 2005

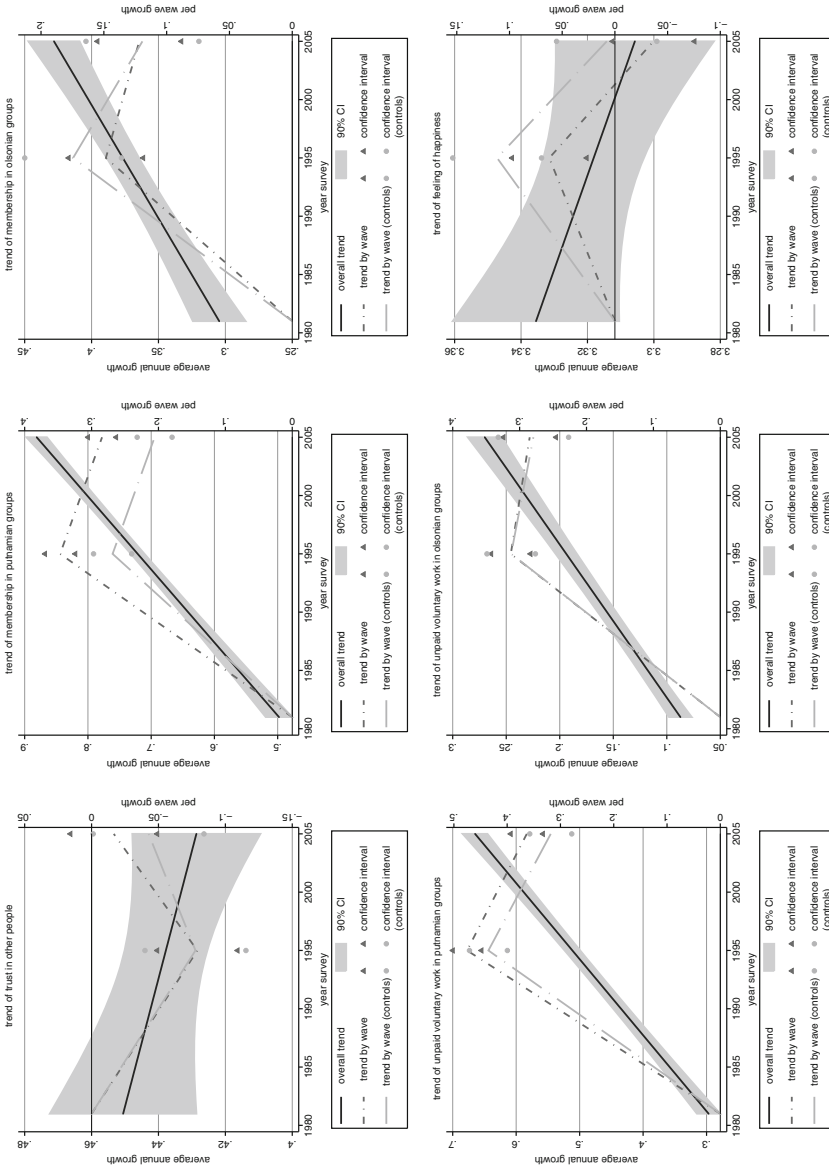


Fig. 10 Relational social capital and subjective well-being trends for Australia from 1980 to 2005

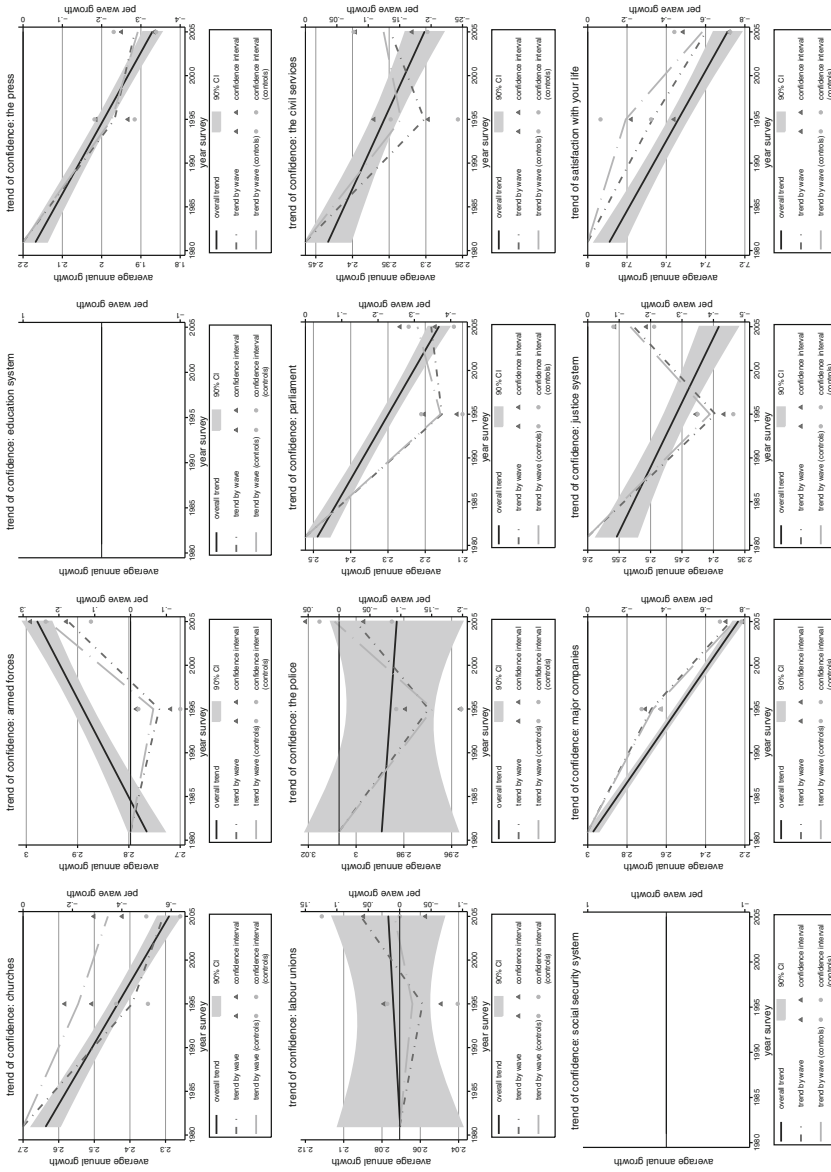


Fig. 11 Non relational social capital trends for Australia from 1980 to 2005

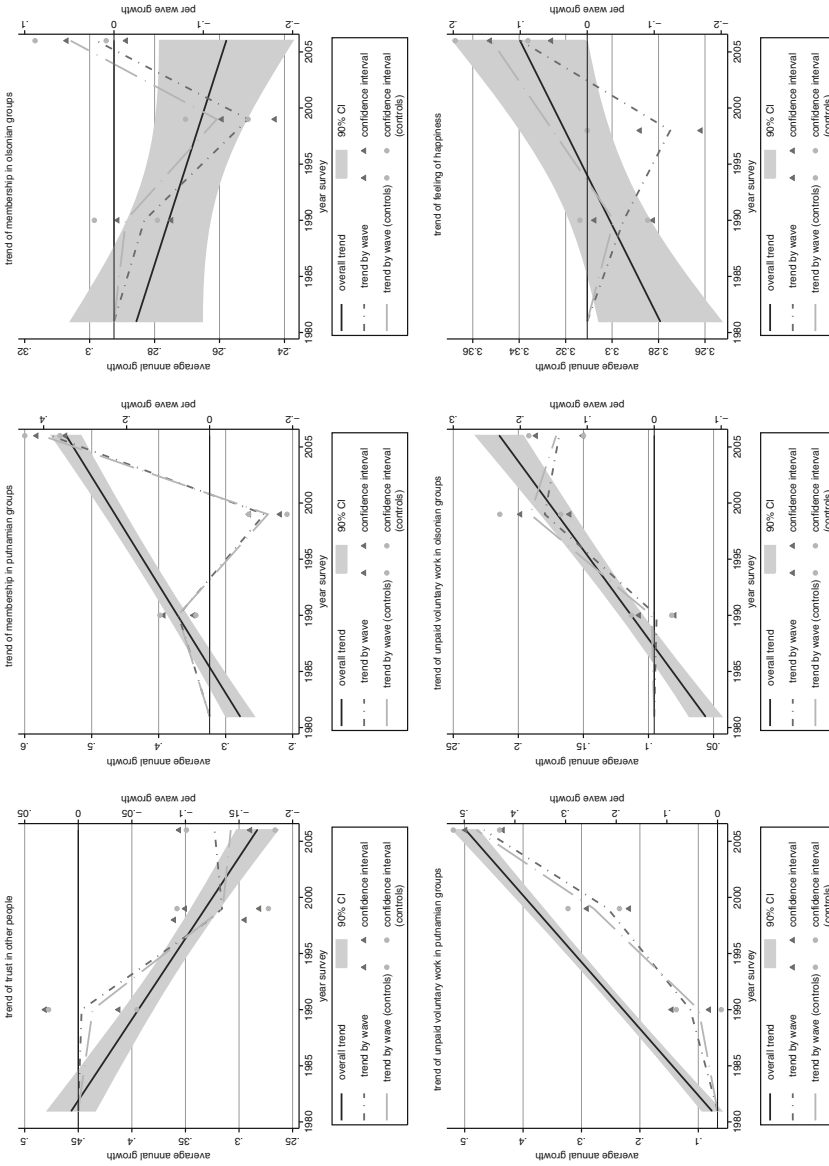


Fig. 12 Relational social capital and subjective well-being trends for Great Britain from 1980 to 2005

