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Culture and Economic Development in Europe

Culture and Economic Development in Europe

Proefschrift

ter verkrijging van de graad van doctor
aan de Universiteit van Tilburg,
op gezag van de rector magnificus,
prof. dr. F.A. van der Duyn Schouten,
in het openbaar te verdedigen ten overstaan van
een door het college voor promoties aangewezen commissie
in de aula van de Universiteit

op woensdag 24 september 2003 om 14.15 uur door

Sjoerd Beugelsdijk

geboren op 14 augustus 1976 te Rhenen

Promotores: Prof. dr. A.B.T.M. van Schaik
Prof. dr. N.G. Noorderhaven

*Voor mijn
ouders*

Voorwoord

Op 24 september 1999 verdedigde ik met succes mijn afstudeerwerkstuk en behaalde daarmee mijn Drs. titel in de (algemene) economie. Na veel wikken en wegen over het bedrijfsleven of de wetenschap heb ik uiteindelijk besloten te kiezen voor een aio-schap. De doorslaggevende reden was uiteindelijk eenvoudig; het niet proberen te behalen van de graad van Dr. zou tot spijt leiden. En dan is het een kwestie van logische volgorde dat je eerst een proefschrift gaat schrijven. Ik ben daarmee gestart op 1 januari 2000 en al snel kreeg ik de bevestiging: dit was de goede keus.

Nu, exact vier jaar na mijn afstuderen verdedig ik mijn proefschrift met als titel cultuur en economische ontwikkeling in Europa. In deze bundeling van artikelen beschrijf ik de relatie tussen (de ontwikkeling van) waarden en normen enerzijds en economische ontwikkeling anderzijds.

Op het moment dat ik me in dit thema begon te verdiepen kon ik niet vermoeden dat het vier jaar later zo'n 'hot issue' als dat het nu is, zou worden. De discussie over het concept sociaal kapitaal heeft de afgelopen jaren zo'n vlucht genomen dat het bijhouden van dit tempo, laat staan het proberen te beïnvloeden ervan een schier onmogelijke opdracht is. Desondanks overheerst een gevoel van tevredenheid en berusting in de mate van 'onafheid'.

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Smulders met wie ik prettig heb samengewerkt. Het resultaat is te vinden in hoofdstuk 3 en 5. Ik heb bijzonder veel van jullie geleerd.

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Sjoerd Beugelsdijk
Tilburg, Juli 2003

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Chapter 1

Introduction

1.1 Culture

“Well, culture counts. In the first two chapters I speak about geography, which I think is terribly important. But once you get past geography and want to know why certain areas have done better than others within the same geographical context, then you have to recognize that culture counts”.

The above is the answer of Harvard historian and economist David Landes, author of *The Wealth and Poverty of Nations* when asked if it is fair to say that the basic thesis of his book is that culture is the dominant factor in determining economic success (interview in *Challenge* July/August 1998).

This thesis is on the relationship between culture and economic development in European regions. Besides Fukuyama's (1995) argument that culture and the economy are interwoven by definition, there are other arguments to undertake a study like this. First, as a response to mounting evidence that culture has economic consequences, economists have become increasingly interested in culture. Second, the persistent success of certain regions and the inadequate explanatory power of existing models has, together with the development of the so-called 'new economic geography' led to an increased interest in regions. Third, globalisation and the ongoing unification process of Europe have resulted in blurring boundaries of nation states and have led to the concept of 'Europe of the regions' in the beginning of the 1990s.

Numerous definitions of culture exist, and most include elements like meanings, values and religion or ideology. One of the most accepted and extensive definitions is the one proposed by Clifford Geertz. He defines culture as 'a historically transmitted pattern of meanings embodied in symbols, a system of inherited conceptions expressed in symbolic forms by means of which men communicate, perpetuate, and develop their own knowledge about and attitudes toward life' (1973, 89). Hofstede's more succinct definition of culture as the 'collective programming of the mind' comes close to the one proposed by Geertz (Hofstede, 2001, 1). An excellent overview and discussion of definitions of culture is the first chapter 'values and culture' of Hofstede's 2001 revised second edition of *Culture's Consequences*.

1.2 The interest in culture

Although the publications of Hofstede (1980, 1991, 2001) have contributed to the incorporation of the role of culture and cultural differences in the field of business administration, mainly international management, this is not the case for economics. However, since the mid 1980s there is a revival of the study on the determinants of economic growth, in which increasingly attention is paid to the role of culture.

Durlauf and Quah (1998) offer three reasons for economists to study growth across countries. First, understanding the sources of varied patterns of growth is important: persistent disparities in aggregate growth across countries have, over time, led to large differences in national welfare. Second, the intellectual payoffs are high: the theoretical hypotheses that bear on economic growth are broad and touch upon fundamental assumptions

of economic reasoning. Third, the first wave of new empirical growth analyses has provoked yet newer ways of analysing cross country income dynamics. These empirical results are generating fresh stylised facts on growth with implications for theory. New or modern growth theory has resulted in a stream of empirical studies, in which traditional factors K and L are complemented with human capital, and indicators that proxy the institutional and cultural differences between countries. Typically, these types of regression analysis including institutional variables are known as the Barro-regressions (after Barro, 1991). When the broad term institutions is used in this thesis and no specific reference is made to these 'Barro'-variables, institutions are defined as the 'humanly devised constraints that structure political, economic and social interaction' (North, 1991, 97). Since the pioneering work of Baumol (1986), Barro (1991) and Mankiw, Romer and Weil (1992) the so-called growth empirics has become rather popular. When reviewing this empirical growth literature, Temple (1999) concludes that there is a role for research on the relation between culture and economics. He writes: 'Some of the most interesting thinking on economic growth is to be found on the borders of political science and sociology' (Temple, 1999, 146). Temple and Johnson (1998) reach a similar conclusion when arguing that 'there are many possible reasons why society might matter, and their investigation should be a worthwhile direction for further research' (Temple and Johnson, 1998, 987). Hence, growth literature can be characterised by a development in which the standard neo-classical Solow model started with the variables physical capital K and labour L, then turned to human capital H, subsequently included institutions (I) and finally has suggested to include culture. The plea for the study of the broader determinants of economic development raises the question where this interest comes from.

An important reason of this interest in culture has been the formidable growth performance in Japan in the 70's and 80s (Van Schaik, 2003). According to Zukin and DiMaggio (1990), the major stimulus that has made economists more attentive to macro level forces other than the orthodox ones has been the rise of the global economy and the recognition that the United States and Western Europe had lost their hegemonic position within it. These authors write, 'Japan has served both as a screen upon which the discontents of American managers have been projected and a laboratory for students of the role of the state and social structure in encouraging economic growth (Zukin and DiMaggio, 1990, 12). In spite of the economic crisis that hit Japan in the 1990s, the Japonisme or Japanese Miracle of the 70s and 80s has led to the recognition that there exist a variety of institutional paths to economic success. The recognition of this heterogeneity of successful economic models has accorded a new prominence to institutional and structural factors. But there are more factors that explain the current interest in the role of culture in economics.

Portes (1997) argues that the neo-liberal market-based policies applied by the World Bank in the 80's in LDC's have yielded different results in different countries. The acknowledgement of the crucial influence of the institutional context in which these adjustment policies have taken place, has speeded up the interest in a broader view on (economic) development. According to Portes, the hidden social bases of neo-liberal success and failure has led economists and policy makers to think of development in a broader way than the former neo-liberal market oriented view. This interest in cultural aspects and the possibility of culture facilitating economic development and growth has been further speeded

up as a point of general interest, since it has been argued that the impressive economic development in South east Asia (including Japan) should be contributed to the specific cultural and religious heritage in these countries (cf. Helliwell, 1996).

Another reason why critique on the neo-liberal (classical) point of view emerged, has been the development of experimental (game theory) economics in the late 80s and the 90s. This development may also be qualified as an important reason for the interest in 'social' variables and critique on rational economic man (Hodgson, 1998). The conclusions of game theoretical studies show that some core assumptions in economics are not realistic. Over time, studies have appeared that especially criticise the assumptions at the micro-level of neo-classical economics, most of them making use of the insights of the field of psychology (see Rabin, 1998 for an overview). Similar arguments can be found with Zukin and DiMaggio (1990). They argue that the emergence of economic sociology reflects the growing recognition that the dominant neoclassical paradigm suffers from limitations. These critics that relate to the fundamentals of the traditional neoclassical theory have raised doubts about the metaphor of the single-equilibrium and created room for institutional and cultural factors in (macro-) economic thinking.

Other authors (eg. Maskell et al, 1998, Van Schaik and Hendrickx, 2000) link the rise of interest in culture to increased internationalisation. Globalisation may lead to increased embeddedness and dependence on specific institutions at the local, regional or national level. 'Internationalisation implies a reduction in the effectiveness of traditional monetary and budgetary policies, as a result of leakage effects in a globalised world economy' (Van Schaik and Hendrickx, 2000, 2). In other words, there is a refocusing on the factors that are largely immobile, i.e. institutions and culture. So because of the processes of globalisation and internationalisation, the local and regional level have become more relevant, sometimes referred to as localisation. As a result, significant dimensions of economic policy are being reformulated in terms of regional policy (Storper and Scott, 1995). The increased importance of the regional level in a period of globalisation is also referred to as the global-local paradox¹.

The fact that Sen has won the Nobelprize in 1998 can be seen as a reflection of the development sketched above. Scholars and researchers in economics have started to rediscover the 'Smithian' or 'Marxian' way of carrying out research in the economic discipline. Or as Atkinson (1999) puts it, by emphasising the richness of human motives, the institutional complexities of development, and the subtleties of social goals, Sen has stimulated research on topics that take well beyond narrow textbook boundaries.

This increased interest in the relationship between culture and economic development has been further strengthened by the rising availability (and re-discovery) of data that measure culture. Besides the famous Hofstede-indices there are a number of other empirically based measures of norms and values, like the Rokeach values survey, Trompenaars' research, Schwartz's studies and the series of studies that go under the name of European Values Studies (EVS). The fact that culture has been quantified and measured has led to the possibility to do empirical research, which in turn increased the acceptance of this type of

¹ The increased importance of the local environment not only holds for policymakers. As a result of globalisation, also (multinational) firms have to take cultural and institutional differences into account (Hofstede, 2001).

research among many economists. Healy (2003) provides a broad overview of these existing instruments to measure culture.

In their research on culture, institutions and economic development, researchers concentrate on the concept of 'social capital'. One of the merits of social capital as a conceptual tool is that it seeks to integrate economic and non-economic analyses or at least complementarities between the two. The social and the capital tend to stand for the non-economic and the economic, respectively. The most influential contribution to the discussion on the relation between social capital and economic development has been the publication of "Making Democracy Work" by Putnam, Leonardi and Nanetti in 1993. These authors study Italian regions and find that social capital matters in explaining the regional differences in economic and institutional (government) performance. Putnam et al. (1993, 167) define social capital as those 'features of social organisation, such as trust, norms, and networks, that can improve the efficiency of society by facilitating co-ordinated actions'. The Worldbank uses a similar definition. According to the Worldbank, social capital refers to the norms and networks that enable collective action. It refers to the institutions, relationships and norms that shape the quality and quantity of a society's social interactions².

Hence, we can conclude that for a number of reasons there is an increased interest in the role of culture and cultural differences in relation to economic success. Next to this interest in culture, crystallizing in the concept of social capital, we also observe a revival of spatial economic thinking in economics. Led by Paul Krugman, many economists have begun to take the spatial dimension in the economy more serious.

1.3 The interest in geography or 'new economic geography'

Economists are (re-) discovering geography (Martin, 1999, 66). The works of Paul Krugman - in specific *Geography and Trade* (1991) and *Development, Geography and Economic Theory* (1995) have been influential - have contributed to the increased tendency to take space more serious and follow Lösch's advice to study 'how the economy fits into space' (Lösch, 1954). But also the works of Barro and Sala-I-Martin (1995), Venables (1998), Neary (2001), Krugman and Venables (1995), Fujita, Krugman and Venables (1999), Ottaviano and Puga (1997) and Quah (1996) have contributed much to this increased popularity³. In line with Krugman, also Michael Porter pleads for making economic geography a 'core discipline in economics' (Porter, 1990, 791)⁴.

One of the most important reasons for taking space more seriously has been the economic success of certain regions, like Silicon Valley, Northern Italy and Baden Württemberg in Germany, which could not be adequately explained by existing models. These regional clusters of successful economic activity have led economists to recognize the importance of the spatial dimension (Hospers and Beugelsdijk, 2002).

² See <http://www.worldbank.org/poverty/scapital/>

³ It goes too far to discuss all the works of Krugman and others that contributed to the 'new economic geography'. Martin (1999) is an excellent (critical) overview.

⁴ The popularity of geography in economics is clearly signalled by the introduction of a new journal in 2001. The *Journal of Economic Geography* explicitly aims to 'to redefine and reinvigorate the intersection between economics and geography' (see <http://www3.oup.co.uk/jnls/list/jnlccg/scope/>). Note that already in 1926 Baker wrote a paper on the relation between Economics and Geography in the *American Economic Review*.

Krugman (1995), in his Ohlin lectures, offers an explanation why spatial and development economics, together with economic geography have been ‘almost completely absent from the standard corpus of economic theory’. According to Krugman, the reason for this is that scholars in these fields have ‘failed to make their point with sufficient analytical clarity to communicate their essence to other economists, and perhaps to each other’. In another paper Krugman (1998, 164) writes ‘The reason why space has finally made it into the economic mainstream is therefore obvious: imperfect competition is no longer regarded as impossible to model, and so stories that crucially involve unexhausted scale economies are no longer out of bounds. Indeed the new interest in space may be regarded as the fourth (and final?) wave of the increasing returns/imperfect competition revolution that has swept through economics over the past two decades. First came the New Industrial Organisation, which created a toolbox of tractable if not entirely convincing models of imperfect competition; then the New Trade Theory, which used that toolbox to build models of international trade in the presence of increasing returns; then the New Growth Theory, which did the same for economic growth. What happened after 1990 was the emergence of the New Economic Geography, which might perhaps be best described as a “genre”: a style of economic analysis which tries to explain the spatial structure of the economy using certain technical tricks to produce models in which there are increasing returns and markets are characterised by imperfect competition’.

On the other hand, thus far geographers have not been particularly impressed by this geographical turn in economics (Martin, 1999). To many geographers, the new economic geography of economists has little to do with the theoretical and empirical approaches in contemporary economic geography (Rietbergen and Stam, 2001; Boekema, et. al., 2000; Martin, 1999; Martin and Sunley, 1998). To most of the economic geographers, the implications of the formal models developed by new economic geographers generate a dull sense of *déjà-vu* (Martin, 1999). To them, the work developed by new economic geographers represents a reworking of regional science and urban economics models (though these are not based on increasing returns and imperfect competition) that were developed in the fifties and sixties, which they discarded years ago. The mathematical sophistication on which this new geographical turn in economics is based may be impressive, but the empirical applications are not particularly novel and the results trivial.

On the other hand, it is argued by some economic geographers - who approach this geographical turn in economics somewhat more positively – that the tradition in economic geography to study the economic development of regions from a multi-disciplinary perspective has not contributed to the development of rigorous theories. This contrasts with for example the macro-economic discipline in which the development of modern endogenous growth theory has contributed to the scientific status of the discipline (cf. Martin, 1999). The fact that the economic discipline has embraced geography can work out positively for the scientific status of the field of economic geography.

Despite – or as a reaction to perhaps - the geographical turn in economics based on formal modelling, the institutionalist paradigm has been even more prominent on the agenda of traditional economic geographers the last two decades. Institutions are thought to act as stabilizers of a range of economic practice in a particular territory. Especially in economic geography it is argued that the ‘economic life of firms and markets is *territorially* embedded

in social and cultural relations and dependent upon processes of cognition (different forms of rationality), culture, social structure and politics' (Amin and Thrift, 1994, 16-17).

The new institutional economics which largely builds on transaction cost thinking as developed by Williamson (1975, 1985) has been criticized for being undersocialised (Granovetter, 1985). Nowadays more attention is being paid to explanations of regional economic development in terms of a new institutional sociology, in which the term *embeddedness* figures prominently (Amin and Thrift, 1994). According to some, there has been a change in paradigm when thinking about regional development policy (Keating, 1998). The old paradigm, which guided policy between the 50s and 80s, was based on the state and interventionist measures directed from this central state. The main motor of development was large scale manufacturing industry, which through its expected multiplier effects was to serve as a growth pole. New thinking about regional development policy focuses more on regional endogenous growth, like R&D and innovation and entrepreneurship, rather than on investment, which tends to be too mobile and volatile to form a firm basis for explanation. Generally, the policy has shifted towards the development of conditions for innovation and growth, thereby focusing on key sectors, clusters and the encouragement of institutional co-operation and networking. Typical instruments of this 'new' policy include research parks, technology transfer institutions and public-private partnerships. In general, the role of the region has been much more prominent in the development of economic networks.

Institutions and culture are of crucial importance in the new models of regional development, because it is argued that they can provide public goods, foster social communication, and promote co-operative behaviour. A characteristic form of institution in this respect is the regional development agency, operating at arm's length from the government and in close co-operation with private actors. It is argued that well-performing regions are the nexus of dense networks of associations and groups, providing public goods and information channels and working through co-operation rather than hierarchical command. The 'institutional thickness' has been identified as a key factor in development (Amin and Thrift, 1994). This fits Putnam's (1993) thesis that the extent of associational life is important in the explanation of regional welfare differences in Italian regions. Civic associations, chambers of commerce, social bodies, business promotion groups, they all can facilitate communication and foster shared norms. However, as Keating (1998, 147) also remarks, not all associations have a positive effect. Associations may represent rent-seeking by groups within the local society, or efforts to defend locally-entrenched sectors against modernization and change.

As a result the literature on agglomerations and regional development in general in economic geography has increasingly turned from economic explanations (e.g. product specialization and traditional Marshallian agglomeration factors) to social and cultural explanations, like social consensus, intense levels of inter-firm cooperation, and innovative environments (Amin and Thrift, 1994). According to these authors the recognition of socio-cultural aspects has, in turn, given renewed impetus to the study of territorial embeddedness as found in the literature on industrial districts and regional clusters. This socio-cultural turn is however not without criticism. Building on the three classics in regional clustering, i.e. Silicon Valley, Baden-Wurtemberg and the 'Third Italy', Hospers and Beugelsdijk (2002)

argue that an intriguing paradox can be observed in today's regional economic policy making. Whereas unique local factors are increasingly seen as the determinants of regional economic success, simultaneously more and more governments try to copy policy experiences that proved to be successful in a particular region. Stressing the socio-cultural factors too much when explaining (regional) development may lead to cultural determinism. Nevertheless, the central argument is that nowadays within economic geography there is an increased interest in socio-cultural factors contributing or limiting regional economic development.

In sum, two parallel developments have resulted in an increased interest in regions and regional development and in specific the socio-cultural background of this development. The emergence of Krugman's new economic geography has – irrespective of the discussion between geographers and economists on the added value of Krugman's work - resulted in an increased interest in space and regions. Secondly, the institutional core of economic geography and the recent upsurge in sociological accounts, crystallizing around the concept of embeddedness, has resulted in an increased interest in socio-cultural factors explaining differences in regional development. Hence, the reason why I focus on regions in this thesis should be seen against this background. The question why *European* regions are interesting to take as a unit of analysis is answered in the next section.

1.4 The 'Europe of the regions'

In March 1957 six nations signed the historic Treaty of Rome, setting in motion the economic and political integration of Western Europe. The infant European Community had from the start an overriding priority to unite countries previously at war and in doing so to lay the basis of a European union. But, besides this 'ultimate' political goal, the actual agenda was essentially concerned with more immediate policy issues like trade, agriculture, and the coal and steel industries (Albrechts, 1995). The Treaty of Rome envisaged an integrated market for the free movements of goods, capital, labour and services, also known as the 'four freedoms'. The process of economic integration resulted in the adoption of the Single European Act. The Heads of Governments of the - by then - twelve member states committed themselves to complete the internal market by the end of 1992.

The increased European integration is altering the architecture of the Western European state. Regions are no longer confined to national borders but increasingly have become an element in European politics. Keating (1998) argues that this erosion of the boundary between domestic and international politics is due to the increased interdependencies among policy spheres. This transforms the state-centered politics in the increasingly unified Europe. But also Ohmae in his 'End of the Nation State' claimed that functional imperatives at the global level are breaking down nation states in favour of regional entities (Ohmae, 1995).

All in all, the process of European integration has resulted in blurring the boundaries of the state. And the completion of the internal market has further triggered the increased European regionalism (Fatás, 1997). In fact, the European Commission even formulated a vision of a so-called 'Europe of the Regions' in which there would be a reasonable homogeneous regional social-economic structure across Europe. This vision of a 'Europe of

the regions' is attractive, because it refers to a Europe that is 'geographically decentralised, economically competitive, politically pluralist, with a refreshed democratic life that draws upon diverse provincial and national identities' (Garside and Hebbert, 1989, in: Newlands, 1995).

The original Treaty of Rome (article 130) included a reference to regional policy through the establishment of the European Investment Bank (EIB), which role would be to raise and channel funds to promote growth in less developed regions. As well as promoting a competitive free trade area, the 1986 Rome Treaty (articles 92-94) also permitted certain kinds of aid, including aid for regional development, provided it did not distort competition too much.

The three main objectives of the EC's regional development strategy are: 1) to increase competitiveness of areas in an increasingly competitive global economy, 2) to move towards more sustainable economic development, and 3) to reduce regional disparities and increase economic and social cohesion. This three-pronged regional development strategy combines issues of both equity and efficiency.

Various funds have been established to foster regional development (for more details see appendix 1A). These funds now form the financial basis of the EU's regional policy, amounting to almost a third of the total EU budget. Total expenditure by these funds for the period 1994-1999 totals 141.5 billion ecu, of which about 70% is meant for development and structural adjustment in lagging regions, particularly in Spain, Italy, Greece, Portugal and the former eastern part of Germany (the so-called 'objective 1 regions'). This increased policy importance of the regions in Europe has further strengthened the idea of a 'Europe of the regions'. It has triggered questions about the cultural differences across European regions and its relation with economic development.

In sum..

There are several reasons to take a closer look at the relation between culture and economic development in Europe. Culture, in specific social capital has become an important topic on the agenda of many economists. In addition, the works of Krugman and his highly debated 'new economic geography' have resulted in an increased interest in regions. Also the traditional approach in economic geography is an important driver of this increased interest in cultural factors and regional economic development. The discussion on the 'Europe of the regions' and the European unification process raises questions about the relation between culture and economic development in Europe.

1.5 The research focus and structure of the thesis

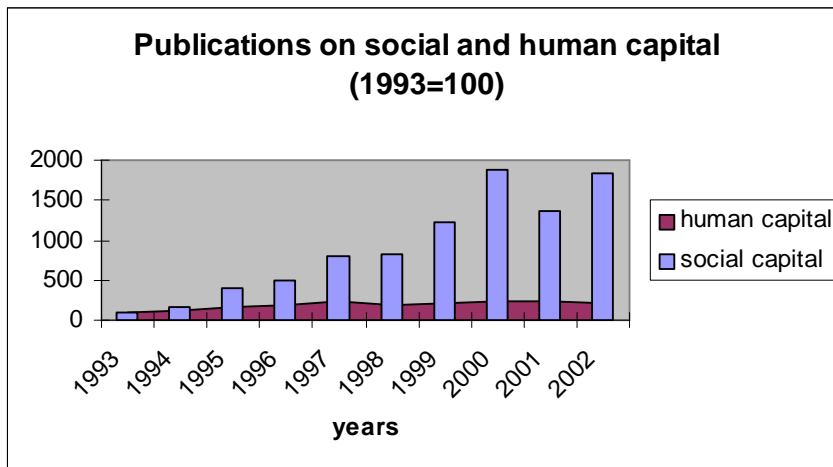
This study concentrates on the relationship between culture and economic development for European regions. As described above, especially in economic geography there has been a tradition of interest in institutional and cultural factors when explaining the economic development of a specific region. However, lack of data have limited the type of analysis to case-by-case research and has not enabled scholars to do large-scale (statistical) research. The data used in this thesis are from the European Values Study (EVS). This is a large-scale,

cross-national survey research program on basic human values, initiated by the European Value Systems Study Group (EVSSG) in the late 1970s, at that time an informal grouping of academics. Now, it is carried on in the setting of a foundation, using the (abbreviated) name of the group European Values Study (EVS).

EVS was developed in the 1970s against the background of changing values and an increased interest in the cultural consequences of the unification process of the European Union. By now, the survey comprises three waves (1981/1990/1999), of which I use the second and third. In order to obtain regional scores I had to re-group the original individual data. I did not use the first wave that was carried out in 1981, because it was not possible to trace the individual scores to regions. In order to compare the data on norms and values with regional economic data the Eurostat definition of regions has been used. The regional level is the NUTS1 level⁵.

The data provided by the EVS offer the possibility to fill the earlier mentioned empirical gap in economic geography. Moreover, the following chapters add to the general discussion in economics about the role and function of culture, in specific the lively debate on social capital. The field of social capital has developed at an accelerating pace, across a broad front and currently engages scholars in many disciplines. In line with Ben Fine I can say that I found myself chasing a target that moved and multiplied at a pace that defied my capacity to catch up (Fine, 2001, 5). The speed with which social scientists have jumped into the field of social capital can be illustrated by the amount of publications on the keyword 'social capital'. As the field of social capital attracts scholars from different disciplines, I have decided not to limit myself to economic journals but perform a broad search. Figure 1 shows the number of hits when using the search engine on Tilburg University. This engine includes all journals available at all universities and libraries in the Netherlands. Given the tremendous influence of Putnam's publication on social capital in Italian regions, I have decided to start the query in the year of publication, i.e. 1993. I looked for the combination 'social capital'. This results in only (!) 4 publications on social capital in 1993. A decade later, this amount has risen to 73. Figure 1 clearly shows the increase in publications on social capital. As a point of reference it is chosen to include the publications on human capital as well. The bars represent the index (1993=100) of publications on social capital, whereas the almost flat line represents the score on human capital. Although it is acknowledged that human capital is a generally accepted concept far more than social capital resulting in a higher absolute amount of publications, it is clear that social capital has been - and to some extent still is - a hype in social science.

⁵ For more detailed discussion and analysis of regions and the nuts definition in Europe I refer to appendix 1B and 1C. Furthermore, it is relevant to note that there is a difference between the World Values Survey (WVS), used by Inglehart and the Worldbank, and the European Values Studies (EVS) used in this thesis. In 1995-1997 the World Values Survey carried out a wave of research in a large number of Western and non-Western countries. They aim at a better coverage of non-Western societies and analysing the development of a democratic political culture in the emerging Third Wave democracies. It should be mentioned that the majority of the survey questions in WVS and EVS are similar. At the time this thesis went to the printer, there were initiatives to merge the two datasets, allowing researchers to study more countries in a longer period of time.