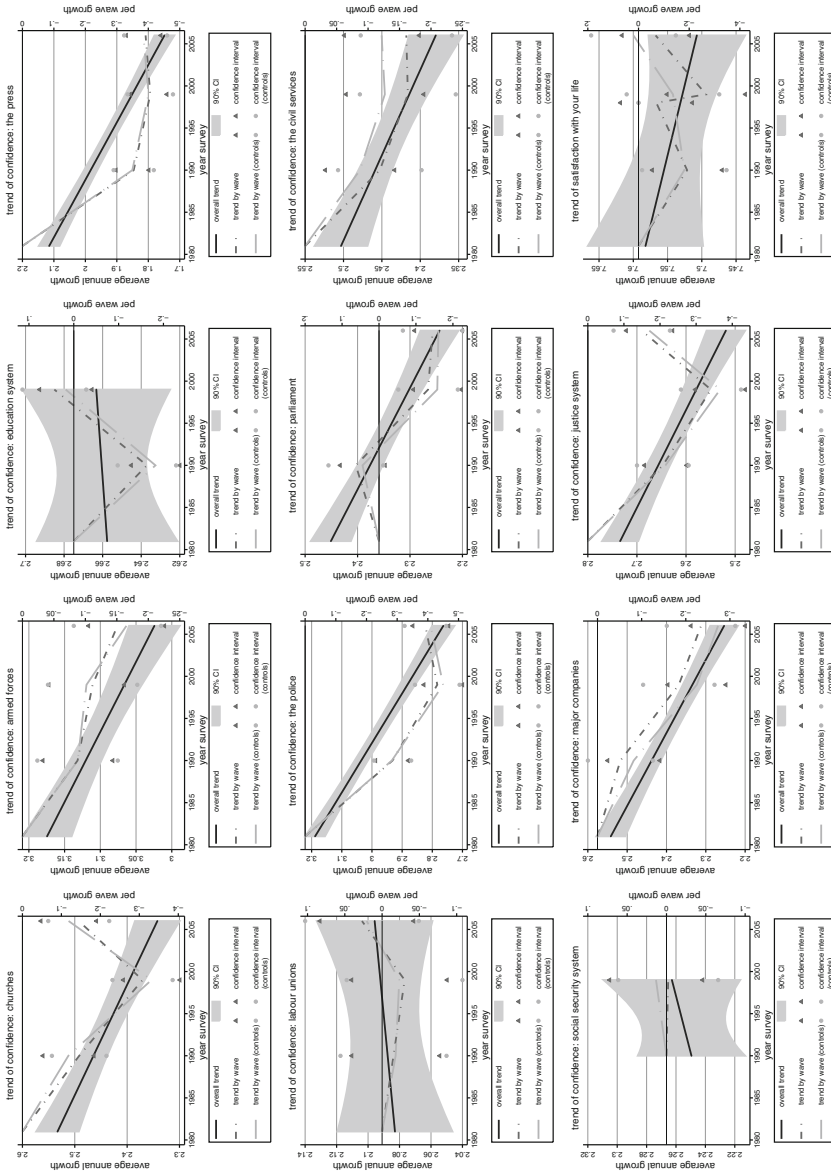


Fig. 13 Non relational social capital trends for Great Britain from 1980 to 2005

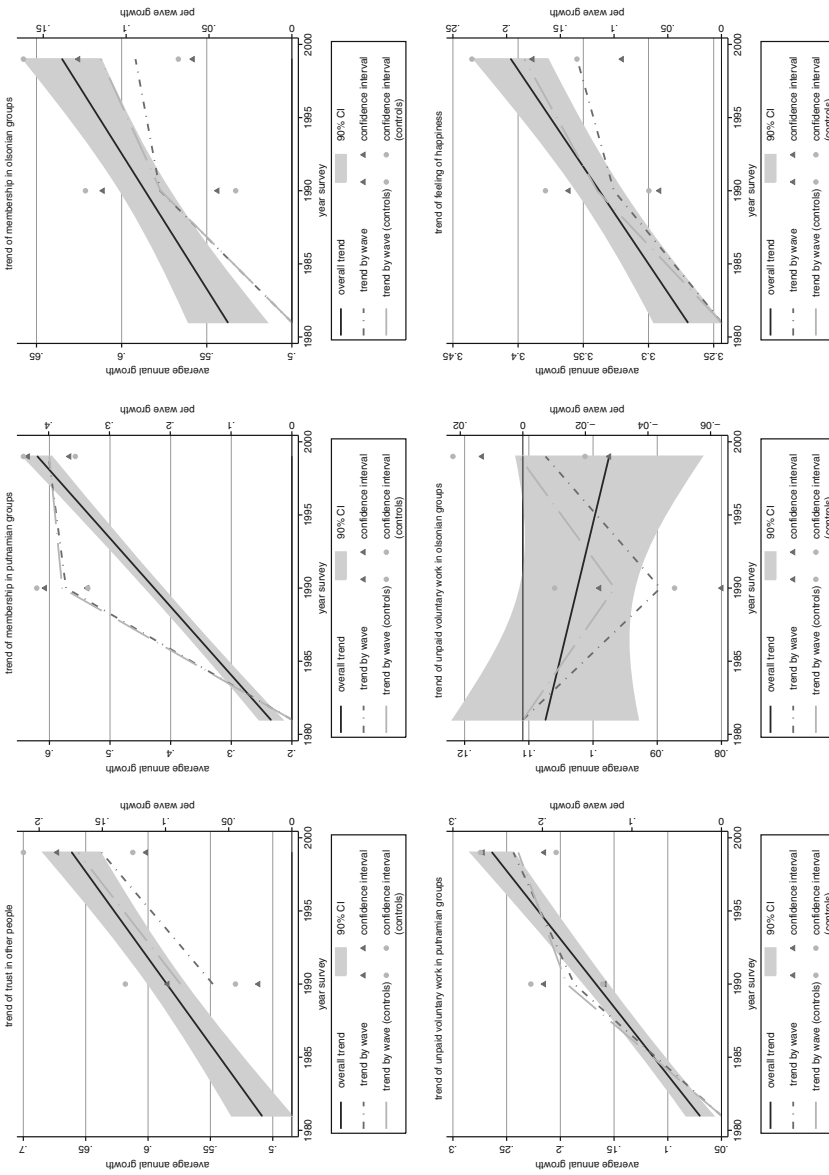


Fig. 14 Relational social capital and subjective well-being trends for Denmark from 1980 to 2005

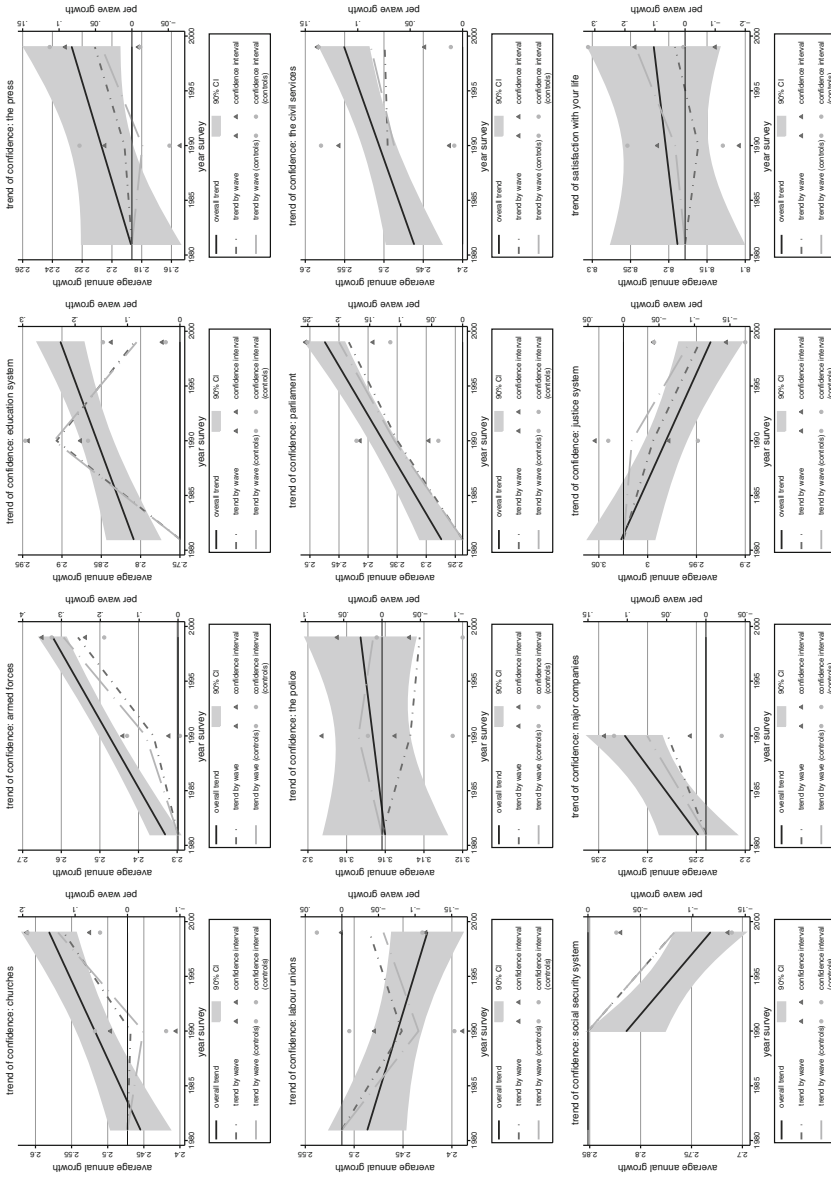


Fig. 15 Non relational social capital trends for Denmark from 1980 to 2005



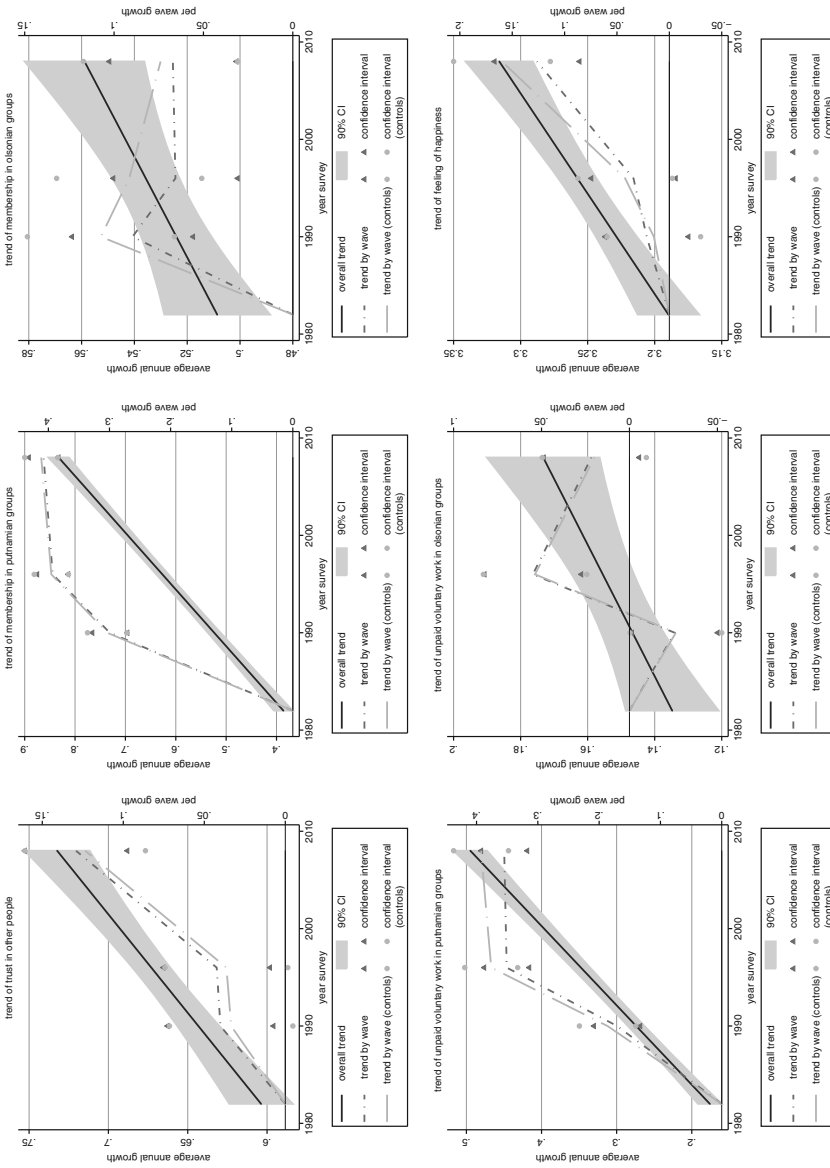


Fig. 16 Relational social capital and subjective well-being trends for Norway from 1980 to 2005