Figure 1.1 Popularity of social capital

Apart from the factors that contributed to the inclusion of cultural factors in mainstream economic analyses in general, earlier described, an important element of the attractiveness of social capital as a focal concept is its recognisability to a large audience of different disciplines. The founding of a multi-disciplinary working group at Tilburg University to publish a book in which social capital has a prominent role is a clear example of how this concept can bind researchers from economics, sociology and political science. This thesis is another attempt to add insights to this extremely fast expanding field of social capital.

The chapters of this thesis have been written as independent papers. As a result, the exact research question differs in each chapter. However, there is a general research objective that holds for the entire thesis.

The research objective of this thesis is to gain insight into the relationship between culture and economic development in Europe.

As the chapters have been written as independent papers, this implies a certain amount of repetition across the thesis as a whole⁶. I have tried to keep this to a minimum. Following the tradition in the structure of a thesis the second chapter is a literature overview, in this case on social capital. The title of this chapter is ‘mapping the landscape of social capital in economics’. In this chapter I review efforts in economics and sociology. Though it is impossible to do justice to all of the developments in the field of social capital, I have tried to capture the essence as much as possible. In the first part of this chapter social capital is seen in the ‘Putnamian’ tradition. In the second part I take an account of social capital that comes close to network approaches like those developed by Burt (1992) and Coleman (1990).

The remaining chapters build on this chapter and are empirical. Chapter 3 focuses on the core contribution in the field of social capital in economics, i.e. Knack and Keefer’s 1997 contribution in the *Quarterly Journal of Economics* and its follow-up in 2001 in the *Economic Journal* by Zak and Knack. In this chapter the results of these studies are replicated and it is shown that the economic payoff of trust depends on the set of conditioning variables

⁶ Apart from this introductory chapter, the following chapters have been written in plural active style. This not only improves readability, but is also a reflection of the fact that many of the following chapters are joint works.

controlled for in the regression analysis and – to an even larger extent – on the underlying sample, in specific the inclusion of low trust countries.

Chapter 4 is on the relationship between social capital and regional economic growth. The central question is whether social capital, in the form of generalized trust and associational activity, is related to regional differences in economic growth. Based on extensive robustness tests as developed in chapter 3, I present evidence that social capital measured as associational activity is positively related to growth differentials in European regions. Hence, the results suggest that Putnam's (1993) thesis on social capital in Italian regions can be generalized. The analysis also suggests that it is not only the mere existence of network relationships that stimulates regional economic growth, but also the level of actual involvement in these relationships.

Chapter 5 extends the analysis of the previous chapter. Following Putnam's (2000) distinction between bonding and bridging social capital, social capital is operationalized as participation in two types of social networks: first, closed networks of family and friends, and, second, open networks that bridge different communities. Agents are assumed to have a preference for social interaction, which they trade off against material well-being. Participation in both social networks is time-consuming and comes at the cost of participation in the formal economic sphere and working time. Through this channel, higher levels of social capital may crowd out economic growth. However, participation in intercommunity networks reduces incentives for rent seeking and cheating. Through this channel, a higher level of bridging social capital may enhance economic growth. Testing this model, I find that regions of which the population attaches more value to family life have significantly lower participation rates in open networks and that this in turn reduces output growth in such regions.

Chapter 6 focuses on a specific topic that is currently highly debated in economic geography. Literature stresses factors like entrepreneurial ability, regional innovative potential, and entrepreneurial human capital in explaining the economic success of regions. Using the European Values Studies (EVS) dataset, I distinguish values that characterise self-employed, which enables me to construct a regional aggregate that reflects the average score on entrepreneurial attitude. It is shown that regions differ in entrepreneurial attitude, and that a high score on entrepreneurial characteristics is correlated with a high rate of regional economic growth.

The subsequent chapter differs from the previous ones as it takes a sociological point of view. Generally, the choice of the 'dependent variable' is determined by the discipline the researcher belongs to. Economists are primarily interested in explaining economic phenomena like growth. To them cultural variables are exogenous. Sociologists however, try to explain social phenomena and developments in norms and values. To them, economic data serve as background variables. In this chapter I put on a sociologist's hat and try to explain cultural differences in Europe. Though Knack and Keefer's 1997 paper on social capital in the *Quarterly Journal of Economics* may be called the core paper in economics when studying the relation between culture and economic development, for many sociologists Inglehart and Baker's 2000 paper in the *American Sociological Review* is seen in a similar way. According to Inglehart and Baker, economic development is linked with systematic changes in basic values, but cultural change is path dependent. I build on their thesis and try

to explain value differences across European regions. This is relevant as it fits in the discussion of a 'Europe of the regions' referred to earlier. Inglehart and Baker's thesis is confirmed. New however, is the finding that historical shocks like the collapse of the Soviet Union marking the 'end of history' can influence this path dependent process. Moreover, it is illustrated that convergence of values into a 'single European value landscape' takes a very long period, if it would occur at all.

Whereas the previous chapters stand on their own and can, thus, be read individually, the final chapter aims to relate the outcomes of the different chapters to each other. The issue of 'trust' is chosen to be discussed more extensively here because of the potentially confusing general picture that might emerge from this thesis regarding trust. It is argued that it is important to apply a multi-level perspective to trust in order to understand the findings as discussed and presented in the preceding chapters. Specifically, it is argued that in order to get to a fuller understanding of the determinants and functions of trust we need to take explicit account of the role of institutions. By including this multi-level perspective in the discussion on trust I hope to give new impetus to this discussion that may enhance further theory development.

Chapter 2

Mapping the Landscape of Social Capital: The need for a two-level approach

2.1 Introduction

Economists are increasingly interested in the concept of social capital. In addition to some other developments in economics, Putnam's 1993 *Making Democracy Work* has triggered the interest of economists in more culturally based factors that influence economic growth. Also Fukuyama's (1995) study on *Trust* has contributed to the inclusion of social capital in economics. Work by Putnam and Fukuyama has led Jonathan Temple for example to conclude that 'some of the most interesting thinking on economic growth is to be found on the borders of political science and sociology' (Temple, 1999, 146). Although the way economists use a traditionally sociological concept like social capital can be criticised (Fine, 2001), it is probably the most successfully introduced 'new' term in economics in the last decade.

The concept of social capital is intuitively highly attractive and potentially promising. Nevertheless, it can only be fruitfully employed when it can be properly defined, operationalised and shown to have explanatory power (cf. Woolcock, 1998). Currently, social capital is many things to many people (Harriss and De Renzio, 1997). Social capital provides a terminological umbrella for grouping together an extraordinarily diverse range of casually constructed illustrations (Fine, 2001, 78). Overuse and imprecision have rendered it a concept prone to vague interpretation and indiscriminate application. The use of social capital as an umbrella concept risks conflating disparate processes and their antecedents and consequences (Adler and Kwon, 2002). Also from a policy and managerial perspective it is necessary to break down the concept of social capital into constituent domains in order to move beyond the current abstractness. Unless we study social capital in a more structured way, the danger is that this intuitively appealing concept stays vague and social capital remains a black hole in the astronomy of social science (cf. Montgomery, 2000).

In this chapter we elaborate on the concept of social capital in the field of economics. We try to shed light on the cause and effect structure and the internal dynamics. To do so, we claim that it is necessary to break down the concept of social capital in two levels, i.e. the individual (firm) and the aggregate level (nation state or region). This two-level approach is more than just a heuristic device to study social capital. We hold that this two-level distinction is crucial for our understanding and the development of the concept of social capital in economics. In the first of this chapter part we think of social capital in terms of norms and values and treat social capital in the Putnamian tradition. In the second part we take a network approach of social capital (Burt, 1992, Coleman 1988). While the first part may be more familiar to political scientists and economists, the second part is closer to the field of sociologists. In our view it is necessary to discuss both for a proper understanding of the concept. When we think about social capital in the Putnamian tradition, we refer to it as *aggregate* social capital. We have added the label *individual* in case we discuss social capital from a micro (sociological) point of view. Acknowledging that the individual level includes actors like persons, firms and other organisational entities, we will concentrate on firms.

The added value of the chapter lies in the synthesis of two seemingly distinct fields of research. Whereas most researchers in the field focus either on the macro-economic aspects of social capital, or on the effects of social capital on individual level, we do both. By doing so, we aim to structure the literature on social capital.

The remainder of this chapter is structured as follows. We proceed by a short discussion of the different definitions of social capital. Then we briefly recapitulate Putnam's work and discuss the positive effects of aggregate social capital. Before turning to the dark side of aggregate social capital we discuss the question where social capital comes from. We have chosen to start our discussion at the aggregate level because the popularity of the concept is rooted at this level¹. We discuss two elements of aggregate social capital: social networks and trust. After our analysis of social capital at the aggregate level, we turn to social capital at the individual level. We discuss the background of the concept in (economic) sociology. As the literature on social capital at the individual level stems from network theory, we also discuss the conflicting viewpoints of Burt (1992) and Coleman (1988) with respect to network structure. After discussing the concept of open versus closed networks, we discuss the individual level of trust. Trust and the closure of the network are related. We end our discussion on social capital at the individual level by elaborating on the cause and effect structure, by making use of the insights from network theory and the literature on trust.

2.2 Definitions of social capital

The literature is far from unambiguous and consistent in defining social capital. Generally, researchers date back the concept of social capital to Bourdieu (1986) and Coleman (1988) (see Healy, 2003). Bourdieu (1986, 248) 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 institutionalised relationships of mutual acquaintance and recognition – or in other words, to membership in a group'. Social capital refers to the personal resources individuals derive from membership in a group.

Coleman (1988) also stresses the function of the social structure of a group as a resource for the individuals of that group. Social capital resides in relationships between individuals in families or communities. In Bourdieu and Coleman's definition of social capital, membership in interpersonal networks enables actors to convert social capital into other forms of capital to improve or maintain their position in society.

Still, there are a number of studies published before Bourdieu and Coleman popularised the concept. For example, Jacobs (1961) used the concept of social capital when describing the relational resources embedded in personal ties in the community. In 1977 Loury has described social capital as a set of intangible resources that helps to promote the social development of young people (Loury, 1977).

Without going into a detailed discussion of the definition of social capital and repeat the work of others (e.g. Adler and Kwon, 2002; Fine, 2001; Healy, 2003; Woolcock, 1998), it can be observed that there are important differences in the definitions of social capital. In one group of definitions the concept of social capital is used as a part of the theory of human action and it applies primarily at micro-sociological and micro-economic levels. The unit of analysis is the individual or firm or a group of individuals or firms. The other group including researchers like Inglehart (1997), Putnam (1993), and Fukuyama (1995) deploys social

¹ One could argue that it would have been more logical to start the discussion on the individual level and then make the step to the aggregate level. This however would implicitly imply that such an 'aggregation' procedure is theoretically possible. As will be argued in chapter 8 this is not the case. Hence, the 'bottom-up' argument would suggest a line of reasoning that is not correct.

capital as a concept to study institutional and economic performance at aggregate level. They shift the scale of analysis to nations or regions.

Paxton (1999) describes similar levels of social structure to which social capital adheres. According to her, at the individual level social capital is a private good that like human capital can be used for economic gain or other private outcomes. An example of this can be found in Meyerson's (1994) analysis of Swedish managers and the income effects of their social capital. Closely related is the group level. This basically refers to the idea that members of a group collectively gain by being a member of a group. Clearly this is linked to the individual level. The next level is what Paxton (1999) calls the macro-sociological level. Here social capital is seen as a feature of a broader community. For authors like Fukuyama (1995) and Putnam (1993, 2000) the object of research are nations or regions. At this aggregate level, it is argued that nations or regions can hold different levels of social capital, which affects the level of democracy and economic performance. In the remainder of this chapter we distinguish between the individual and the aggregate level. For simplicity, we assume that the cause and effect structure at both levels is independent of the cause and effect structure at the other level. Social capital at the individual level consists of the network resources for individuals embedded in these networks. Effects of social capital at this level apply in principle to these actors, being individuals or firms. At the aggregate level outcomes apply to society as a whole².

2.3 Social capital at the aggregate level

Whereas the study of social capital can be traced back to a number of authors (e.g. Bourdieu, and Coleman), 'Putnam has become the crown prince of social capital' (Fine, 2001, 18). Putnam (1993) argues that the critical factor in explaining effectiveness of regional governments and economic performance in Italy is to be found in regional differences in the way society is organized. He argues that effective governance hinges critically on traditions of civic engagement and the structure of the civic networks. According to Putnam participation in social organisations is higher and thus social capital is higher in regions where social relationships are more horizontal, based on trust and shared values. He concludes that regions in which the regional government is more successful and the economies were more efficient are characterised by horizontal relations that both favoured and fostered greater networks of civic engagement and levels of organisation in society. The reason Putnam specifically studies the degree of civic community membership is that 'citizens in a civic community, though not selfless saints, regard the public domain as more than a battleground for pursuing personal interest' (Putnam, 1993, 88).

Referring to the work of Alexis de Tocqueville Putnam maintains that these civil associations contribute to the effectiveness and stability of democratic government, because of their 'internal' effects on individual members and their 'external' effects on the wider polity. According to Putnam, 'associations instill in their members a habit of cooperation, solidarity and public-spiritedness.[..] Participation in civic organizations inculcates skills of cooperation as well as a sense of shared responsibility for collective endeavors. Moreover,

² While acknowledging that there is a potential multi level problem in using this two level approach, we choose not discuss that here. This multi level problem is explicitly discussed and reflected upon in chapter 8.

when individuals belong to “cross-cutting” groups with diverse goals and members, their attitudes will tend to moderate as a result of groups interaction and cross-pressures’ (Putnam, 1993, 89-90). Externally, a dense network of associations may enhance ‘interest articulation’ and ‘interest aggregation’, thereby contributing to effective social collaboration.

According to Putnam, effective norms of generalized reciprocity are bolstered by these dense networks of social exchange (Putnam, 2000, 136/172). Through reputation effects, honesty is encouraged by dense social networks. ‘Social networks allow trust to become transitive and spread: I trust you, because I trust her and she assures me that she trusts you’ (Putnam, 1993, 169). Trust lubricates cooperation. The greater the level of trust in a society, the greater the likelihood of cooperation. And cooperation itself breeds trust. And exactly this steady accumulation of social capital has been a crucial part of the story behind the virtuous circles of civic Italy according to Putnam (1993). As Putnam (2000) writes, people who trust others are generally more civically engaged and build more social capital than the people who distrust. Conversely, the civically disengaged believe themselves to be surrounded by miscreants and feel less constrained to be honest themselves. The causal arrows among civic involvement, reciprocity, honesty and trust are as tangled as well-tossed spaghetti (Putnam, 2000, 137). He even goes further by arguing that there may in fact be two social equilibria (1993, 177-181). Virtuous circles result in social equilibria with high levels of cooperation, trust, and civic engagement. Conversely, the absence of these traits in the uncivic community is also self-reinforcing. This process of cumulative causation suggests that there may be at least two broad equilibria toward which all societies tend to evolve and that once attained, tend to be self-reinforcing.

The above leads Putnam to conclude that ‘a society that relies on generalized reciprocity is more efficient than a distrustful society, for the same reason that money is more efficient than barter. Honesty and trust lubricate the inevitable frictions of social life’ (Putnam, 2000, 135). And ‘when each of us can relax her guard a little’, transaction costs are reduced (Fukuyama, 1995).

The touchstone of social capital is generalized reciprocity. In defining generalized reciprocity we follow Putnam; generalized reciprocity refers to a continuing relationship of exchange that is at any given time unrequited or imbalanced, but that involves mutual expectations that a benefit granted now should be repaid in the future (Putnam, 1993, 172). Or more simply, ‘I’ll do this for you, without expecting anything immediately in return and perhaps without even knowing you, confident that down the road you or someone else will return the favour’ (Putnam, 2000, 134). He argues that this norm of generalized reciprocity is a highly productive component of social capital. Communities in which this norm is followed are assumed to more effectively restrain opportunism and resolve problems of collective action.

Putnam discusses four reasons for these beneficial side effects of networks of civic engagement (1993, 173-174). First, networks of civic engagement increase the potential costs to a defector in any individual transaction. Second, networks of civic engagement foster robust norms of reciprocity. Thirdly, networks of civic engagement facilitate communication and improve the flow of information about the trustworthiness of individuals. And finally, these networks embody past success of collaboration, which can serve as a culturally-defined template for future collaboration. However, as mentioned earlier, Putnam distinguishes

between vertical and horizontal networks and it is the latter type that is assumed to have these effects. A vertical network cannot sustain trust and social cooperation (Putnam, 1993, 174)³.

In later work Putnam (1995, 2000) argued that social capital in America is declining. Based on declining membership in groups like bowling leagues he claims that there is a general decline in the ties linking people in the United States to each other and to the political system. According to Putnam, this results in a threat to the successful maintenance of American democracy.

Boix and Posner (1998) attempt to describe mechanisms through which social capital is translated into better macro performance. They suggest several processes, among which: (1) Social capital contributes to effective governance by facilitating the articulation of citizen's demands. As Fine (2001, p.113) states, 'sophisticated voters make the elected more representative and accountable'; (2) Social capital reduces the need to secure compliance by creating complex and costly mechanisms of enforcement. It reduces transaction costs in the arena of citizen-government relations, because social capital shapes the expectations citizens have about the behaviour of others; (3) Social capital encourages the articulation of collective demands that are to everyone's benefit; (4) Social capital reduces the probability of individuals to engage in opportunistic behaviour and the resources devoted to monitoring agents' performance can be invested in more productive ways.

Putnam's studies have been extensively criticised on numerous grounds. Critics have not only pointed to the neglect of negative effects of social capital, the lack of a theoretical mechanism between social capital and economic growth, but also criticized Putnam's research method (Jackman and Miller, 1996; Tarrow, 1996; Dekker et al., 1997; Harris and DeRenzio, 1997; Paxton, 1999; Boggs, 2001)⁴. In contrast with Putnam, Jackman and Miller (1996) find little empirical proof that indicates a systematic relationship between political culture, and political and economic performance. They show that the strong correlation between the overall measure of culture and the institutional performance of Italian regions are an artefact of Putnam's application of the principal components analysis. They show that the single component solution that Putnam uses to measure institutional performance is not correct, because of the fact that a multidimensional components analysis yields better results in terms of explained variance. The twelve indicators Putnam uses for his uni-dimensional components analysis result in a four-factor solution after Jackman and Miller (1996) have applied a multidimensional components analysis. Moreover, they show that the clear link Putnam sees between institutional performance and civic community is driven by some individual elements that, although included in Putnam's overall measure, are difficult to interpret in terms of institutional performance. Therefore, Jackman and Miller conclude that the extreme sensitivity of the estimated coefficients for culture to the particular component indicators undermines Putnam's cultural argument and they 'find very little indication from the Italian data set to suggest that institutional performance depends in any appreciable manner on cultural traditions' (1996, 644). Boggs' (2001) critique concentrates on *Bowling Alone*. Boggs argues that Putnam's choice of indicators to measure and reflect declining

³ According to Putnam 'the fact that vertical networks are less helpful than horizontal networks in solving dilemmas of collective action may be one reason why capitalism turned out to be more efficient than feudalism in the eighteenth century, and why democracy has proven more effective than autocracy in the twentieth century' (1993, 175).

⁴ For an overview of these critical studies we refer to Fine (2001).

social capital is rather arbitrary. According to Boggs, Putnam fails to consider the spread of newer civic phenomena and concentrates too much on the older outdated voluntary organizations. According to Boggs, Putnam's explanatory framework rests upon a foundation of pseudo empiricism, with all the assembled data, charts, and graphs telling us little about the conditions underlying historical change (Boggs, 2001, 290).

In sum, at the aggregate level social capital is about norms and values regarding cooperation. According to Putnam, social capital refers to features of social organisation such as networks, norms, and trust that facilitate coordination and cooperation for mutual benefit (Putnam, 1993, 1995, 2000). Values and norms are a key element of social capital 'because social capital prompts individuals to behave on ways other than the naked greed' (Portes and Sensenbrenner, 1993, 1323). In this way social capital resembles community spirit that can be defined as the capacity to act collectively as and when required (Forrest and Kearns, 2001).

2.3.1 Where does social capital at the aggregate level come from?

The question rises where aggregate social capital, or in other words, norms of cooperation come from. At the aggregate level the origin of social capital is culturally based and historically grown. The question where norms come from is one of the classic research subjects in sociology (Portes 1998). In defining norms and values, we follow Scott (1995). Values are conceptions of the preferred or the desirable together with the construction of standards to which existing structures or behaviour can be compared and assessed. Norms specify how things should be done; they define legitimate means to pursue valued ends. The normative system as a whole defines goals or objectives and also designates the appropriate ways to pursue them. Norms of reciprocity or better, norms of cooperation, refer to the way certain goals are to be achieved. For Coleman (1988, 1990) social capital in its core represents the extent to which an appropriate solution has been found to the problem of public goods and externalities (Fine, 2001). Once these arrangements that prevent free riding are internalised they are social values and sometimes become norms. These social norms constitute social capital.

Besides motivations stemming from deeply internalised norms through processes of socialisation in childhood or through experience later in life (primary and secondary socialisation processes), the second broad class of motivations are instrumental (Portes, 1998). This latter type is also based on norms, but norms that stem from rational calculation. Instrumental motivation stems from either obligations based on dyadic social exchange or obligations enforced on both parties by the broader community (Adler and Kwon, 2002). This latter mechanism builds on the role of reputation in networks.

In reality the distinction between internalised norms and instrumental motivations is not as sharp as suggested above. Sometimes, social capital is motivated by normative commitment of a less direct instrumental nature (Adler and Kwon, 2002). In this respect, Putnam stresses the role of generalized reciprocity. As mentioned earlier, according to Putnam, this involves 'not I'll do this for you now, if you do that for me now, but I'll do this for you now, knowing that somewhere down the road you'll do something for me' (1993, 183). This is in line with Axelrod's findings, that the anticipation of future interaction provides an important stimulus for the creation of norms of reciprocity. Platteau (1994b) also stresses the importance of generalized morality, widely shared norms and conventions instead

of shared norms in a small group, for the development of an efficient market system. These norms cannot be created by fiat and the cultural endowment of a society plays a determining role in this respect.

Boix and Posner (1998) suggest three explanations where norms come from. The first explanation of the origin of social capital refers to experimental research, which shows how stable cooperative relations can come into being spontaneously among otherwise uncooperative actors (cf. Bovenberg, 2002). The evolution of social norms and conventions can be studied in the framework of evolutionary game theory. Since evolutionary game theory studies populations playing games, the outcome (a convention or norm) can be thought of as a symmetric equilibrium of a coordination game (Mailath, 1998). In fact, it was Axelrod (1984) who used the Prisoner's dilemma game to examine the conditions under which individuals who pursue their own interest will develop norms of cooperation (in the absence of a third party or central authority). Of all the strategies submitted, the most successful was 'TIT FOR TAT'. This implies that a strategy starts with a cooperative choice and thereafter does whatever the other player did on the previous move. According to Axelrod, 'what accounts for TIT FOR TAT's robust success is its combination of being nice, retaliatory, forgiving, and clear. Its niceness [never initiating non-cooperation] prevents it from getting into unnecessary trouble. Its retaliation discourages the other side from persisting whenever defection is tried. Its forgiveness helps restore mutual cooperation. And its clarity makes it intelligible to the other player, thereby eliciting long-term cooperation' (Axelrod, 1984, 54).

In this game-theoretical setting, it is argued that as long as the pattern of interaction has no foreseeable end, or in Axelrod's (1984, 174) words, 'the future must have a sufficiently large shadow', actors have no incentive to defect from cooperation. This initiates the building of norms of cooperation, in other words, aggregate social capital.

A second explanation for the origin of social capital builds on the distinction between collaborative interactions that take place in associations that produce public goods and collaborative interactions that take place in associations that produce private goods. The first obviously suffers from problems of free-riding, whereas in the latter groups these possibilities to free ride are limited, if not absent. In line with Putnam, Boix and Posner (1998) argue that associations that produce private goods could over time generate enough social capital to make cooperation possible in arenas where individuals face collective action problems. Though historically implausible, social capital would then emerge through an evolutionary process, starting out in interactions producing private goods and ultimately graduating to groups producing public goods.

The third explanation Boix and Posner (1998) put forward emphasizes the role of a sufficiently powerful third-party enforcer. To overcome the collective action problem, the threat of force or creation of institutions facilitates cooperation.

All three explanations to some extent suffer from the fact that they focus on how cooperative relationships come into being, and not how (international) differences in social capital emerge. Boix and Posner (1998) argue that the degree to which cooperation takes root depends on the pre-existing set of social and political relations in the community. More specific, the level of social capital depends on the degree of equality and polarisation suffered by society. According to these authors, the lack of social capital in the South of Italy as described by Putnam (1993) is caused by the wide inequalities that characterised social life

and fuelled resentments that prevented cooperative relations from crystallizing. In the South, 'cooperation was squashed by a Hobbesian state: the Norman invaders' (Boix and Posner, 1998, 689), whereas in the North there was more equality and cooperation proved relatively easy to sustain. Putnam devotes considerable attention to the question why civic life is more developed in northern Italy than in the southern regions⁵. In tracing the civic roots of the northern regions, Putnam describes the historically grown rich network of associational life that dates back to the middle ages. He argues that the communal republics of northern medieval Italy experienced improvements in economic life and governmental performance due to the norms and networks of civic engagement. The southern regions lacked these norms and horizontal networks, which is according to Putnam one of the major reasons for the lack of social capital in southern Italy.

2.3.2 The dark side of aggregate social capital

Now we know what social capital at the aggregate level is, suggested where it comes from, and discussed the positive effects it is assumed to have, we turn to the negative effects. Though initially social capital was thought to produce only positive outcomes, increasingly scholars have begun to shed light on the negative effects of social capital.

Acknowledging the potential negative effects of social capital, Putnam (2000) made a distinction between bonding and bridging social capital. Some forms of social capital are relatively inward looking and tend to reinforce exclusive identities and homogenous groups. Other networks are more outward looking and encompass people across diverse social cleavages. Put more simply, bonding social capital cements only homogenous groups, whereas bridging social capital bridges different communities. Bonding social capital, Putnam argues, is good for undergirding specific reciprocity and mobilizing solidarity. For example, dense networks in ethnic enclaves provide crucial support for less fortunate members of the community, while furnishing start-up financing, and markets for local entrepreneurs. Bridging networks are better for linkage to external assets and for information diffusion.

Social capital could produce a negative outcome because high within-group social capital could have negative effects for members of the community as a whole (Paxton, 1999). By creating strong in-group loyalty, bonding social capital may also create strong out-group antagonism. One can think of the Mafia, whose individual members as a group are characterised by high (bonding) social capital, but the group itself has negative effects on society as such. In general, we expect to see negative effects of community level social capital when there is high within group trust and cohesion, but low between-group trust. Positive effects of community level social capital are expected to occur when there are positive trusting ties between individuals belonging to different groups (Paxton, 1999). It is these crosscutting ties between networks of strong ties that Putnam defines as bridging social capital.