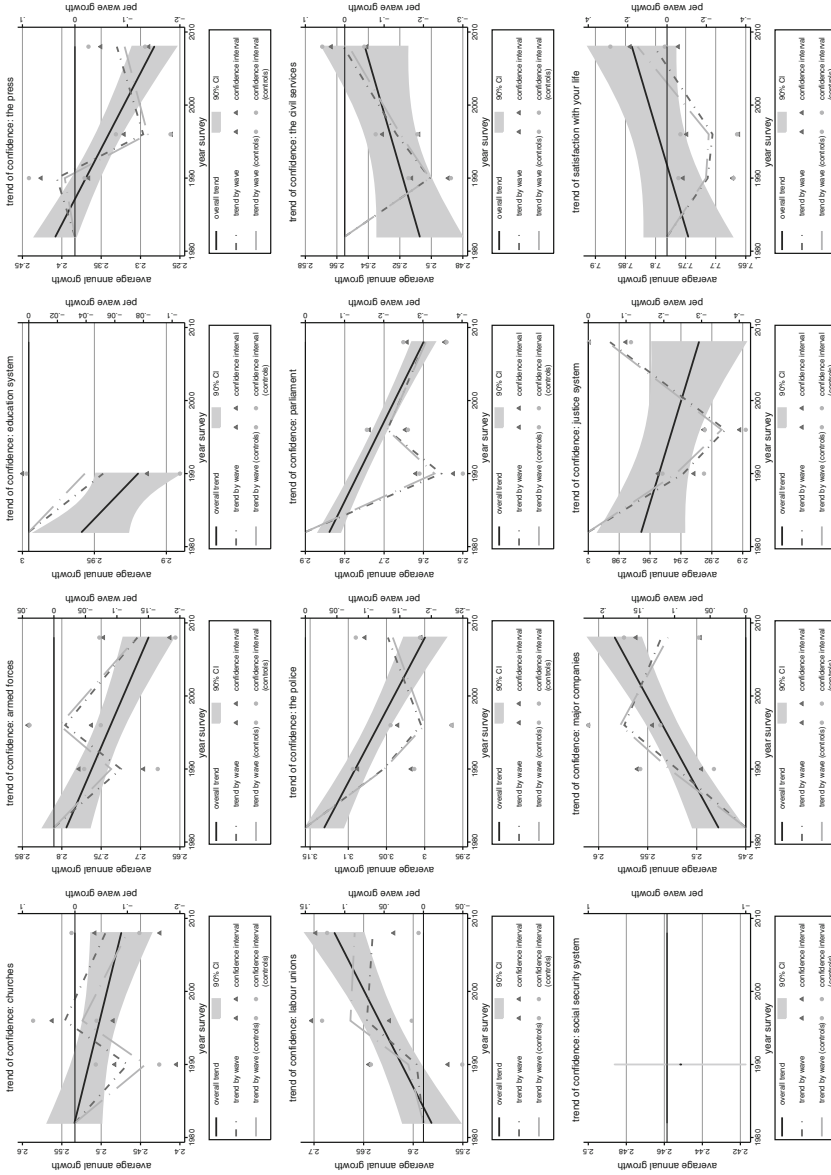


Fig. 17 Non relational social capital trends for Norway from 1980 to 2005

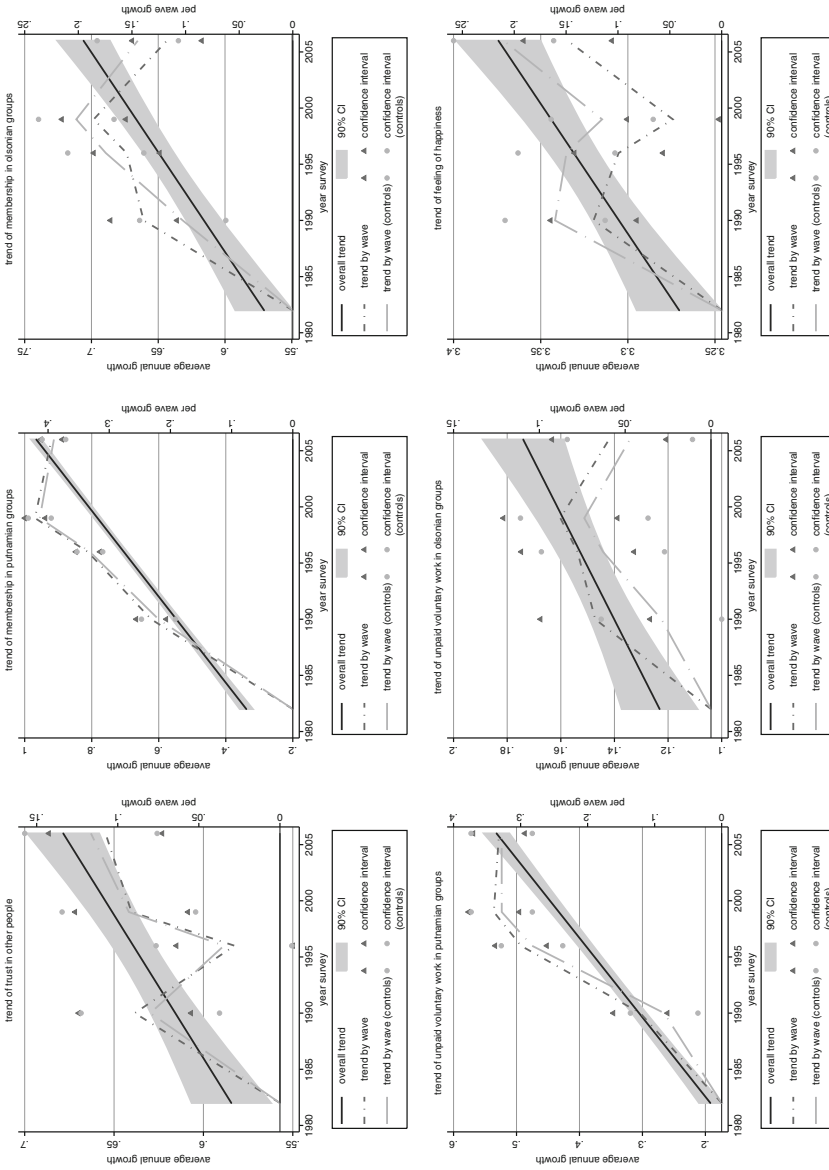


Fig. 18 Relational social capital and subjective well-being trends for Sweden from 1980 to 2005

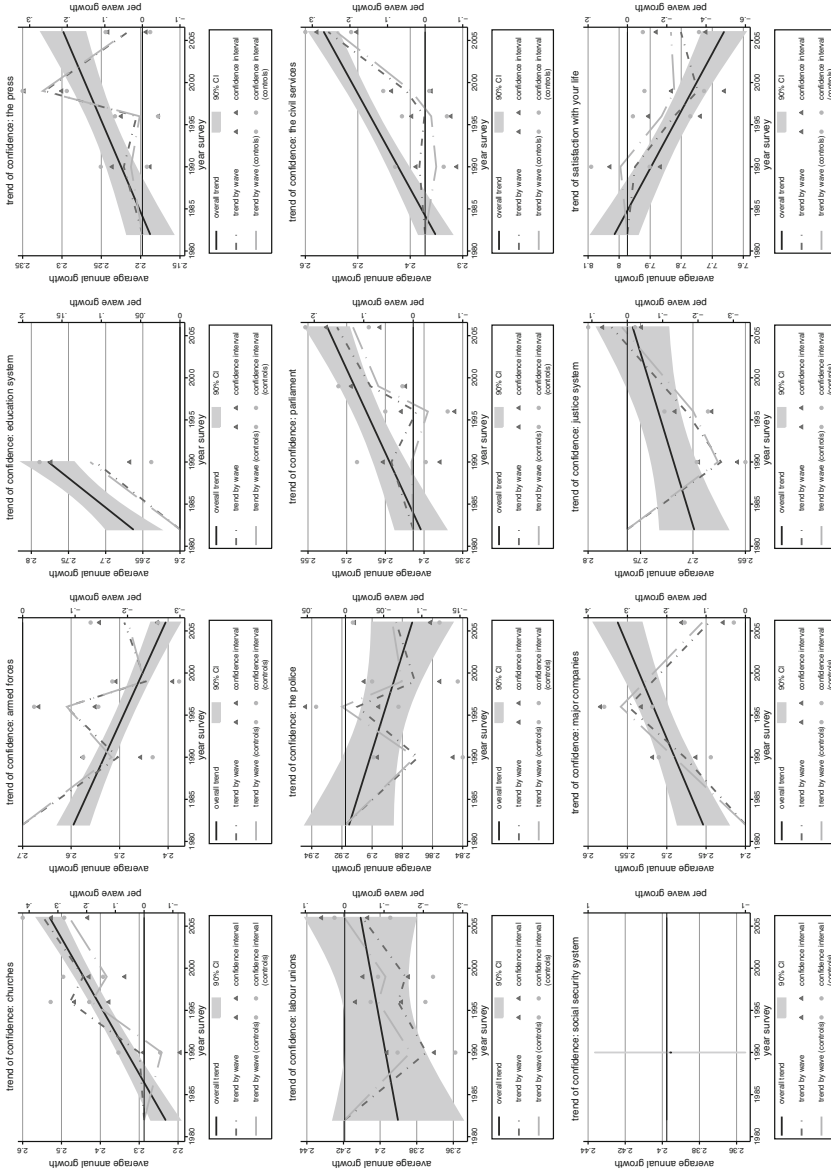


Fig. 19 Non relational social capital trends for Sweden from 1980 to 2005

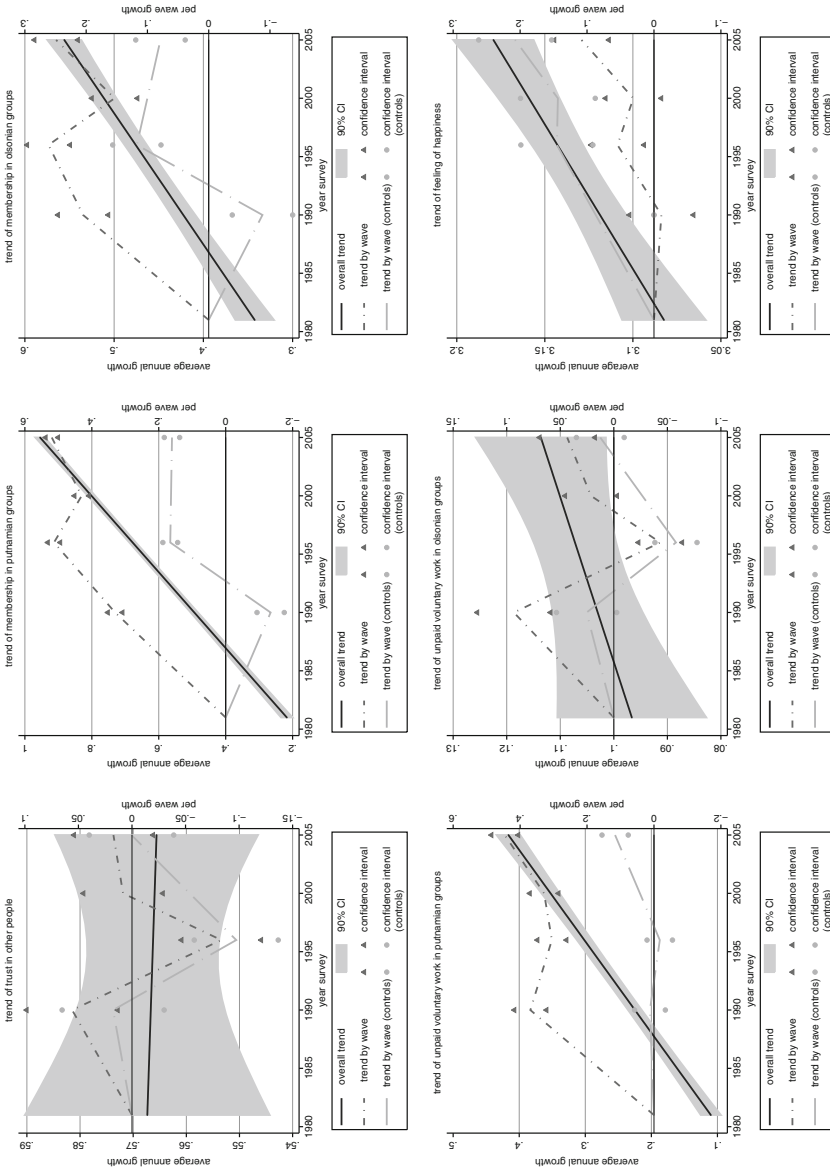


Fig. 20 Relational social capital and subjective well-being trends for Finland from 1980 to 2005