The second negative aspect of social capital is the fact that a dense network and the accompanying community norms can place constraints on individual behaviour. Membership in a tightly-knit or dense social network can subject one to restrictive social regulations and sanctions and limit their individual action. All kind of levelling pressures keep members in

⁵ See chapter 5 of his 1993 work.

the same situation as their peers and strong collective norms and highly solidary communities may restrict the scope of individuals (Brown, 1998; Meyerson, 1994; Portes and Sensenbrenner, 1993). Or as Woolcock puts it: ‘high levels of social capital can be “positive” in that it gives group members access to privileged “flexible” resources and psychological support while lowering the risks of malfeasance and transactions costs, but may be “negative” in that it also places high particularistic demands on group members, thereby restricting individual expression and advancement, permits free riding on community resources; and negates, in those groups with a long history of marginalization through coercive non-market mechanisms the belief in the possibility of advancement through individual effort’ (Woolcock, 1998, 165). The closure of these type of networks may thus lead to lock-in for the individual members belonging to these groups. But this is not a phenomenon that only holds for individuals in groups. The same processes of lock-in can be found at the regional level. Especially for de-industrialised regions, part of the problem is that they are locked-in to institutional structures that were relevant to an earlier phase of successful economic development but which now constitute a barrier to moving onto a new path of development (Hudson, 1999). Grabher’s (1993) study on the Ruhr steel industry and Glasmeier’s (1991) study on the Swiss watch making industry show that closed network structures limit the recognition of the necessity to change and innovate on the regional level.

Woolcock (1998) uses the term *amoral familism* to describe the presence of social integration within a group but no linkages outside this group. In his view, amoral familism undermines the efficiency of all forms of economic exchange by increasing transaction costs. In a number of studies on the level of neighbourhood, it has been argued that social cohesiveness is related to the level of social capital (Forrest and Kearns, 2001, Butler and Robson, 2001, Purdue, 2001). Moreover, it has been argued that the existence of cohesive communities with strong ties may result in social conflict between these communities. This is comparable with studies of ghetto areas. There is considerable social capital in these areas, but at the same time individuals are limited to break out and rise above their poverty (Portes and Landolt, 1996). Group membership is in this case decisive and exclusionary. It can be seen as internal cohesion at the expense of external relations. In line with Putnam, the distinction between bonding and bridging social capital is crucial.

Finally, negative externalities from intense group membership may arise because of effects Olson (1982) described. In the *Rise and Decline of Nations*, Olson argued that small interest groups have no interest and incentive to work toward the common good of society. But they do have an incentive to engage in costly and inefficient rent-seeking (lobbying for tax breaks, colluding to restrain competition, etc). And, when these groups become too large and powerful, rent seeking behaviour and lobbying costs influence economic development negatively.

Thus, the ‘wrong’ type of social capital can impede economic performance (c.f. Fedderke et. al., 1999; Portes and Landolt, 1996). Social capital can be deployed for developmental and destructive purposes, which suggests that aggregate social capital should be optimised and not maximised. This is why Putnam argues that it is ‘important to ask how the positive consequences of social capital – mutual support, cooperation, trust, institutional effectiveness – can be maximized and the negative manifestations – sectarianism, ethnocentrism, corruption – minimized’ (Putnam, 2000, 22).

2.4 The individual level of social capital

At the individual level social capital refers to the network an individual or firm belongs to. In the field of organisation, the individual level concept of social capital builds on the relational view, as an extension of the resource-based view. The relational view holds that competitive advantage does not only come from firm-level resources but also from difficult-to-imitate capabilities embedded in dyadic and network relationships (Dyer and Singh, 1998). The potential of a firm to create competitive advantage depends not solely on its own resources, but also on its relationships with other firms. According to these authors, idiosyncratic inter-firm linkages may be a source of relational rents and competitive advantage. A relational rent is defined as a supernormal profit jointly generated in an exchange relationship that cannot be generated by either firm in isolation and can only be created through the joint idiosyncratic contributions of the specific alliance partners (Dyer and Singh, 1998, 662). Arm's length market relationships are incapable of generating these relational rents because there is nothing idiosyncratic about these exchange relationships. These kinds of relationships are not rare and difficult to imitate.

Nahapiet and Ghoshal (1998) and Tsai and Ghoshal (1998) have provided an insightful overview of social capital at the individual level. They conclude that social capital is a multi-dimensional construct that can contribute in many ways to the creation of new value for an organisation. These authors argue that social capital consists of a structural component (an actor's network position), a relational component (trustworthiness and trusting relationships among network actors) and a cognitive component (shared vision).

The cognitive dimension refers to a shared code or shared paradigm that facilitates a common understanding of collective goals and proper ways of acting in a social system (Tsai and Ghoshal, 1998). It is unclear if this social system refers to society in general or a firm's network. Tsai and Ghoshal (1998) leave room for interpretation here.

The structural dimension of social capital refers to an actor's location in a network. Social capital is the resource available to actors as a function of their location in the structure of social relations (Adler and Kwon, 2002). It is argued that firms occupying a central network position have superior access to information through their network linkages, which provides a firm with additional information about the nature of and degree of accessibility of the complementary resources of potential partners (Dyer and Singh, 1998). The location of an actor in a network of relationships and interactions provides certain advantages like finding a job, obtaining information or access specific resources (Tsai and Ghoshal, 1998).

The relational dimension of social capital relates to the degree of trust (see also Noorderhaven et. al. 2003). Advantages of this dimension are exchange of valuable information, reduced costs of finding exchange partners and lower transaction costs. Trust(-worthiness) is a useful kind of social capital that increases 'the capacity to form new associations' (Fukuyama, 1995, 27). Dyer and Singh (1998) distinguish two types of governance mechanisms to limit opportunistic behaviour in partnerships. The first relies on third-party enforcement of agreements, like contracts. The second relies on self-enforcing mechanisms, like trust (direct), reputation (indirect) and embeddedness. Dyer and Singh (1998) give four reasons why self-enforcing mechanisms are more efficient than third-party enforcement. First, contracting costs are limited or even avoided (in case of perfect

substitutes) because the exchange partners trust that (future) payoffs will be divided fairly. Note that complete substitutability of trust and contracts is not to be expected. Controlling opportunism through contracts still requires trust in the partner because contracts fail to anticipate all forms of possible cheating. But the inverse also holds, i.e. controlling opportunism through trust still requires contracts. Many inter-firm relationships use multiple governance mechanisms simultaneously and over time develop more informal ones (Gulati, 1995). The second reason why self-enforcement is more efficient is because monitoring costs are lower. Instead of external or third party monitoring self-enforcement relies on self-monitoring. Third, self-enforcement agreements lower the costs associated with (complex) adaptation. It allows partners to coordinate functions and work out problems “on the fly” (Uzzi, 1997, 47). Working through problems together promotes learning and innovation. The fourth argument Dyer and Singh (1998) put forward to argue that self-enforcement agreements are superior to contracts is that these informal governance mechanisms are not subject to the time limitations of contracts. These provide ‘protection’ against opportunistic behaviour only during the length of the agreement. In line with the resource-based view, they argue that as formal safeguards are easier to copy, the more informal these governance mechanisms are, the more relational rents are generated.

The economic function of social capital is strongly related to the theory of (social) networks. In general, these network approaches build on the notion that economic actions are influenced by the social context in which they take place and that actions can be influenced by the position of actors in social networks (cf. Granovetter, 1985).

2.4.1 What networks?

With respect to social capital there are two basic network theories that are relevant to discuss. The first is that developed by Burt in his book the ‘social structure of competition’. The second approach we take is the embeddedness perspective that builds on Coleman’s ideas of closed networks. Burt (1992) argues that the structure of the player’s network and the location of the player in the social structure add up to a competitive advantage. His theory is based on the idea that an actor is in a better position to profit from interactions and transactions with others if these other actors are connected to actors who are not connected with the actor himself and not with each other. These connections provide opportunities and the lack of connections are defined as structural holes. By occupying the structural location between otherwise unconnected nodes (a structural hole), the so-called *tertius gaudens* or the third who profits realises greater returns on the social capital extant within his network. The social network becomes a social resource.

The central argument made by Burt is that an optimal position is characterised by two qualities: (1) the connections of an actor are surrounded by structural holes, and (2) the actor herself is not surrounded by these structural holes. In essence Burt’s argument is that some network positions are better than other, namely those that provide for least constraint and take least effort to maintain while still providing the most access to (flows of) information or other goods.

A fundamental idea that inspired Burt’s structural-hole theory is Granovetter’s description of the “strength of weak ties” (Granovetter, 1973). He argued that access to new information is obtained through an ego’s weak ties to nodes at a distance from his own local

network. The reasoning is that information within the local network is widely shared locally, hence most of the local contacts are redundant. New information comes from non-redundant ties.

According to Burt social capital is especially important when competition is imperfect and investment capital is abundant. This is in line with Uzzi (1997), who stated that especially if the transactions between actors are non-reciprocal and are deals in which price is a sufficient statistic, the competitive market mechanism may work. But as conditions change under which the transactions take place, i.e. more tacit elements like quality and service (instead of quantities and prices) are present and important, (the weaker the ability of prices to distill information), the more organizations will form embedded ties (Uzzi, 1997). These relations go beyond the level of neoclassical concept of buyer-seller relationships, and include trust, joint-problem solving and fine-grained information exchange among other characteristics.

However, as Coleman (1988) argues, closure of the social structure is important for the existence of effective norms and the trustworthiness of social structures. In Burt's theory the structural hole is the most efficient position one could take in a network. According to Coleman, reputation cannot arise in an open structure, and collective sanctions that would ensure trustworthiness cannot be applied. Because closure creates trustworthiness in a social structure, and because Burt's theory assumes open structures, it can be argued that Burt's theory cannot effectively handle norms and trustworthiness in relationships. As Brown (1998) puts it, the advantage of Burt's model lies in its generalisability. Its weakness lies in Burt's reluctance to admit environmental causal factors that influence the dynamic, processual aspects of the network's structuration.

In general there seem to be two theoretical approaches for understanding how social relations and networks create economic and social benefits for individuals in these networks (Uzzi, 1999). The weak-tie approach argues that a large network of arm's-length ties is most advantageous for these individuals. On the other hand there is the strong-tie approach, which claims that a closed tightly knit network of embedded ties is most advantageous. In our view embedded ties and atomistic neo-classical arm's-length ties are complementary. This view corresponds with the issue of non-linearity of social capital that we discussed earlier. Social capital should be optimised and not maximised. The reason for this may lie in the theoretical discussion on arm's length ties and embedded ties. When an actor is 'too' embedded in a network this may yield negative externalities. Nooteboom (2002) uses cognitive dissonance to explain why these negative effects may occur. He writes that 'we may subconsciously resist information that is in conflict with established and cherished views or convictions, particularly if it would require an admission of mistaken choices in the past' (Nooteboom, 2002, 28). It can be argued that this socio-psychological mechanism is stronger in relatively closed networks. The distinction between open and closed network structures is closely related to the earlier mentioned two types of social capital, bonding and bridging. Coleman's closure of the networks is related to bonding social capital, whereas Burt's open structure is of the bridging character.

Summarizing the above discussion on network theory rather bluntly, the structural dimension of social capital builds on the ideas of Burt, whereas the relational dimension

mainly builds on Coleman's ideas. The latter assumes closed networks to be important for trustworthiness. We elaborate on the concept of trust in the next section.

2.4.2 Where does trust come in?

Trust is mostly seen as the perception and interpretation of the other's expected dependability. Trust is based upon the expectation that one will find what is expected. It refers to the confidence that a partner will not exploit the vulnerabilities of the other (Barney and Hansen, 1995). As Zaheer et al. (1998) summarize, the concept of trust may be framed as an expectation of partner's reliability with regard to his obligations, predictability of behaviour, and fairness in actions and negotiations while faced with the possibility to behave opportunistically. Trust has to do with signalling that the actor will not play one-shot games and behave opportunistically.

The literature on trust is extensive⁶. Here we only summarize the main insights, relevant for our discussion on individual social capital. First we need to distinguish between two important types of trust (Luhmann, 1979): a) there is the micro-level, based on the emotional bond between individuals, which is more characteristic of primary and small group relationships, and b) the macro-level, more abstract relationships where trust is related to the functioning of bureaucratic systems (e.g. legal, political and economic). Besides Luhmann (1979) Parsons (1969) also sees trust as central to social order and the reduction of social complexity. Parsons places trust in the centre of the construction of social order. In his view, a common value system based on widely shared norms and values, stabilises interactions in a social system. Trust is grounded in pre-existing consensus and is a product of an effective integration of norms and values (Parsons, 1969). Trust fulfils an integrative function in the establishment of social order. Luhmann (1979) views trust as a social mechanism that reduces complexity and enables individuals to deal with the complexities and contingencies of modern life. Consequently, generalized trust also fulfils an economic function (e.g. Fukuyama, 1995). It is argued that more trust in a society reduces the need to set up institutional and organisational mechanisms to overcome principle-agent problems that arise at transactions between actors. Trust in this case serves as a substitute of contracts. In more developed countries, trust enables the organisation of complex transactions that cannot be 'arranged' in contracts (incomplete contracts). The lack of a proper institutional system makes even relatively straightforward transactions complex and unsafe and trust is needed to solve the problem of uncertainty associated with the transaction. In other words, the more trust, the lower the transaction costs.

For our discussion of the two levels of social capital, it is important to follow Luhmann (1979) and distinguish these two basic types of trust. Paxton (1999) makes a

⁶ As a result, numerous typologies of trust have been developed. The adjectives used in this literature often refer to the source of trust. For example knowledge based trust refers to the fact the behaviour of the other is predictable because one knows the other either from own experience or through reputation effects arising in networks. For our thesis it is important to follow Luhmann and distinguish between personal and generalized trust. We acknowledge that it is difficult, if not impossible to make one classification that fits all types of trust that exist. For example, institutions based trust is mostly of a generalized nature, but the fact that well functioning institutions allow two transacting partners to use contracts which strengthens their personal trust indicates that it is difficult to make this classification. Acknowledging the potential risk of not doing justice to the richness of this literature, we use the distinction between generalized and personal trust to improve structure and readability.

similar distinction between micro trust and macro trust (a perception of the trustworthiness of the ‘average’ person). She claims that ‘while trust in specific others may be important at more micro-levels of social capital, generalized trust is the important feature of national-level social capital’ (Paxton, 1999, 99)⁷. Hence, micro trust is relevant for our discussion on individual social capital whereas macro trust is relevant for aggregate social capital. Putnam phrases this distinction in terms of honesty. ‘There is an important difference between honesty based on personal experience and honesty based on a general community norm. [...] Trust embedded in personal relations that are strong, frequent and nested in wider networks is sometimes called thick trust. On the other hand, a thinner trust in “the generalized other” also rests implicitly on some background of shared social networks and expectations of reciprocity. (Putnam, 2000, 136). Putnam states that thin or generalized trust may be even more useful than thick or personal trust, because it extends the radius of trust beyond the roster of people whom we can know personally (Putnam, 2000, 136).

In his overview on the trust literature, Nootboom (2002) follows this distinction between macro sources, which apply apart from any specific exchange relation and micro sources arising from specific relations. Whereas the former arise from the institutional environment of laws, norms, and standards, the latter is personalized and therefore yields “thick” trust. The following table is taken from Nootboom (2002) and summarizes insights from the literature.

Table 2.1 Sources of cooperation

	Macro	Micro
Egotistic	Sanctions from some authority (the law, God, Leviathan, dictator, patriarch, organization), contractual obligation	Material advantage or self-interest: shadow of the future, reputation, hostages
Altruistic	Ethics: values, social norms of proper conduct, moral obligation, sense of duty	Bonds of friendship, kinship; routines, habituation, empathy

Source: Nootboom (2002)

At the individual level numerous typologies of trust have been developed. For an overview we refer to Nootboom (2002). One of the most commonly accepted typologies of trust besides the distinction macro (generalized) - micro (personal) is calculus-based trust, knowledge-based trust and identification-based trust (Nootboom, 2002; Janowicz and Noorderhaven, 2002)⁸. Calculus-based trust has to do with the fear for the consequences of not doing what one promised or said to do. Knowledge-based trust is grounded in the predictability of the other’s behaviour. This may be experience based or established through

⁷ To be precisely, Paxton (1999) uses the terms concrete and abstract trust.

⁸ Janowicz and Noorderhaven (2002) also include institutions based trust as a fourth type. I refrain from their institutions based trust as it refers to the macro level whereas the other three types are micro-based. Note that these authors argue that there are also institutions at work at the micro level. In this respect they discuss the role of procedural justice, i.e. the degree to which the process of decision making is judged as fair. In our view, this is to a large extent captured by the knowledge based and identification based dimensions.

reputation. Identification-based trust, finally, is based on the perceived similarity between partners yielding empathy and trust.

More in general, Nooteboom (2002) argues that trust is based on rational reasons and psychological causes. Reasons arise from a rational evaluation of the trustee's trustworthiness. This can be based on knowledge of the trustee inferred from reputation, records, norms and standards, or one own's experience. A psychological cause is empathy. This is the ability to share another person's feelings and emotions as if they were one's own, thereby understanding motives of action of the other. Empathy affects both one's own trustworthiness, in the willingness to make sacrifices for others, and one's trust, in the tolerance of behaviour that deviates from expectations. One will more easily help someone when one can identify with his or her needs. 'One can more easily forgive someone's breach of trust when one can identify with the lack of competence or the motive that caused it. Since one can identify with the other, one may sympathize with his or her action, seeing perhaps that this action was in fact a just response to one's own previous actions' (Nooteboom, 2002, 81).

On the continuum of rational reasons versus psychological causes, calculus-based trust is rationally based and identification-based trust converges to the psychological end. Knowledge-based trust is a kind of hybrid. On the one hand it is based on the ability of the partner, tested in the actual interaction process. On the other hand, Janowicz and Noorderhaven (2002) argue that knowledge based trust is based on the integrity of the partner, which is due to it's perceptive character related to psychological causes.

Trust is related to networks. Through the role of reputation, social networks can serve as a basis for deterrence-based trust. Burt and Knez (1995) show that what they call 'third party gossip' amplifies both the positive and the negative in relationships, because it makes actors more certain of their trust (or distrust) in another. Trust is associated with the strength of a relationship. Trusting relationships may develop inside a (closed) network, actors build up a reputation of trustworthiness that may become important information for other actors in the network (Tsai and Ghoshal, 1998). If this occurs, the network serves in a way as a system of checks and balances. Networks may then fulfil the function of implicit contracts. Greif's (1994) study of the medieval Maghribi traders is a clear illustration of these kind of reputation effects.

At the individual level, trust is regarded as a property of individuals or characteristic of interpersonal relationships. Through ongoing interactions firms develop trust around norms of equity or knowledge based trust (Gulati, 1998), which can be compared with Zucker's (1986) process based trust. Numerous studies have shown the importance of trust in economic transactions. These studies can also be seen as a critique or extension of Williamson's (1975, 1985, 1998) transaction cost theory. Ring and Van de Ven (1992) have shown that informal, personal connections between and across organisations play an important role in determining the governance structures used to organise transactions. Also Nooteboom et. al. (1997) and Gulati (1995) have shown that both trust and traditional factors from transaction cost economics are relevant for governing inter firm relationships. Gulati (1995) pointed to the fact that both transaction cost elements as well as social factors are relevant and important in studying inter-firm relationships and cooperation. Repeated ties between firms engender trust that is manifested in the form of the contracts used to organise

subsequent alliances. Trust and contractual safeguards are to some degree substitutes. He concludes that besides a transaction cost perspective, trust is an important component of the control mechanisms that are used within alliances. Regarding the transaction cost theory Gulati remarks: 'if the theory's emphasis on the transaction as the appropriate analysis is to remain viable, the interdependencies that result from prior transaction should be included' (Gulati, 1995, 106).

Another question is how trust relationships come into being that are not embedded in structures of personal relationships. Shapiro (1987) uses the principal-agent framework to discuss the role of several mechanisms that control trust relationships that are *not* embedded in structures of personal relations. She discusses so-called 'guardians of trust' like a supporting social control framework of procedural norms, organisational forms, and social control specialists. All kinds of mechanisms come into life in an atomistic market when transactions are not embedded in a social network, where trust and personal relationships are present. Or, as Zucker (1986) says, there are markets for trust production.

Trust fulfils several economic functions. First, through third parties, trust provides options for control in social networks. Second, trust is linked with the facilitation of highly uncertain transactions. It reduces the uncertainty of these kinds of transactions, especially the relational risk involved. Uzzi shows that 'trust facilitates the exchange of resources and information that are crucial for high performance but are difficult to value and transfer via market ties' (1996, 678). The third function of trust is related to its information function. As Malecki puts it (2000, 195) 'through the economic and social relationship in the network, diverse information becomes inexpensive to obtain'. When discussing alliances, Gulati argues that 'trust not only enables greater exchange of information, but it also promotes ease of interaction and a flexible orientation on the part of each partner' (1998, 308). It operates as a mechanism that facilitates communication and cooperation between firms. 'Trust relationships can result in a supplier exceeding contractual requirements, whether by early delivery, higher quality, or some other means of assuring goodwill' (Sako, 1992). Nooteboom (1999) even states that too detailed and formal contracts may seriously inhibit the growth of trust. Trust yields more flexibility and economises on the costs of governance (Nooteboom, 1996).

Another benefit of trust as a vehicle in forming alliances is the reduction of search costs for alliance partners. Firms in social networks of trusting relationships can ally with someone they already know (Gulati, 1995, 107). However, if Granovetter's (1973) comment is correct and the weak ties form the access to new information, because most of the local contacts are redundant, Gulati's result contradicts with Granovetter's view. Though Gulati may be correct in stating that trust facilitates the search for an alliance partner in an existing social network, Granovetter may be right in stating that new information can be obtained from outside the social network via a weak tie. The issue is what the marginal costs are of extending your relations through a weak tie, that you do not trust as much as someone that you have strong ties with, and on the other hand the extra cost of acquiring information through existing strong ties that you trust. This tie is cheaper to come to (more trustworthy), but may have less valuable information to give to you.

2.4.3 The cause- and effect structure of social capital at the individual level

Now we have discussed network theory and some basic conceptions on trust we are able to summarise our insights on the cause and effects structure of social capital at the micro level. We have developed a conceptualisation of social capital at the micro level in terms of network resources. In line with the relational view, it is argued that there are important external sources of capabilities that firms draw upon. Gulati (1999) labels these as 'network resources'. These network resources enable and constrain firms' abilities to acquire competitive capabilities through exposure to information and opportunities (McEvily and Zaheer, 1999).

Adler and Kwon (2002) discuss three benefits of social capital. The first is information. Building on the network perspective of Burt, social capital facilitates access to broader sources of information. And in line with Coleman's network thinking, social capital improves information's quality, relevance and timeliness. According to McEvily and Zaheer (1999), exposure to many different external contacts is essential to learning in a competitive environment. Based on a sample of 227 job shop manufacturers in the Midwest United States, they show that network ties are important in the development of competitive capabilities by broadening and deepening market knowledge. Moreover, a great number of network links implies exposure to a broad set of opportunities for learning. A network of embedded ties accumulated over time can become the basis of a rich information exchange network (Gulati, 1999). Through embeddedness network ties improve decision making because they 'appear to reduce bounded rationality by expanding the range of data attended to and the speed of processing' (Uzzi, 1997).

The second kind of benefit is found in influence, control and power. As the costs of sharing know-how in inter-organisational relationships are high, effective mechanisms must be in place to allow knowledge sharing and discourage free riding (Dyer and Singh, 1998). Dyer and Singh claim that self-enforcing governance mechanisms are crucial in this respect. Yli-Renko et al. (2001, 591) argue that informal norms of reciprocity and trust may discourage free-riding because (1) relational governance norms are not time-dependent and may appreciate in value as the relationship progresses (cf Putnam who argues that the use of social capital increases its value), (2) actions are more freely undertaken on behalf of the exchange partner when reciprocal benefits are expected, and (3) the likelihood of violation is diminished when high-quality hard-to-replace relationships exist.

A final benefit of social capital refers to the fact that a closed social network encourages compliance with local - sometimes implicit - rules and customs and reduces the need for formal monitoring. Shared goals and expectations reduce the need for formal monitoring.

However, there are also potential dangers of network relationships. According to Portes and Sensenbrenner (1993, 1338) 'it is important not to lose sight of the fact that the same social mechanisms that give rise to appropriable resources for individual use can also constrain action or even derail it from its original goals'. Other authors also note that more is not necessarily better (e.g. Brown, 1998; Woolcock, 1998). Relation specific capital such as trust and tacit understanding develops over time (Tsai 2000, 927). By intensifying the frequency and depth of information exchange, social interaction increases relation specific common knowledge (Yli-Renko et al., 2001). Common knowledge, in turn, increases relation-specific capital. As several authors (e.g. Gulati, 1995) have shown, social

relationships (in contrast to market or spot relations) are path dependent. At the firm level social capital influences network formation that proceeds through the establishment of new relationships (Tsai, 2000, 927). Prior linkages determine the formation of future linkages.

Relation specific capital – or as Dyer and Singh (1998) call it ‘human cospecialisation’ - increases as partners develop experience working together. They accumulate specialised information, language and know-how, which allow them to communicate efficiently and effectively. Frequent and close interactions create a common point of view. The potential gains from this capital influence partners in such a way that they tend to focus on existing relationships instead of new ones. If the tendency to stick to existing linkages is dominant social networks can suffocate. Trust-based embedded relations between firms may become too exclusive and durable, thereby yielding rigidities and lack of innovation (Nooteboom, 2002).

Engaging in a relationship may result in the development of dedicated linkages that further enhance the benefits from engaging in the joint relationship (Dyer and Singh, 1998). The fact that these relational capabilities are partly path-dependent could result in a potential loss of flexibility. Embeddedness may therefore reduce adaptive capacity. This may imply the danger of lock-in effects and path-dependency. These lock-in effects can be strengthened by processes of cognitive dissonance in tight groups (Meyerson, 1994; Rabin, 1998). Individuals that make up a dense network tend to develop a commitment to one another and to their group. Information that disturbs the consensus of the group’s perception of reality is likely to be rejected.

Yli-Renko et al. (2001) study the role of social capital in facilitating external business knowledge acquisition and exploitation. Using a sample of 180 young technology-based firms in the United Kingdom, they find that social interaction and network ties are positively related to knowledge acquisition, but that the quality of the relationship is negatively associated with knowledge acquisition. Relationship quality is defined in terms of the presence of reciprocity and trust. Put differently, the structural dimension of social capital - an actor’s network position - has a positive effect on the ability to acquire new knowledge, but a high quality relationship yields constraining effects on the ability to acquire new knowledge. A high-quality relationship may reduce the transaction costs associated with managing this relation, but may lead to the expectation that information is provided when needed, so that the incentive to acquire external knowledge is reduced (Yli-Renko et al., 2001). In this case, the closure of the network may result in inertia. Besides this, Adler and Kwon (2002) mention that the maintenance of strong ties may be costly. The assumption that strong ties are better than weak ties for reasons discussed above, neglects the costs of building and maintaining the relationship.

Hence, some dimensions of social capital may at times inhibit exchange and combination processes and constrain rather than enable learning (Nahapiet and Ghoshal, 1998).

2.5 Structuring the literature

We have seen that the study of social capital extends to multiple levels of analysis. Whereas some researchers focus on the aggregate level of nations and regions (Fukuyama, 1995; Putnam 1993, 1995; Knack and Keefer, 1997), others have studied social capital at the individual level (Coleman, 1988; Gulati, 1999; McEvily and Zaheer, 1999; Yli-Renko, 2001; Tsai, 2000, Tsai and Ghoshal, 1998).