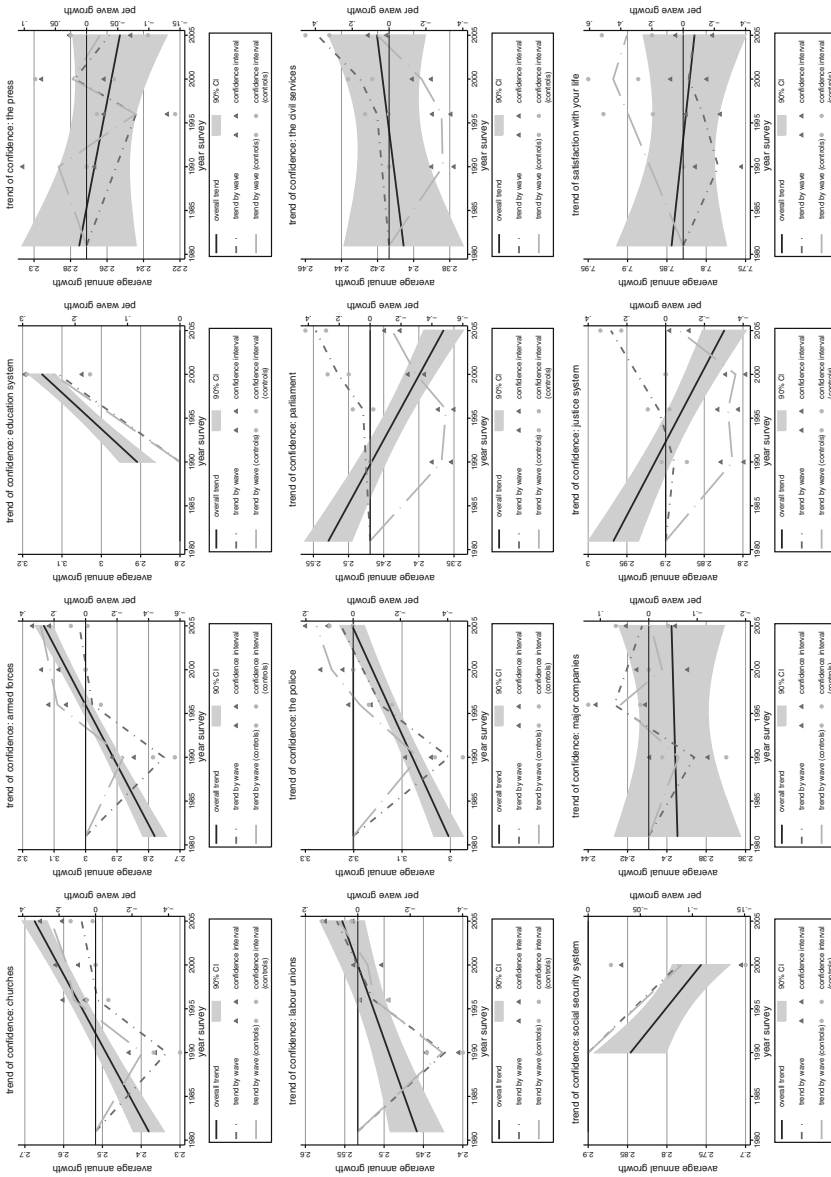


Fig. 21 Non relational social capital trends for Finland from 1980 to 2005

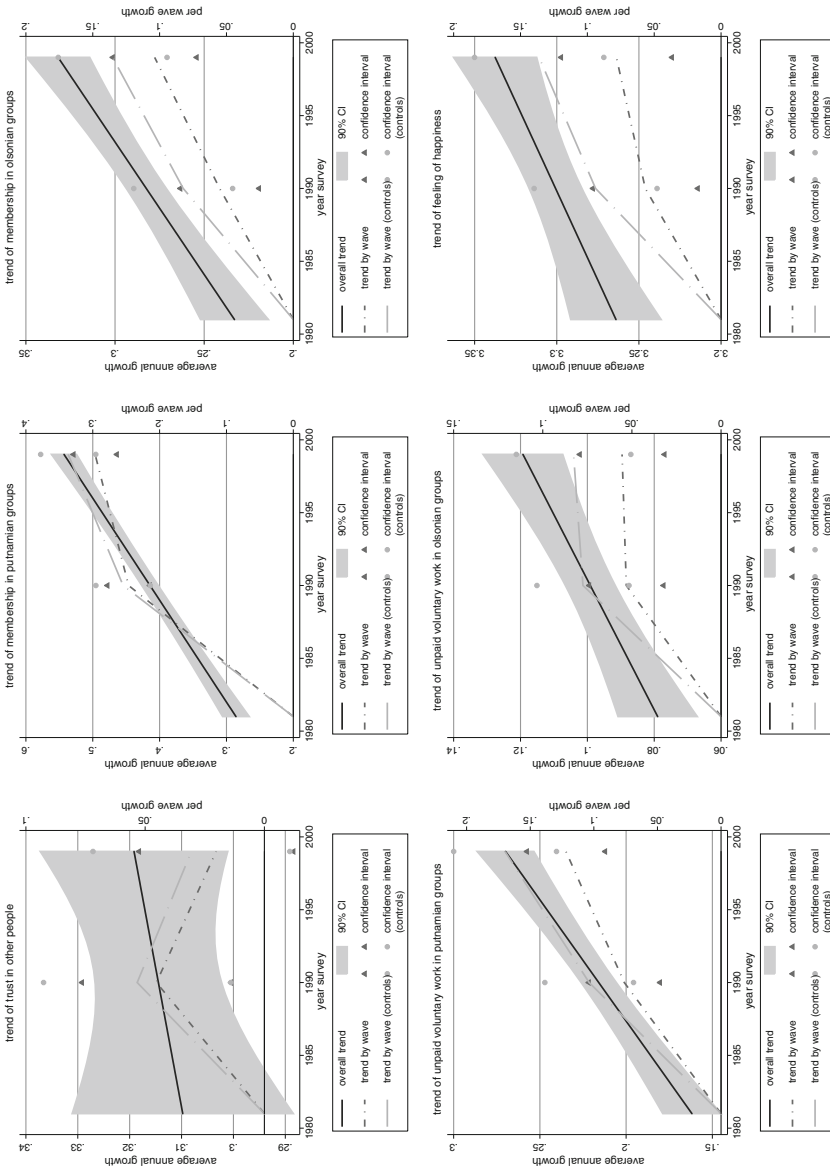


Fig. 22 Relational social capital and subjective well-being trends for Belgium from 1980 to 2005

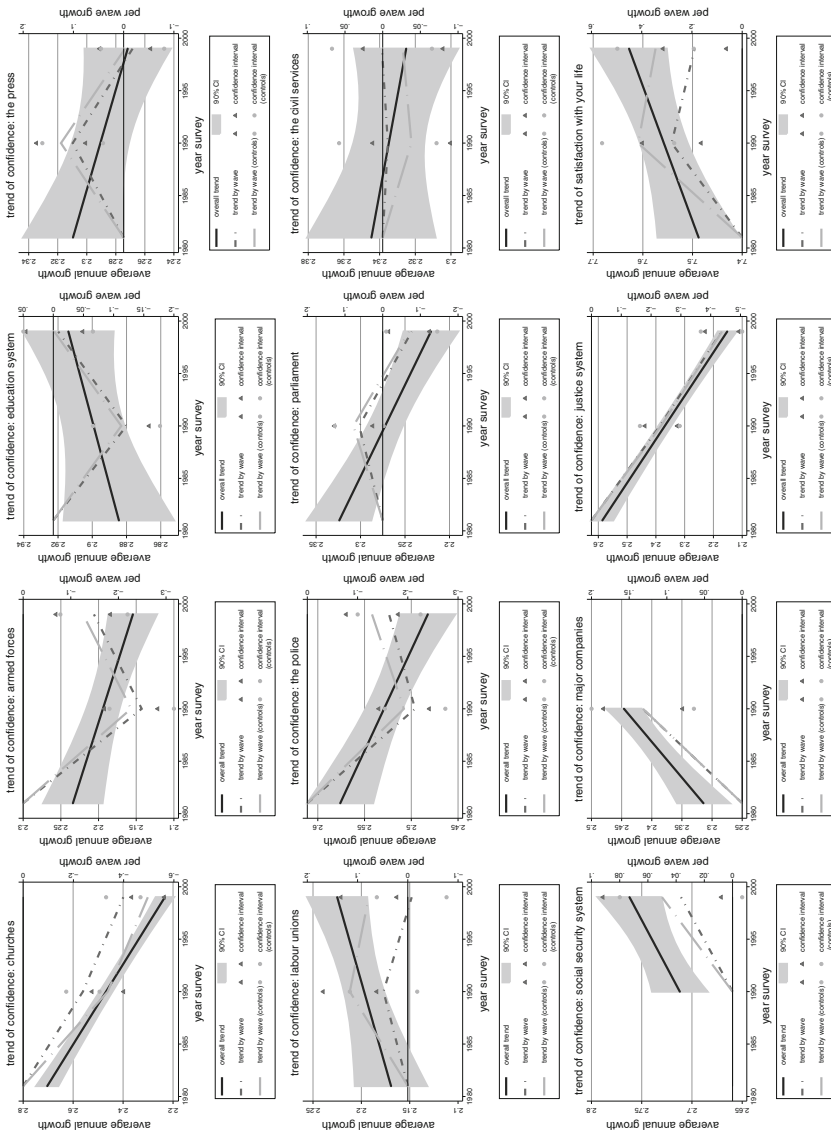


Fig. 23 Non relational social capital trends for Belgium from 1980 to 2005



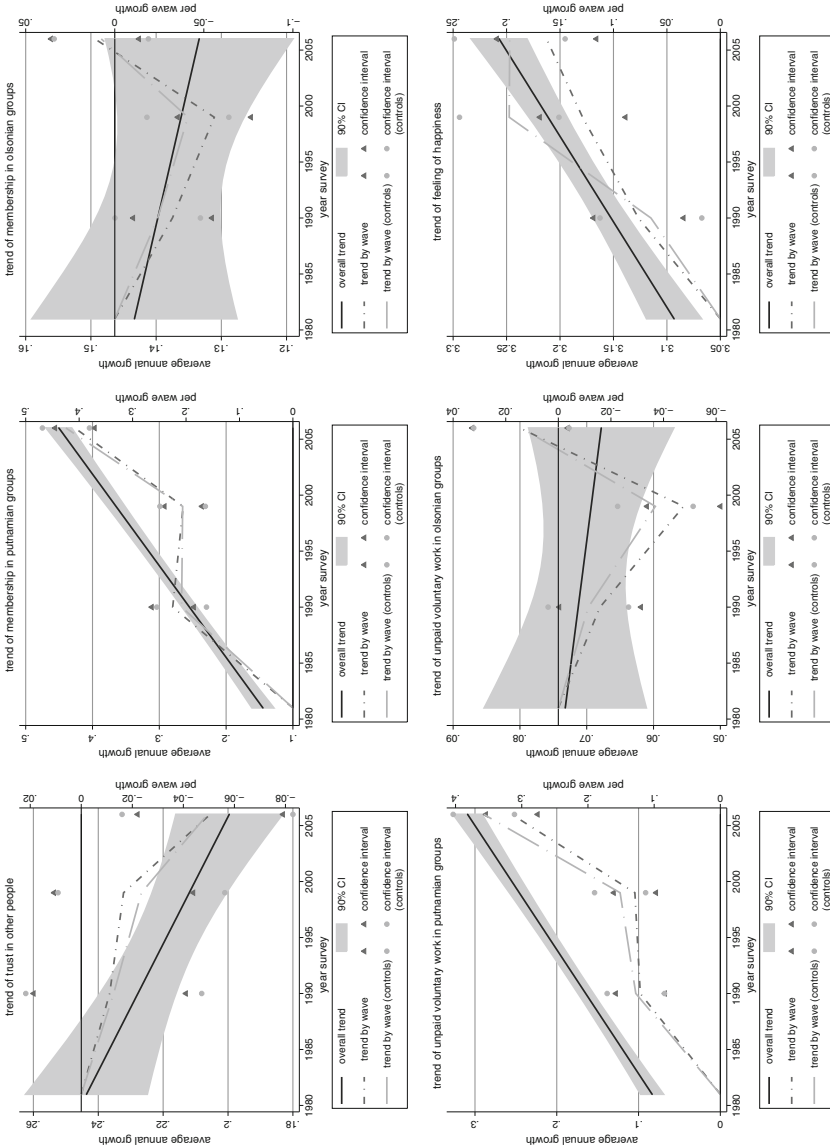


Fig. 24 Relational social capital and subjective well-being trends for France from 1980 to 2005