Social capital at the aggregate level is thought of in terms of norms of cooperation. At the individual level social capital is not defined in a normative way, but relates to network resources. Social capital at this level is thought of as a set of resources embedded in relationships. Putnam links trust with the density of associational membership in a society. According to him, trust and engagement are two facets of the same underlying factor, which is social capital. At the aggregate level social capital (norms of cooperation) is reflected in degree of generalized trust and density of associational activity.

At the individual level trust is an element that is necessary for the existence of social capital. As trust is a self-enforcing mechanism trust not only serves as a cause of social capital but also as an effect of social capital. The social capital of a firm consists of its relationships and network, which may serve as a resource. But for building and keeping this network, trust is crucial. At the aggregate level, social capital is assumed to generate positive effects to society as a whole. At the micro level, these potential benefits increase firm's efficiency and productivity, and constitute advantages that go beyond contracts.

We have shown that the distinction between these two levels is important. Conflating norms and networks under the same conceptual umbrella makes it difficult to understand causal flows (Fox and Gershman, 2000). When discussing the risks of social capital at the aggregate level, Adler and Kwon (2002, 31) state that the costs of the broader aggregate are echoed in the costs at the individual level and they suggest it is merely a matter of summing. However, the insights on social capital at the individual level cannot be applied to the macro level through simple aggregation. The trust that figures prominently in firm level studies of relationships and embeddedness is not the generalized trust of the political science literature. The reduction of transaction costs because of a trusting relationship cannot simply be translated to the statement that high levels of generalized trust reduce overall transaction costs in an economy, which positively affects GDP-growth. The leap from individual- to aggregate-functioning is illegitimate, because what may be true for individuals may not be true for the society as a whole (Fine, 2001, 102).

In fact, by extending the traditional field of economics into the sociological discipline, researchers in this field of social capital have 'as a by effect' brought on themselves a central theoretical problem in sociology namely that of the transition from the level of the individual to the aggregate level. Hence, as such this level problem in the field of social capital is not surprising⁹.

Table 2 summarizes our main conclusions. As discussed in the previous sections, social capital at the aggregate level refers to norms of cooperation. At the individual level a central element of social capital is networks of individual (firms) and the resources these networks

⁹ In chapter 8 this multi level problem will be explicitly discussed.

may provide to a firm. We have also discussed the cause and effect structure and the potential benefits and costs of social capital at both levels. Some keywords are mentioned in table 2.

Table 2.2 Social capital in economics

	Aggregate level (nation/region)	Individual level
Definition	Norms of cooperation	Network resources
Reflected in....	Degree of generalized trust Associational activity	Network relationships
Cause (where does social capital come from?)	Culture , development of norms Socialisation processes Game theoretical approaches History	Formation capabilities Prior alliances (specific) Trust in partner
Effect	Positive: <ul style="list-style-type: none"> • Civil society • More easy provision of collective goods • Limit the need for third-party insurers→ reduction of transaction costs • Higher economic growth Negative: <ul style="list-style-type: none"> • Too powerful groups in society (Olson argument, rent-seeking) • Exclusionary effects of groups 	Positive: <ul style="list-style-type: none"> • Informational advantages • Beyond contract advantages Negative: <ul style="list-style-type: none"> • Inertia • Lock-out of new opportunities • Costs of building and maintaining ties
Literature	Macro-Sociology Political science Economics	(Micro) sociology, in specific organisation studies, building on the relational view and social network theory
Type of studies	Mostly theoretical, difficult to prove empirically	Theory and empirics. More empirics, relatively easy to gather data with decent internal validity
Future directions of research¹⁰	<ul style="list-style-type: none"> • Are there basic cultural differences in norms of cooperation? • What causes international differences in norms of cooperation? • The interplay between voluntary associations at the micro level and institutional and cultural features of democracy at the macro level 	<ul style="list-style-type: none"> • What influences the capacity of firms to engage in networks? That is, what influences the alliance formation capabilities of firms? • Is there a trade-off between the costs of strong ties and the reduction of transaction costs?

¹⁰ Future directions of research will be discussed in chapter 8.

At the aggregate level literature on social capital is mostly found in the broader fields of (macro-) sociology, political science and increasingly general economics. Researchers like Luhmann (1979), Fukuyama (1995) and Putnam (1993, 1995, 2000) play an important role in the literature on aggregate social capital. At the individual level, the study of social capital attracts sociologists, in specific form the field of organisation studies. Traditionally, authors have diverse backgrounds, and most of them have some basic training in (micro-) sociology.

Studies at the aggregate level are mostly theoretical. This is probably caused by internal validity problems. That is, gathering data that measure what you want to measure is difficult, especially when examining the cause and the effect of social capital (cf. Bovenberg, 2000). So far most studies focused on relating proxies for social capital with economic growth (Knack and Keefer, 1997) and/or governance performance (Putnam, 1993). None of the scarce empirical studies has been able to directly measure social capital in terms of norms of generalized reciprocity. Associational activity and generalized trust can at most be seen as a proxy for norms of cooperation. But there are several problems with these proxies, especially with the measurement of trust¹¹. The theoretical reasoning that links trust to efficiency at firm level is not the same as the intermediating mechanism between generalized trust and aggregate economic efficiency. By measuring generalized trust we do not consider the quality of the tie. But also, we do not know whether the associations we study are closed or open. Do they allow an individual to build bridging social capital (Paxton, 1999)? According to Paxton (1999), social capital involves two components, a more quantitative and a more qualitative component. The first component refers to the objective associations between individuals, which indicates that individuals are tied to each other in social space. The second component is about the quality of the tie. This means that the ties between individuals must be of a particular type (trusting).

The validity problem of social capital is less prominent at the individual level. By means of surveys researchers are able to capture the social content of a specific relationship and a firm's position in network better than at the aggregate level. Regarding the relational dimension, numerous researchers have tried to measure the degree of trust in specific relationships. For example, in a study on intra-organisational linkages Tsai (2000) measures trustworthiness at the business unit level. Inter-unit trust is measured by asking two questions; 'suppose your unit is looking for business partners inside your organisation for a joint project: which units are you confident of that they will do what you require (what you believe they should do) even without writing a contract to clearly specify their obligations?' and 'which units can provide your unit with reliable information?' A related issue is the duration of the relationship. As we argued, the development of relations may take much time before it yields significant impacts on a firm's performance. Building productive social capital takes time. Duration is something that can be directly measured by a survey. Yli-Renko et al (2001) measure the depth of a relationship by a construct labelled 'social interaction'. This construct consists of two items, namely 'we maintain close relationships with the customer' and 'we know this customer's people on a personal level'. Both reflect the degree of social interaction or the depth of the relationship. Building on Nahapiet and Ghoshal (1998), they use a second dimension of social capital, i.e. the relationship quality (or trust). This is measured by the following items: 'In this relationship both sides avoid making demands that can seriously

¹¹ See more extensively in chapter 8.

damage the interests of the other', 'In this relationship neither side takes advantage of the other even if the opportunity arises' and 'this customer always keeps his promises to us'.

The structural dimension of social capital, in other words the position of a firm in a network, is operationalised in at least two ways in the literature. First, researchers have studied the embeddedness of firms in larger social networks. Secondly, scholars have tried to measure the extent of information available to actors by measuring the centrality of a firm's location in a network. In explaining a firm's likelihood of failure in a certain period, Uzzi (1996) uses several independent variables to measure the degree of embeddedness. First he uses a so-called 'first order network coupling'-construct. This is measured by calculating the number of trading partners. A contractor in a first order network of 3, i.e. 3 manufacturers, which sends 40% of its output to A, 50% to B and 10% to C has a first order network coupling value of $(.40)^2 + (.50)^2 + (.10)^2 = .42$. This value becomes 1 if a contractor does 100% of its work for one manufacturer. The second variable Uzzi uses to measure network embeddedness is 'second order network coupling'. This is an indication of the degree to which a firm uses arm's length ties or embedded ties or a mix of these to transact. Uzzi (1996) also measures social capital embeddedness by a dummy variable that is coded 1 if a firm has network ties to a business group. A business group is defined as a network of independent firms that are linked by ties of friendship, family, or shared equity, but are not controlled formally by a legal or administrative entity.

By including the network centrality of a firm, researchers have tried to measure the extent of information available to actors. However, this has mostly been done by measuring the clique overlap centrality or closeness of a firm to the rest of the firm in the inter-firm network, both directly and indirectly (Gulati, 1999). The closeness measure is also known as the breadth of ties, i.e. how widespread are the direct and indirect connections to all possible partners in the network? A related question has been used by McEvily and Zaheer (1999) who operationalise Burt's idea of structural holes and the non-redundancy of ties by asking interviewees 'to write down the initials of the five most important people *not* employed by their company that they can rely on for advice about managing their business'. Moreover, they ask the interviewees to indicate if these people know each other. In a study on *intra* organisational linkages Tsai (2000) uses prior network centrality to operationalise the structural dimension of social capital. An actor that is centrally located in a network may possess advantages in getting access to certain resources or actors. The above discussion on validity makes clear that measuring social capital at the micro level seems somewhat easier than at the aggregate level. This is exactly the reason why most studies at the aggregate level are theoretical and why there is a lack of solid empirical studies at this level.

2.6 Conclusion

In this chapter we explored the literature on social capital. Our most important aim has been to structure the literature on social capital. We tried to do so by making a distinction between the aggregate and the individual level of social capital. The fact that social capital means so many different things makes it a convenient concept for different agendas. As Fine (2001) argues, one of the merits of social capital as a conceptual tool is that it seeks to integrate economic and non-economic analyses or at least complementarities between the two. The

social and the capital tend to stand for the non-economic and the economic, respectively. In other words, something that is essentially social might serve as an asset. If we wish to employ social capital as an analytical tool in explaining the economic success of nations or firms, the distinction we made is helpful, perhaps even crucial.

Chapter 3

Trust and Economic Growth; A Robustness Analysis

This chapter is a joint work with H.L.F. de Groot and A.B.T.M. van Schaik

3.1 Introduction

Economists increasingly pay attention to social capital as an important determinant of macroeconomic performance (see, for example, Durlauf, 2002a, for an introduction to a symposium on social capital in *The Economic Journal*). The revival in interest for social capital has been triggered by intuitively appealing studies of Putnam et al. (1993) and Fukuyama (1995). Putnam's 1993 *Making Democracy Work* has raised the interest of economists in more culturally based factors that influence economic growth. Also Fukuyama's study on *Trust* has contributed to the increased attention for the relevance of social capital in economics. According to Fukuyama (1995), societies endowed with generalised trust enjoy a form of social capital that – complementary to traditional factor endowments such as labour and capital – contributes to their success in modern economic competition. Fukuyama argues that non-family or generalised trust is of importance for successful performance in advanced economies. Although the way economists use a traditionally sociological concept like social capital can be criticised (Fine, 2001), it is probably one of the most successfully introduced 'new' concepts in economics in the last decade.

Empirical evidence that aims to identify a role for social capital has been accumulated in various empirical research traditions. We refer to Durlauf (2002b) for a critical review and discussion of three leading studies in the field. Two seminal papers in the macroeconometric growth literature on social capital are Knack and Keefer (1997) and Zak and Knack (2001). Knack and Keefer investigate whether social capital has an economic payoff by studying a cross section of 29 market economies. For this purpose, they explore – amongst others – the relationship between interpersonal trust, norms of civic co-operation, and economic performance. In their empirical analysis, they primarily focus on the role of trust as they feel it is the most important indicator of social capital. The empirical measure that they use to proxy for trust is based on the World Values Survey (WVS) that contains extensive survey data on respondents in a number of countries. More specifically, the level of trust in a society is assessed by using the question: "Generally speaking, would you say most people can be trusted, or that you cannot be too careful in dealing with people?". Trust is measured as the percentage of respondents in each country that replied "most people can be trusted". The empirical results of Knack and Keefer point at a statistically significant effect of trust on growth. They state that 'the coefficient for trust [...] indicates that a ten percentage point rise in that variable is associated with an increase in growth of four-fifths of a percentage point' (Knack and Keefer, 1997, 1260).

Zak and Knack (2001) extend the analysis by adding 12 countries to the sample of the Knack and Keefer. Moreover, they exclusively concentrate on trust and the factors that produce trust. Most of the data that they use are taken from Inglehart et al. (2000) and are a mix of 1981, 1990 and 1995-6 WVS survey results. These data are complemented with data from the Eurobarometer and a government-sponsored survey in New Zealand. On the basis of their analysis for 41 countries, Zak and Knack conclude that trust has a significant impact on aggregate economic activity. They state explicitly that 'growth rises by nearly 1 percentage point on average for each 15 percentage point increase in trust (a one standard deviation increase)' (Zak and Knack, 2001, 307–09).

The previously described empirical analyses fit in the class of Barro regressions (after Barro, 1991). These regressions aim at finding the factors that can explain the variation in economic growth performance across large cross sections of countries. This type of analysis was severely criticised in an influential article by Levine and Renelt (1992) for its perceived lack of robustness. For some time, this analysis was considered as a ‘kiss of death’ for the empirical analysis of economic growth using Barro regressions. More recently, the robustness criterion adopted by Levine and Renelt was challenged by Sala-i-Martin (1997), who developed an alternative criterion to judge robustness. His approach results in a more ‘positive’ view on the possibilities to explain growth in a satisfactory and robust way. Nevertheless, an important problem with this literature is that usually authors do not properly establish that their choice of regressors is rich enough to avoid that findings that are reported result from omitted variables that causally affect growth and are correlated with the variable of interest (in this case, trust). We refer to Durlauf (2002b) for an elaboration of this point. This problem points at the relevance of a properly conducted robustness analysis.