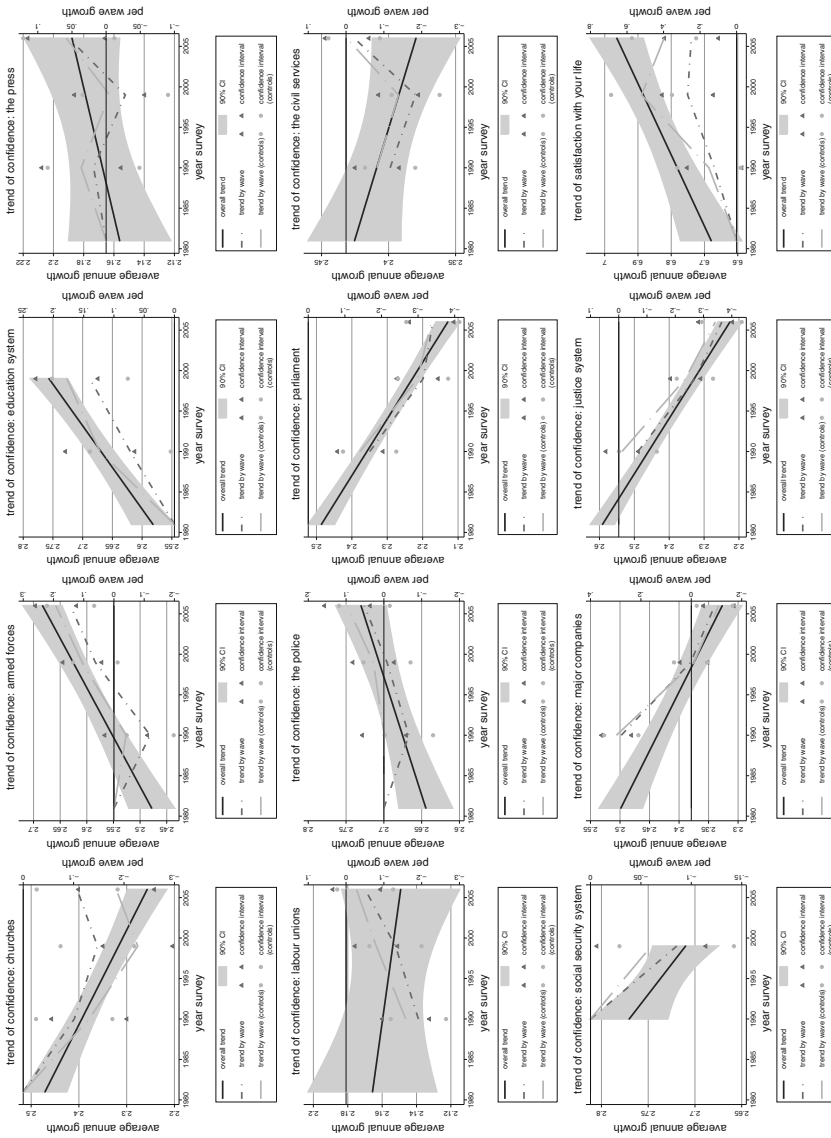


Fig. 25 Non relational social capital trends for France from 1980 to 2005

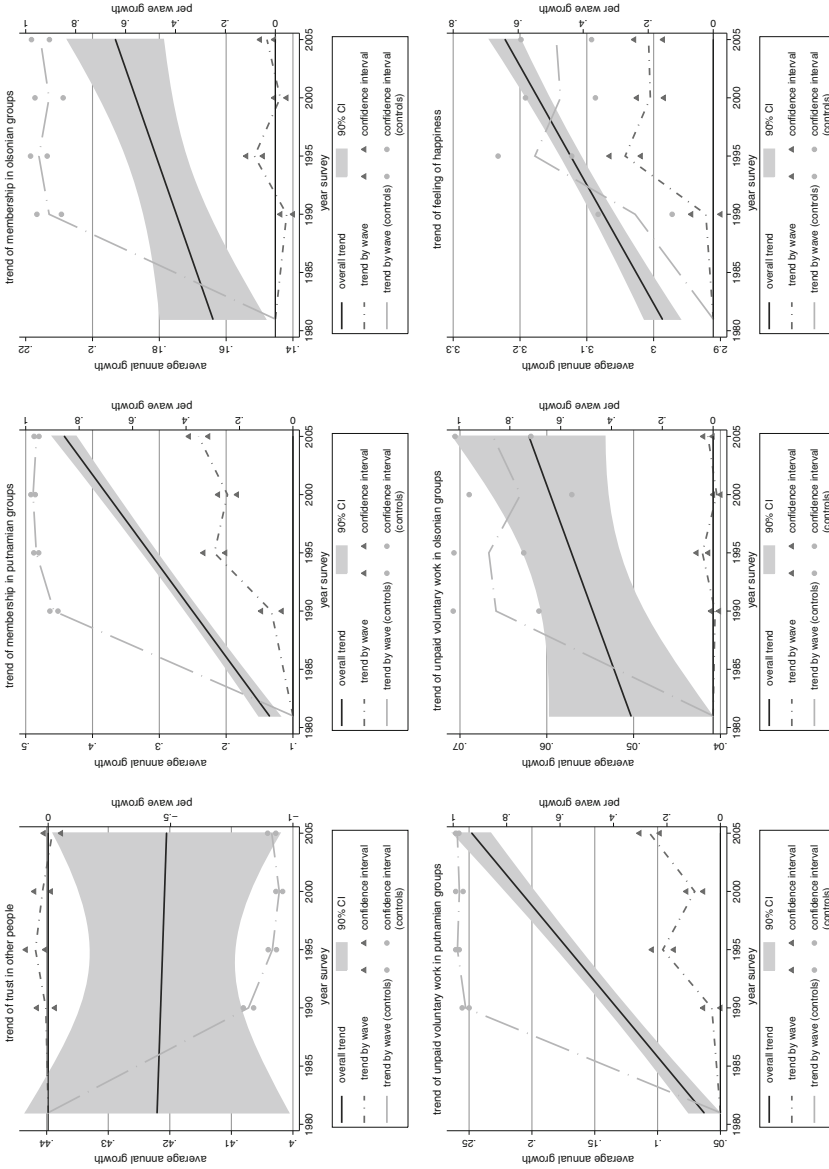


Fig. 26 Relational social capital and subjective well-being trends for Japan from 1980 to 2005

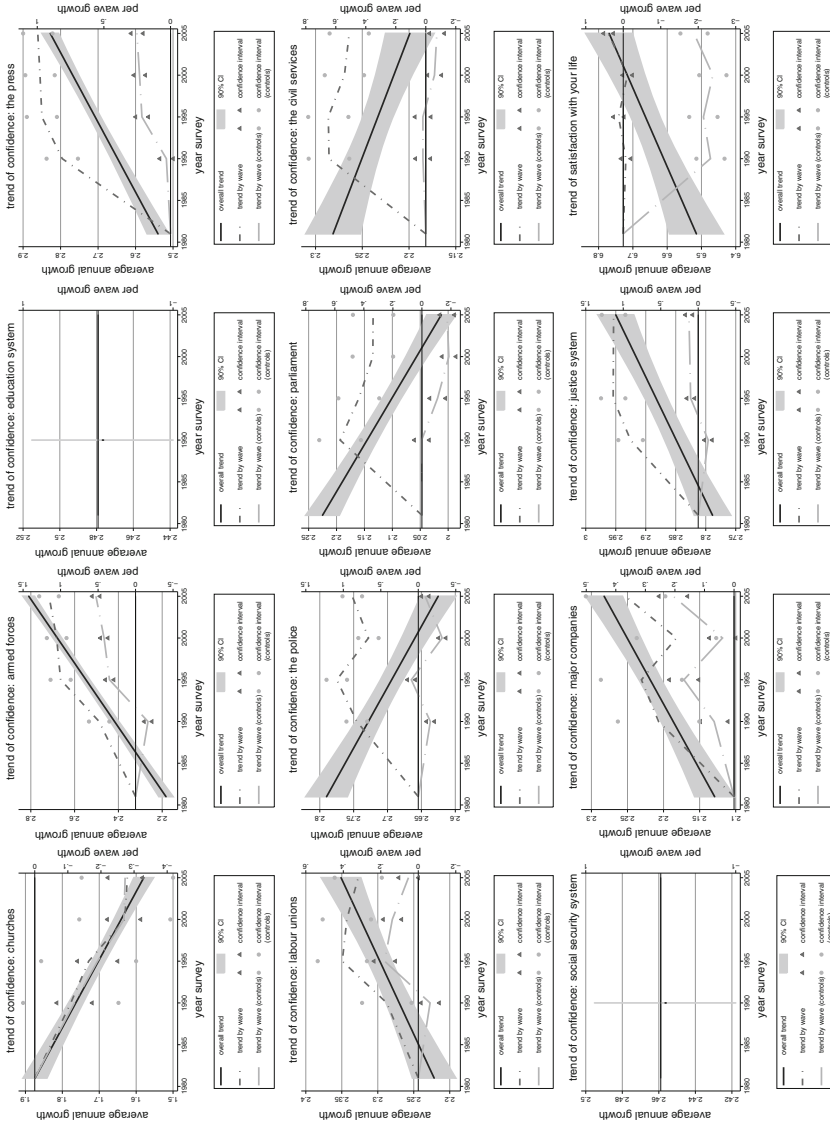


Fig. 27 Non relational social capital trends for Japan from 1980 to 2005

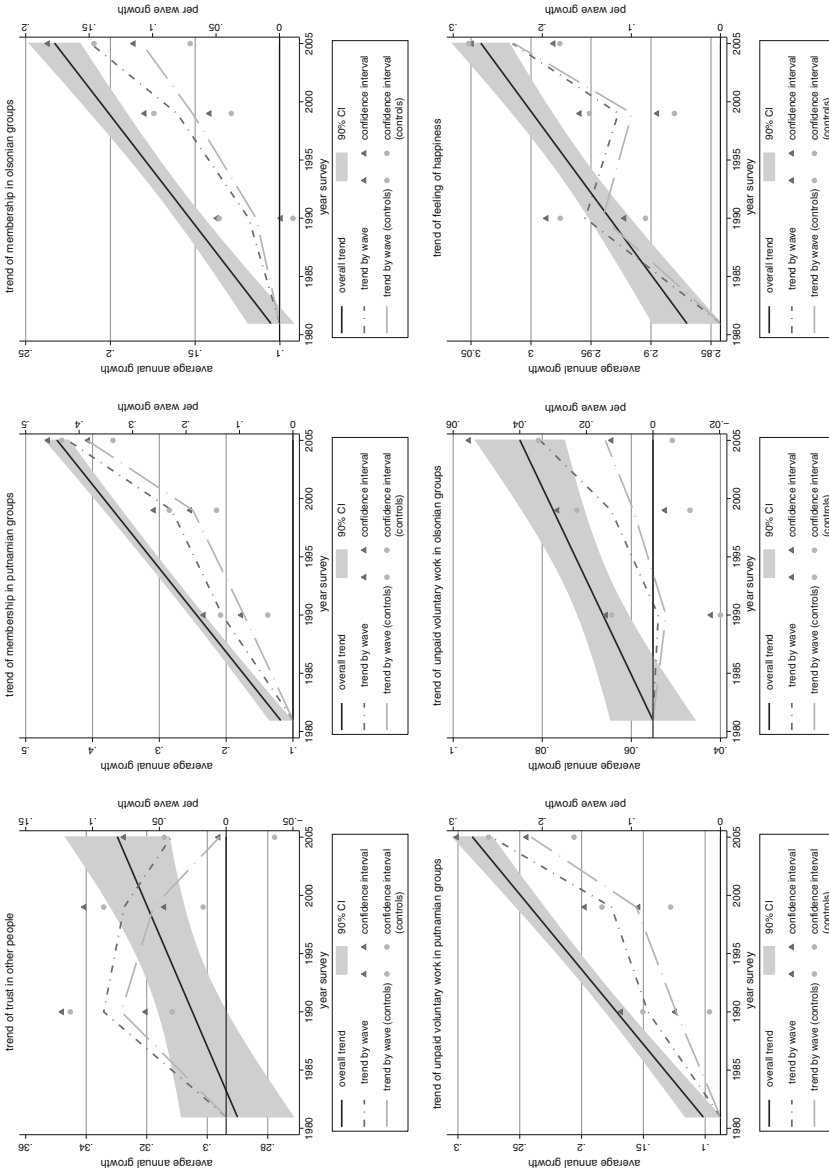


Fig. 28 Relational social capital and subjective well-being trends for Italy from 1980 to 2005

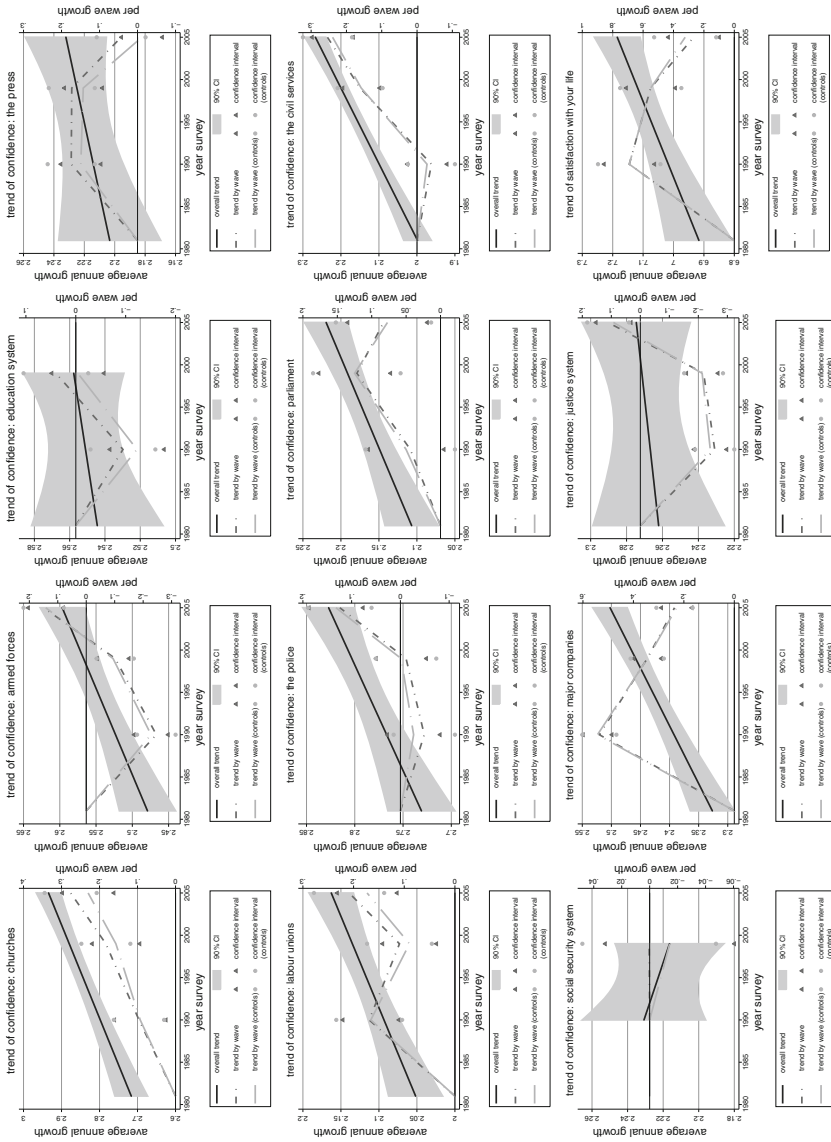


Fig. 29 Non relational social capital trends for Italy from 1980 to 2005

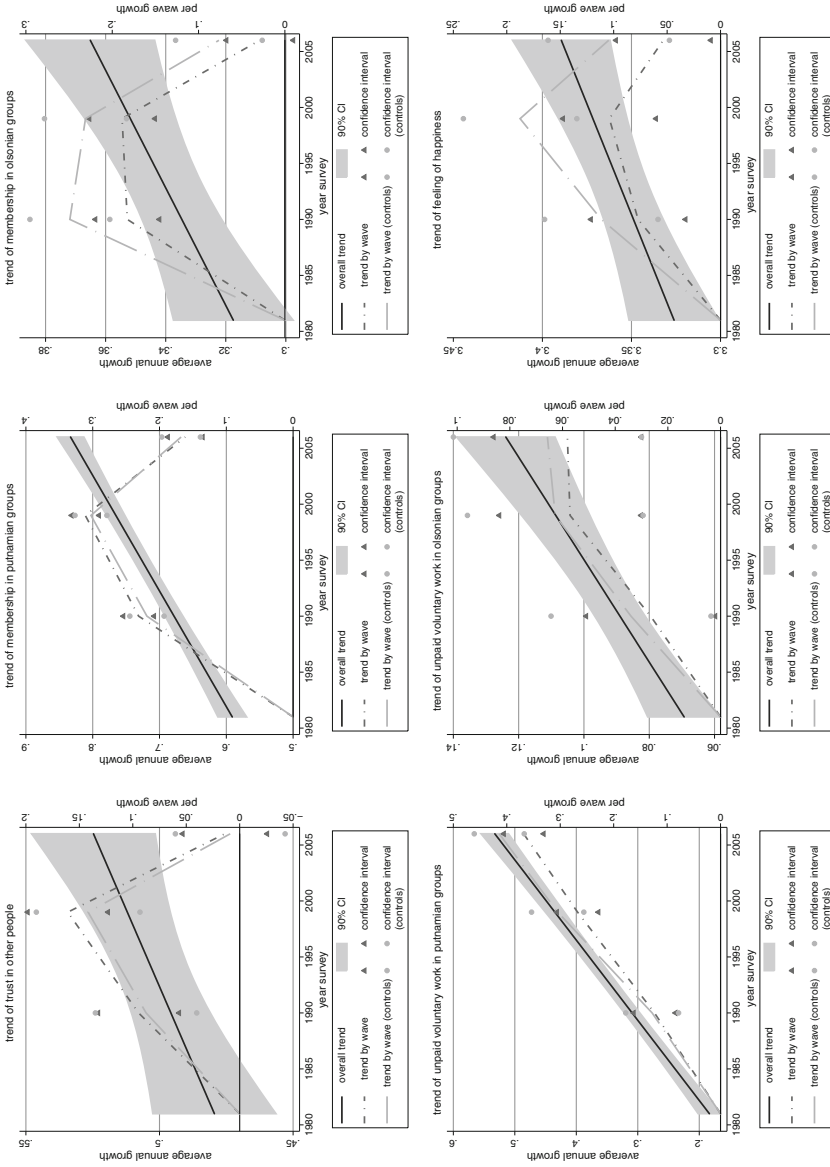


Fig. 30 Relational social capital and subjective well-being trends for Netherlands from 1980 to 2005

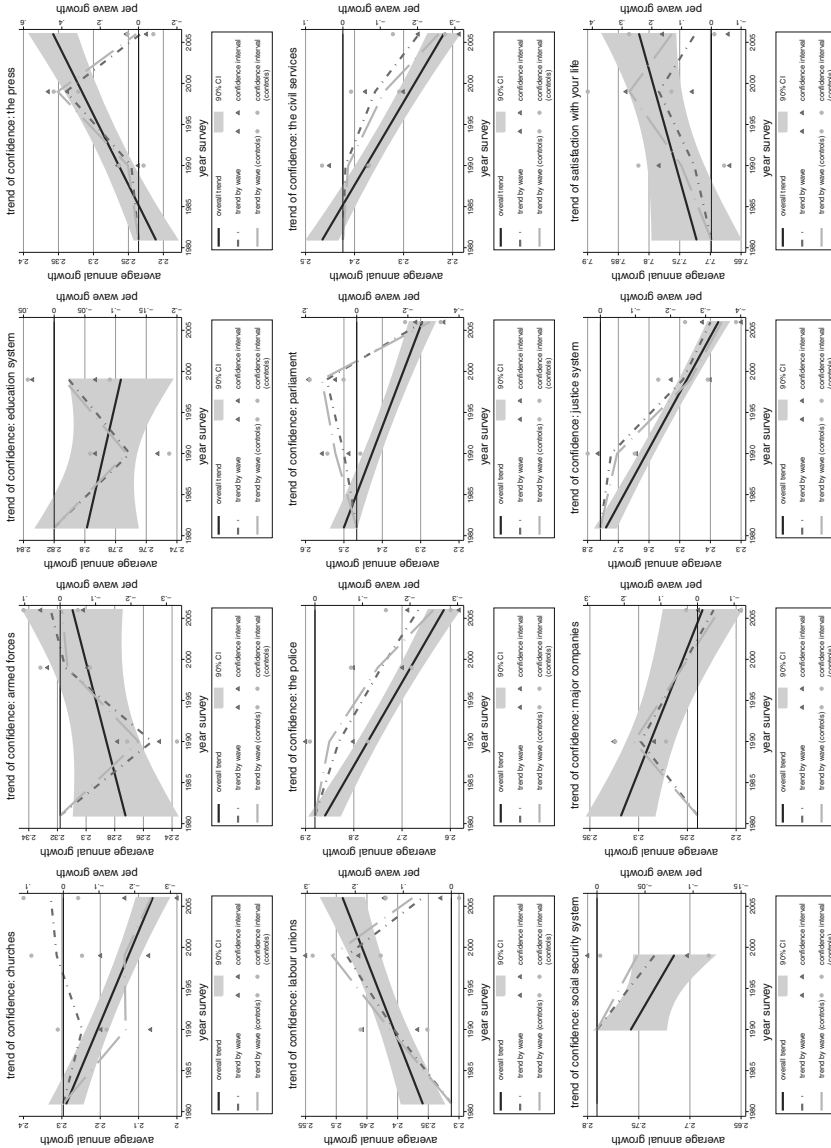


Fig. 31 Non relational social capital trends for Netherlands from 1980 to 2005



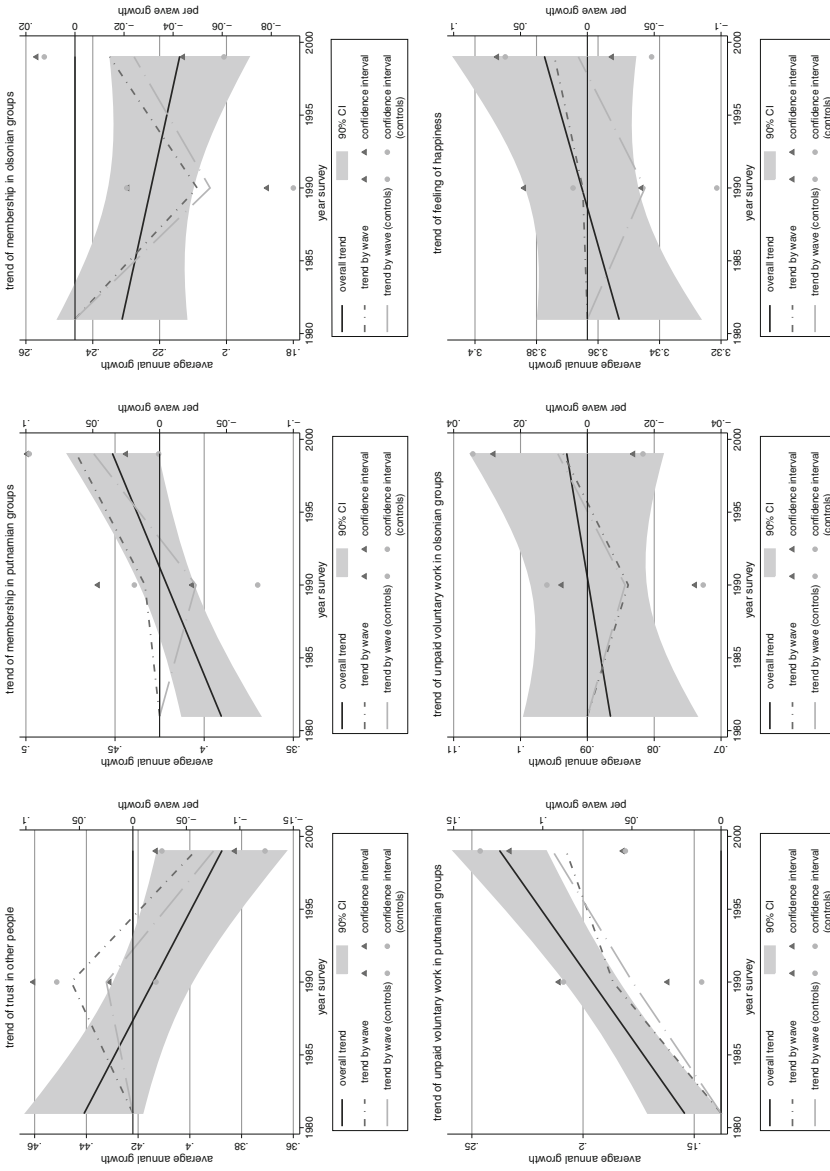


Fig. 32 Relational social capital and subjective well-being trends for Ireland from 1980 to 2005

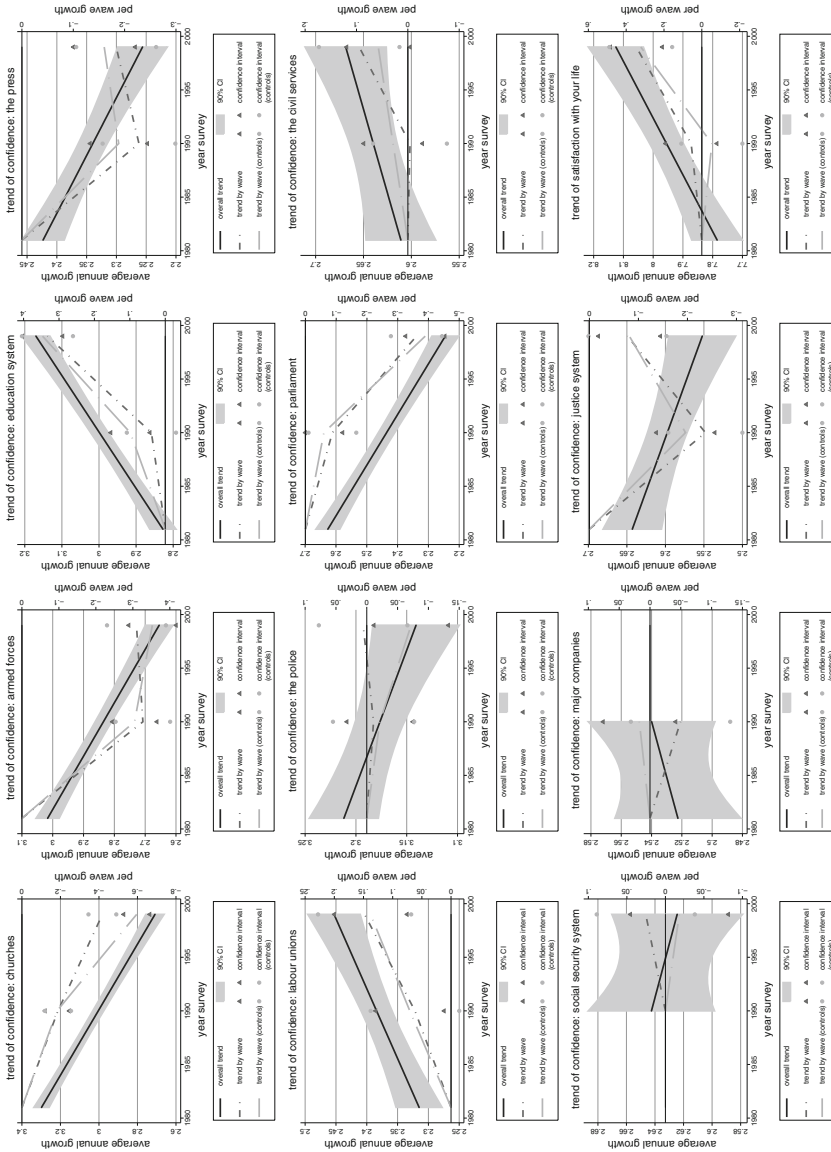


Fig. 33 Non relational social capital trends for Ireland from 1980 to 2005

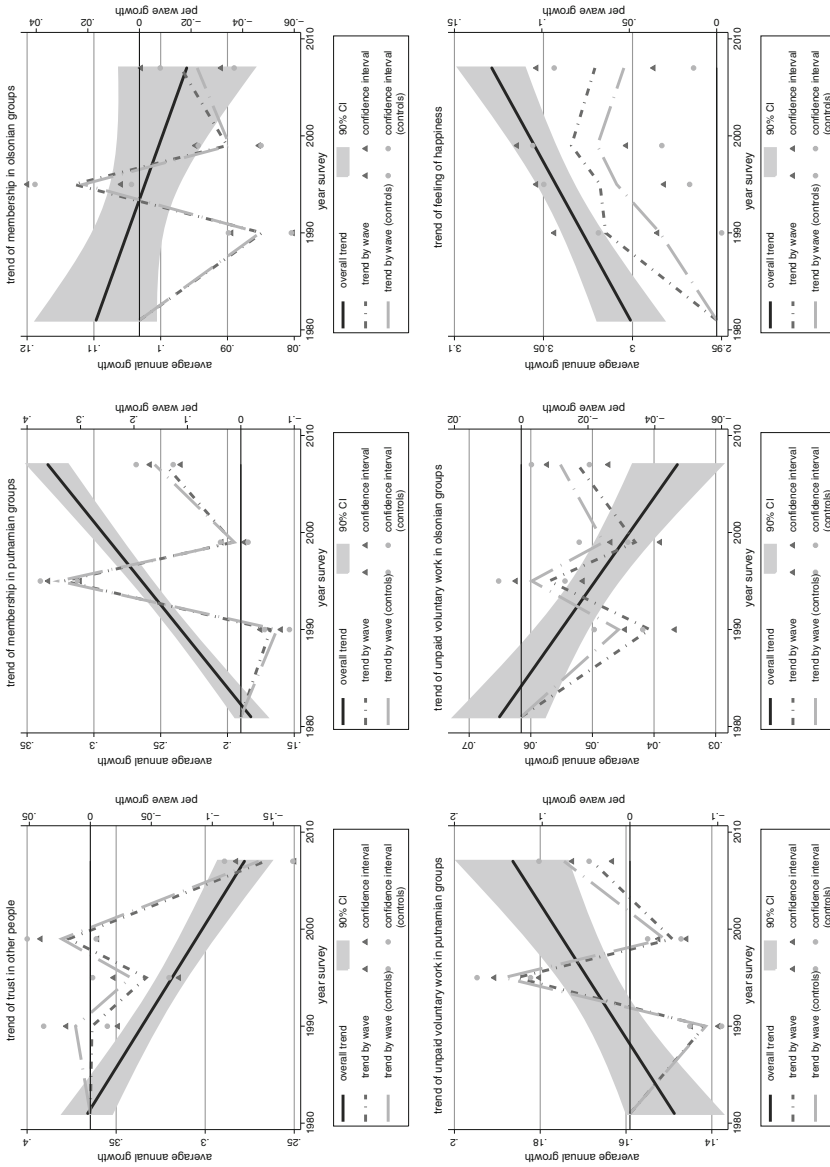


Fig. 34 Relational social capital and subjective well-being trends for Spain from 1980 to 2005

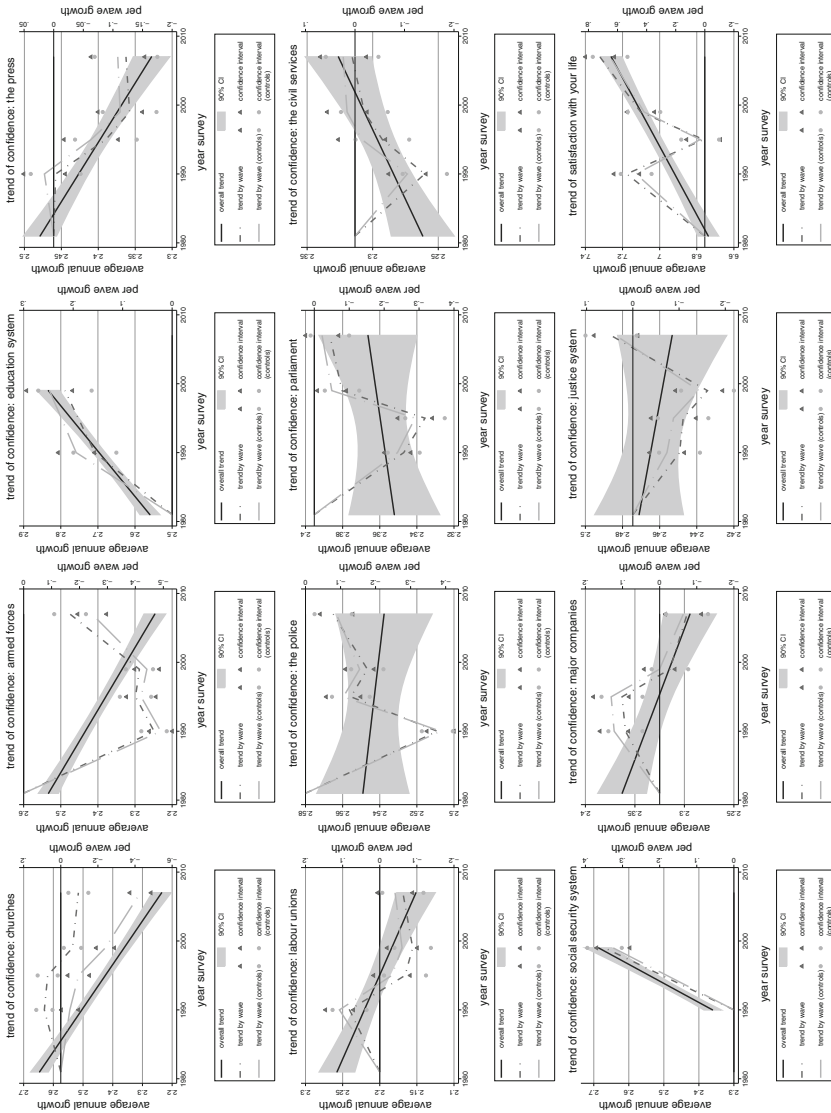


Fig. 35 Non relational social capital trends for Spain from 1980 to 2005

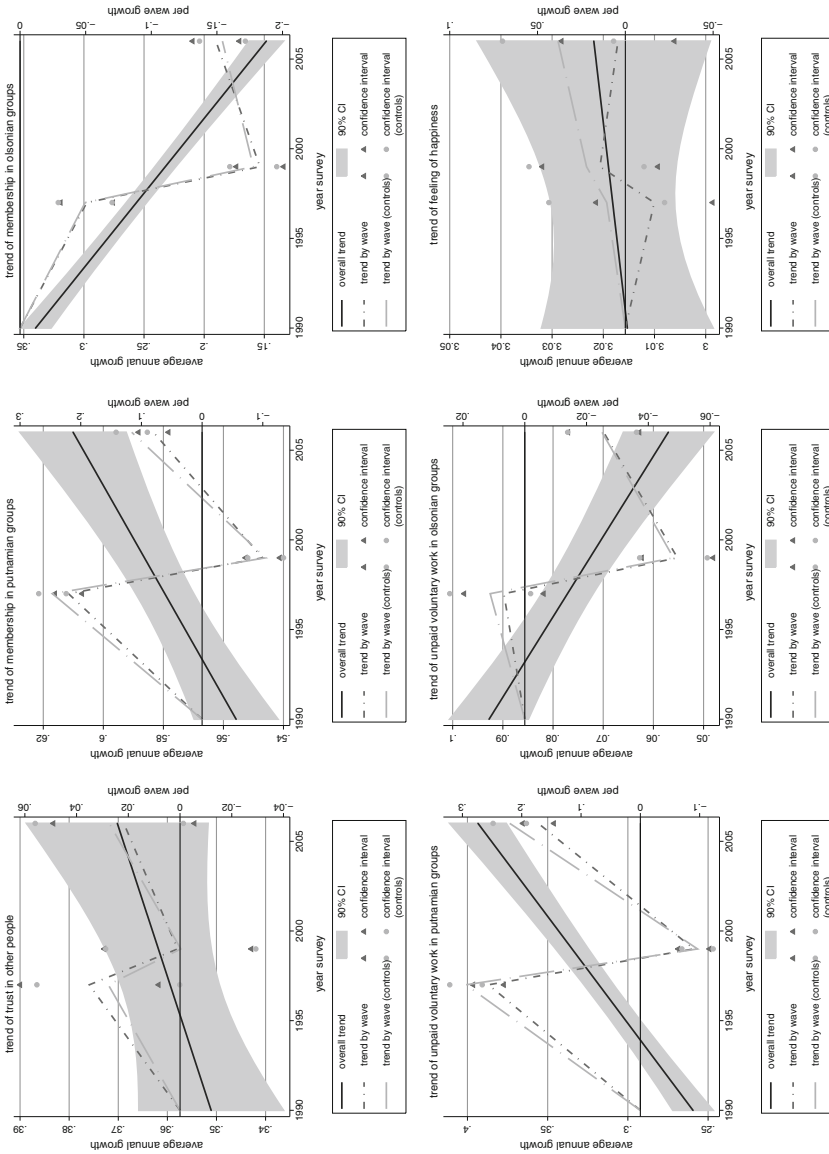


Fig. 36 Relational social capital and subjective well-being trends for Germany from 1980 to 2005

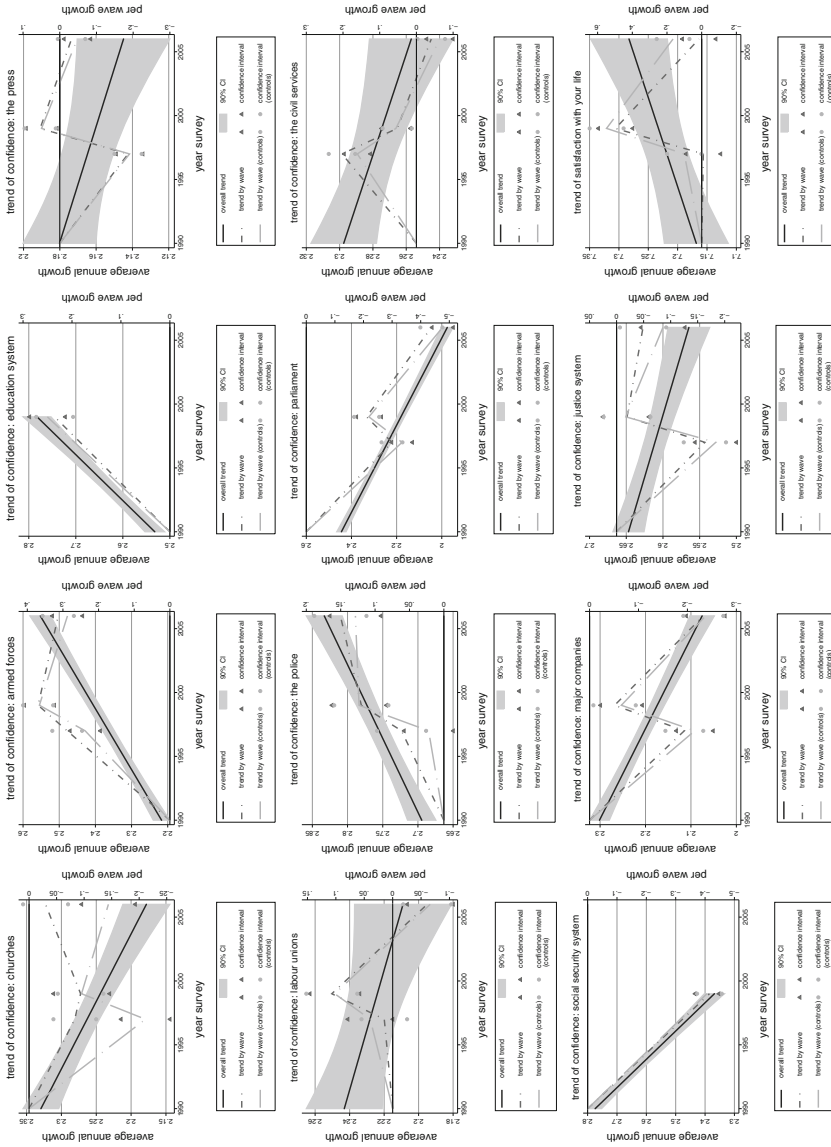


Fig. 37 Non relational social capital trends for Germany from 1980 to 2005

## References

- Adam, F. (2008). Mapping social capital across Europe: Findings, trends and methodological shortcomings of cross-national surveys. *Social Science Information*, 47(2), 159–186.
- Aguiar, M., & Hurst, E. (2006). *Measuring trends in leisure: The allocation of time over five decades*. Federal Reserve Bank of Boston Working papers (2).
- Alesina, A., Di Tella, R., & MacCulloch, R. (2004). Inequality and happiness: Are Europeans and Americans different? *Journal of Public Economics*, 88.
- Allison, P. (2001). *Missing data*. SAGE university paper 136.
- Bartolini, S., Bilancini, E., & Pugno, M. (2008). *American declines of social capital and happiness: Is there any linkage?* Mimeo: University of Siena.
- Bartolini, S., Bilancini, E., & Sarracino, F. (2009). *Sociability predicts happiness: World-wide evidence from time series*. University of Siena, Quaderni del Dipartimento di Economia Politica—Working paper n 579.
- Bartolini, S., Bilancini, E., & Sarracino, F. (2010). *Predicting the trend of well-being in Germany: How much do comparisons, adaptation and sociability matter?* CEPS/Instead Working Papers 2010-07.
- Becchetti, L., Londono Bedoya, D., & Trovato, G. (2006). *Income, relational goods and happiness*. CEIS working paper (forth).
- Blanchflower, D. (2008). *International evidence on well-being*. IZA Discussion Papers (3354).
- Blanchflower, D., & Oswald, A. (2004). Well-being over time in Britain and the USA. *Journal of Public Economics*, 88, 1359–1386.
- Blanchflower, D., & Oswald, A. (2008a). *Heart rate and happiness*. Presentation at the University of Zurich.
- Bruni, L. (2002). Sul consumo, sui beni, sulla felicità. In L. Bruni, V. Pelligra (Eds.), *Economia come impegno civile*. Relazionalità, ben-essere ed economia di comunione, Citta Nuova Editrice, Roma.
- Bruni, L., & Stanca, L. (2008). Watching alone: Relational goods, television and happiness. *Journal of Economic Behavior and Organization*, 65(3–4), 506–528.
- Costa, D., & Kahn, M. (2003). Understanding the decline in social capital, 1952–1998. *Kyklos*, 56, 17–46.
- Delhey, J., & Newton, K. (2005). Predicting cross-national levels of social trust: Global pattern or Nordic exceptionalism? *European Sociological Review*, 21(4), 311–327. doi:10.1093/esr/fci022, URL <http://esr.oxfordjournals.org/cgi/content/abstract/21/4/311>, <http://esr.oxfordjournals.org/cgi/reprint/21/4/311.pdf>.
- Di Tella, R., & MacCulloch, R. (2006). Some uses of happiness data in economics. *Journal of Economic Perspectives*, 20, 25–46.
- Di Tella, R., MacCulloch, R., & Oswald, A. (2001). Preferences over inflation and unemployment: evidence from surveys of happiness. *American Economic Review*, (91).
- Di Tella, R., MacCulloch, R., & Oswald, A. (2003). The macroeconomics of happiness. *Warwick Economic Research Papers*, (615).
- Diener, E., & Suh, E. (1997). Measuring quality of life: economic, social and subjective indicators. *Social Indicators Research*, 40, 189–216.
- Diener, E., Lucas, R., Schimmack, U., & Helliwell, J. (2009). *Well-being for public policy*. New York: Oxford University Press.
- Easterlin, R. (1974). Does economic growth improve the human lot? some empirical evidence. In P. David, W. Melvin (Eds.), *Nations and households in economic growth* (pp. 98–125). Palo Alto, CA: Stanford University Press.
- Easterlin, R. (2001a). Income and happiness: Towards a unified theory. *Economic Journal*, 111.
- Ferrer-i Carbonell, A. (2005). Income and well-being: An empirical analysis of the comparison income effect. *Journal of Public Economics*, 89(5–6), 997–1019.
- Ferrer-i Carbonell, A., & Frijters, P. (2004). How important is methodology for the estimates of the determinants of happiness? *Economic Journal*, 114(497), 641–659.
- Frank, R. (1997) The frame of reference as a public good. *Economic Journal*, 107.
- Frey, B., & Stutzer, A. (2000). Happiness, economy, and institution. *Economic Journal*, 110(466), 918–938.
- Frey, B., & Stutzer, A. (2002b). *Happiness and economics: How the economy and institutions affect well-being*. Princeton, NJ: Princeton University Press.
- Frey, B., & Stutzer, A. (2007). *Should national happiness be maximized?* International conference: Is happiness measurable and what do those measures mean for policy? 2–3 April 2007, University of Rome—Tor Vergata.
- Helliwell, J. (2001). Social capital, the economy and wellbeing. In *The review of economic performance: The longest decade: Canada in the 1990s*. Centre for the Study of Living Standards, Ottawa, Canada.
- Helliwell, J. (2002). *How's life? Combining individual and national variables to explain subjective well-being*. National Bureau of Economic Research Working Paper series (9065).

- Helliwell, J. (2006). Well-being, social capital and public policy: what's new? *The Economic Journal*, 116.
- Research Initiative P (2005) *Social capital as a public policy tool*. Tech. rep., Government of Canada.
- Kahneman, D., & Krueger, A. (2006). Developments in the measurement of subjective well-being. *Journal of Economic Perspectives*, 20, 3–24.
- Kenny, C. (1999). Does growth cause happiness, or does happiness cause growth? *Kyklos*, 52(1).
- Kenny, C. (2005). Does development make you happy? Subjective wellbeing and economic growth in Developing countries. *Social Indicators Research*, 73.
- Knack, S. (2003). Groups, growth and trust: Cross-country evidence on the Olson and Putnam hypotheses. *Public Choice*, (117), 341–355.
- Ladd, E. (1996). The data just don't show erosion of America's social capital. *Public Perspective*, 7, 1–30.
- Layard, R. (2005). *Happiness: Lessons from a new science*. London: Penguin.
- Leigh, A. (2003). Trends in social capital. In K. Christensen, D. Levinson (Eds.), *Encyclo: From the village to the virtual world*. Thousand Oaks, CA: Sage.
- Lim, C., & Putnam, R. (2009). *Praying alone is no fun: Religion, social networks and subjective well-being*. Mimeo.
- Mood, C. (2010). Logistic regression: Why we cannot do what we think we can do, and what we can do about it. *European Sociological Review*, 26(1), 67–82.
- Morales, L. (2004). *Changing patterns of associational involvement in Europe*. ECPR Joint Sessions, Uppsala, Workshop 8—The changing structure of civil society, directed by Derrick Purdue & Mario Diani.
- Norris, P. (2004). Making democracies work: Social capital and civic engagement in 47 societies. *British Journal of Political Science*, 35, 149–167.
- OECD (2001a). Are trust and civic engagement declining in oecd countries?. In *The well-being of nations: The role of human and social capital* (pp. 99–103). Paris: OECD.
- OECD (2001b). The evidence on social capital. In *The well-being of nations: The role of human and social capital* (pp. 39–63). Paris: OECD.
- Olson, M. (1982). *The rise and decline of nations: Economic growth, stagflation and social rigidities*. New Haven: Yale University Press.
- Oswald, A. (1997). Happiness and economic performance. *The Economic Journal*, 107.
- Paxton, P. (1999). Is social capital declining in the United States? A multiple indicator assessment. *American Journal of Sociology*, 105(1), 88–127.
- Pink, B. (2008). *Australian social trends 2008*. Tech. Rep. 4102.0, Australian Bureau of Statistics.
- Putnam, R. (2000). *Bowling alone. The collapse and revival of American community*. New York: Simon & Schuster.
- Putnam, R., Leonardi, L., & Nanetti, R. (1993). *Making democracy work: Civic traditions in modern Italy*. Princeton, New Jersey: Princeton University Press.
- Robinson, R., & Jackson, E. (2001). Is trust in others declining in America? An age period cohort analysis. *Social Science Research*, 30, 117–145.
- Sacks, D. W., Stevenson, B., & Wolfers, J. (2010). *Subjective well-being, income, economic development and growth*. NBER working paper series (16441).
- Sarracino, F. (2010a). *Determinants of subjective well-being in high and low income countries: Do happiness equations differ across countries?* CEPS/Institute Working Papers 2010-15.
- Sarracino, F. (2010b). Social capital and subjective well-being trends: Comparing 11 western European countries. *Journal of Socio-Economics*, 39(4), 482–517.
- Schafer, J. (1997). *Analysis of incomplete multivariate data*. Chapman and Hall/CRC, CRC Press Company.
- Schafer, J. (1999). Multiple imputation: A primer. *Statistical Methods in medical research*, 8, 3–15.
- Schimmack, U., Krause, P., Wagner, G., & Schupp, J. (2009). Stability and change of well-being: An experimentally enhanced latent state-trait-error analysis. *Social Indicators Research*, forthcoming. doi: [10.1007/s11205-009-9443-8](https://doi.org/10.1007/s11205-009-9443-8).
- Schneider, L., & Schimmack, U. (2009). Self-informant agreement in well-being ratings: A meta-analysis. *Social Indicators Research*, forthcoming. doi:[10.1007/s11205-009-9440-y](https://doi.org/10.1007/s11205-009-9440-y).
- Schuller, T., Baron, S., & Field, J. (2000). Social capital: A review and critique. In T. Schuller, S. Baron, & J. Field (Eds.), *Social capital: critical perspectives* (pp. 1–39). Oxford University Press: Oxford .
- Schwarz, N., & Strack, F. (1999). Reports of subjective well-being: Judgmental processes and their methodological implications. In E. D. D Kahneman, & N. Schwarz (Eds.), *Well-being: The foundations of hedonist psychology*. New York: Sage.
- Stevenson, B., & Wolfers, J. (2008). *Economic growth and subjective well-being: Reassessing the Easterlin paradox*. IZA DP (3654).
- Stolle, D., & Hooghe, M. (2004). Inaccurate, exceptional, one-sided or irrelevant? The debate about the alleged decline of social capital and civic engagement in Western societies. *British Journal of Political Science*, 35, 149–167.



- Takashi, O., & Akiyoshi, Y. (2002). *Measurement of social capital in Japan*. Paper prepared for the social capital measurement conference, OECD and UK Office of National Statistics, London, 25–27 Sep 2002.
- Van Deth, J. (2008). Measuring social capital. In J. Van Deth, D. Castiglione, & G. Wolleb (Eds.), *Handbook of social capital, chap 6* (pp. 150–175). Oxford: Oxford University Press.
- van Reekum, C., Urry, H., Johnstone, T., Thurow, M., Frye, C., Jackson, C., Schaefer, H., Alexander, A., & Davidson, R. (2007). Individual differences in amygdala and ventromedial prefrontal cortex activity are associated with evaluation speed and psychological well-being. *Journal of Cognitive Neuroscience, 19*, 237–248.
- Van Schaik, T. (2002). *Social capital in the European values study surveys*. Country paper prepared for the OECD-ONS international conference on social capital measurement, London.
- Wanous, J., & Hudy, M. (2001). Single-item reliability: A replication and extension. *Organizational Research Methods, 4*, 361–375.