The evolution of the literature on robustness exemplified by the papers of Levine and Renelt (1992) and Sala-i-Martin (1997) in a sense reveals that there is a lack of a generally accepted definition of robustness. Or alternatively, it illustrates that robustness is a multi-dimensional concept that cannot be analysed with one single indicator. In this chapter, we start from the latter notion regarding the concept of robustness. We analyse the robustness of the results obtained by Zak and Knack¹ along four dimensions of robustness. First we concentrate on the statistical significance of trust. We do not only apply the Extreme Bounds Analysis, but also consider the variations proposed by Sala-i-Martin. The second dimension along which we explore the robustness of the results on trust is the influence of changing sets of conditioning variables on the estimated effect of trust. Third, we analyse the sensitivity of the results for using different proxies or specifications for ‘basic’ variables like human capital. Finally, we investigate the effects on the significance and effect size when the sample of 29 countries of Knack and Keefer is extended with 12 countries as has been done by Zak and Knack.

Our results indicate that Zak and Knack’s conclusion on trust is reasonably robust along most of the dimensions. In terms of significance, we show that their results are highly robust. This also holds – although to a lesser extent – when we explore robustness in terms of effect sizes. Interestingly, we find that the extension of the Knack and Keefer sample with 12 countries strongly influences the robustness of trust, both in terms of significance and effect size. This analysis reveals that the inclusion of less-developed countries with ‘generally speaking’ low scores on trust is relevant for finding robust results on the relationship between growth and trust.

We proceed with a general discussion on the concept of robustness in Section 2. In Section 3, we discuss the data and the methods to analyse robustness along four dimensions. The results of the different tests of robustness are discussed in Section 4. Section 5 concludes.

¹ In the main text, we almost exclusively focus on the robustness of the study with the most extensive sample, i.e. Zak and Knack (2001). However, where appropriate, we will compare the results with those for the Knack and Keefer (1997) sample.

3.2 Robustness

The empirical literature that has aimed at finding the factors that can explain variation in economic growth has predominantly made use of simple linear cross-section regression equations. This literature has resulted in a plethora of statistically significant correlations between growth and explanatory variables such as investments, initial income, openness to trade, degree of capitalism, etc. However, for almost all of these correlations, there are counter-examples indicating insignificant (or even opposite) correlations casting doubt on the robustness of the obtained results.

The issue of robustness was explicitly addressed in a seminal paper by Levine and Renelt (1992). Their analysis is based on the Extreme Bound Analysis as developed by Leamer (1985). The Extreme Bound Analysis (EBA) starts with the estimation of a series of regressions of the form

$$\gamma = F\alpha_j + \beta_{ij}x_i + C_j\gamma_j + \varepsilon_j, \forall i, j, \quad (1)$$

where γ is a vector of per capita GDP growth rates, F is a matrix of variables that are always included in the regressions (including a constant) with the associated parameter vector α_j , x_i is the variable of interest with parameter β_{ij} , and C_j is a matrix of a subset of conditioning (switch) variables taken from the full set of potentially relevant explanatory variables for economic growth, with γ_j for the corresponding vector of parameter estimates. ε_j is a well-behaved vector of errors. The subscript i indexes the variable of interest and j the different combinations of conditioning variables. The matrix F contains variables that are typically included in almost any empirical analysis of economic growth. Among these variables are indicators for initial income to capture (conditional) convergence, and indicators for physical and human capital accumulation to capture the effects of (changing) capital stocks on economic growth. In the paper by Levine and Renelt, these variables are initial income, the investment rate, the secondary school enrolment rate and the rate of population growth. In his modification of the Levine and Renelt analysis, Sala-i-Martin (1997) uses initial income, life expectancy and the primary school enrolment rate as F -variables. The variable of interest can be any variable that the researcher thinks to be of vital importance in explaining variation in economic growth. In this chapter, the main variable of interest is trust. Finally, the pool of additional explanatory variables consists of a wide range of indicators that in at least some studies have been identified as potentially relevant to explain variation in economic growth. For an overview of the wide range of variables that can sensibly belong to this pool, we refer to Durlauf and Quah (1999).

The basic idea of an EBA is to analyse the consequences of changing the set of conditioning variables C for the estimated effect of x_i on the rate of growth. For each estimated model j (where the model is characterised by its specific set of conditioning variables included in C), one obtains an estimate $\hat{\beta}_{ij}$ and a standard deviation $\hat{\sigma}_{ij}$. Leamer defines the upper and lower extreme bounds as, respectively, the maximum value of $\hat{\beta}_{ij} + 2\hat{\sigma}_{ij}$ and the minimum value of $\hat{\beta}_{ij} - 2\hat{\sigma}_{ij}$. A variable x is labelled as robust if the upper and lower extreme bound are both of the same sign. This condition boils down to *all* estimated coefficients being statistically significant at (approximately) 95% and of the same sign.

In a critique on the application of the EBA approach to assess the robustness of growth results, Sala-i-Martin (1997) proposed to relax the criterion imposed by Leamer. His basic argument is that the EBA-condition that a relationship should be significant as well as of the same sign in each and every regression equation is too strict. Instead, he proposes to consider the entire distribution of the estimated coefficients. His assessment of robustness is based on the fraction of the density function of the estimated coefficient that is lying to the right of zero. Provided that this fraction is sufficiently large (small) for a positive (negative) relationship, the relationship can be labelled robust. In his application, Sala-i-Martin uses a ‘critical fraction’ of 95%. Obviously, the number of robust relationships to be found by applying this less strict criterion increases.²

This discussion illustrates that there is no uniform definition for robustness. This is explicitly recognised in Florax et al. (2002), who consider a range of definitions of robustness. They analyse the sign, size, and significance of regression results. The analysis extends the work by Levine and Renelt and Sala-i-Martin by not only considering a wide range of robustness definitions but also, and more importantly, by explicitly analysing the robustness of the sizes of the estimated effects. The robustness criteria adopted by Levine and Renelt and Sala-i-Martin focus very heavily on statistical significance. Whether the estimated effect sizes are robust to changes in the conditioning set of variables is hardly addressed. We refer here to McCloskey (1985), and McCloskey and Ziliak (1996), for a pervasive critique on this practice in economics. To assess robustness along this dimension, Florax et al. (2002) extend the definition of robustness by requiring that the average estimated effect sizes conditional upon the inclusion of a particular variable are within predetermined bounds from the overall average estimated effect size. On the basis of this analysis, they conclude that the range of robust variables is – in contrast to the positive conclusion by Sala-i-Martin – fairly limited.

In the remainder, we assess the robustness of the relationship between growth and trust as analysed by Zak and Knack (2001) along four dimensions. First, we concentrate on the statistical significance. Second, we explore the robustness of Zak and Knack’s results on trust in terms of effect sizes. And thirdly, we analyse the sensitivity of their results by allowing for different proxies or specifications for the set of fixed variables, i.e., initial income and human capital accumulation. And finally, we explore the influence of the composition of the sample. Starting with the sample of 29 countries in Knack and Keefer, we investigate the effect of the 12 countries added in Zak and Knack on robustness in terms of significance and effect size of the trust variable.

² An alternative way to relax the criterion is to apply to so-called Reasonable Extreme Bounds test as proposed by Granger and Uhlig (1990). This test constructs the Extreme Bounds on the basis of a subset of estimated coefficients derived from regression equations with a relatively high goodness of fit measure. The logic for this test resides in the notion that regression equations with a low goodness of fit are less likely to be the correct ones. This can be seen as a justification for the exclusion of estimated coefficients derived from those equations. An alternative for this approach is the procedure of weighing regression results as proposed by Sala-i-Martin (1997).

3.3 Method and data

The dataset used in this study is an extended version of the dataset constructed and used by Zak and Knack. Its core consists of:

- (i) the dependent variable, being per capita GDP growth over the period 1970–1992 (as constructed from the Penn World Table (Summers and Heston, 1991));
- (ii) the independent variables used by Zak and Knack, being the initial level of GDP per capita in 1970, schooling attainment for 1970 (mean years for the population aged 25 and over) from Barro and Lee (1993), the price of investment goods in 1970 as a percentage of US prices (from Summers and Heston, 1991), and the trust variable.

This dataset is further extended by a range of variables that have previously been identified as potentially relevant explanatory factors for economic growth (see, for example, Durlauf and Quah, 1999, for an overview). This leaves us with 88 variables. However, we do not consider all potentially relevant variables identified in the literature for our robustness analysis of the relationship between trust and economic growth. Instead, we only include those variables that can reasonably be argued to be exogenous to trust. The reason for this restriction is that if one expects that the variable of interest (*viz.* trust) influences growth through the variable to test robustness, then a reduction in significance of this variable does not necessarily result in a valid conclusion about robustness, but instead confirms the underlying hypothesis of multicollinearity.³ In order to limit the problem of multicollinearity affecting the conclusion regarding robustness too heavily, we have decided to select conditioning variables that have a correlation coefficient with trust of less than 0.25 (in absolute value). Furthermore, we have added the investment ratio.⁴ This leaves us with 22 switch variables used for the robustness analysis (see the appendix for an overview of these variables and their sources; the dataset is available upon request from the authors). In addition we have applied a 0.50 correlation criterion, resulting in 50 conditioning variables.⁵ Logically, the 22 variables are a subsample of these 50.

³ We are grateful to the reviewers for pointing this out.

⁴ Although the investment ratio is generally acknowledged to be endogenous, we have decided to include it because it is one of the central variables in the Zak and Knack paper and because it is commonly included in most of the empirical growth studies. Zak and Knack estimate two different basic growth regressions. One in which the investment ratio is not included (model 2 in their Table 1) and one in which it is included (in addition to the price of investment goods (model 3 in their Table 1). In both cases, they obtain a statistically significant result for trust. They conclude that ‘controlling for investment rates in the growth regression, the trust coefficient declines somewhat’ (Zak and Knack, 2001, 309). As they seem to be indifferent with respect to including or excluding the investment ratio we have decided to include it as one of the switch variables. It is to be noted that including the investment ratio as one of the fixed variables or excluding it entirely from the set of switch variables hardly influences our results on trust that we will present in this chapter. In so far that the results are influenced, they are in line with the findings reported by Zak and Knack. For example, they write in footnote 17 on page 309 that trust was no longer significant when investment was included as a regressor in the Knack and Keefer sample. Our analyses confirm their conclusions on the role of the investment ratio and the effect on (the robustness of) trust.

⁵ The dataset and the associated robustness results that are obtained when imposing the .50 selection criterion are available upon request. The results are in line with the intuition that the ‘degree’ of robustness of the relationship between trust and growth declines, once more variables are allowed to be included in the set of switch variables that are (highly) correlated with trust. The inclusion of such variables exacerbates the problem of

Starting from this dataset, our analysis of the robustness of the results described by Zak and Knack proceeds in two steps. First, we construct a database with the Barro regressions that we use for our robustness analysis. The regressions contained in this dataset are estimated with a varying set of conditioning variables as was done in the sensitivity analyses that we have discussed before. The variables that we take as fixed (the *F*-variables) in our analysis are a constant term, initial income, schooling and the price of investment goods relative to the USA. These are the variables that are also included in all the regression equations estimated by Zak and Knack (in their Table 1, 308). The subset of conditioning variables (the *C*-variables) is taken from the full set of 22 explanatory variables mentioned above. In each regression equation, we include three conditioning variables.⁶ The size of the database that results from estimating all potential regression equations by combining the 22 switch variables in all possible combinations of three is equal to 1540 equations ($=\frac{22!}{3!(22-3)!}$).⁷ After the construction of the dataset along these lines, we can assess the robustness of the relationship between trust and growth along the four dimensions mentioned earlier.

3.4 Robustness analysis

This section describes the results of our robustness analyses. The different subsections correspond with the four dimensions along which we explore the robustness of the relationship between growth and trust. In Section 4.1, we report on a series of robustness tests, ranging from the Extreme Bounds Test to a simple sign test. Section 4.2 analyses the robustness of the results in terms of estimated conditional effect sizes. Third, in Section 4.3 we consider the sensitivity of the results for the choice of the set of fixed variables. And finally, in Section 4.4 we compare the sample of 29 countries of Knack and Keefer with the larger sample of Zak and Knack. We explore the statistical robustness of trust in terms of significance and mean effect size when adding the 12 new countries included in the Zak and Knack study to the Knack and Keefer sample.

3.4.1 Dimension 1: Significance

Table 1 contains the outcome of the exploratory robustness analysis that we performed on the rate of economic growth. The table contains for the three fixed variables, the trust variable and the 22 switch variables: the mean of the estimated coefficients, their standard deviation, an associated 95% confidence interval, the fraction of positive estimated coefficients, the fraction of significantly positive and significantly negative estimated coefficients and the outcomes of six robustness tests. We are of course mainly interested in the robustness of the relationship between trust and growth. In addition, however, we have also considered the robustness of the switch variables themselves. In those cases, for reasons of comparability, we restrict the number of (additional) switch variables to be included to two (so that also in those

multicollinearity and therefore tends to reduce the significance level of the trust coefficient and increase its variability.

⁶ This number is admittedly arbitrary. We have experimented with including two or four conditioning variables, but this hardly changes the results.

⁷ The regression equations were estimated with a software package developed for robustness analysis, *MetaGrowth 1.0* (see Heijungs et al. 2001).

cases, we have seven explanatory variables in each and every regression equation, apart from the constant). What thus remains is a set of 22 variables that can be added in groups of two. This leaves us with 210 $(=(22-1)!/(2!(22-3)!)$ regression equations to be estimated.

The first and second robustness test reported in Table 1 (T1 and T2) are the strong and weak sign test, respectively, indicating whether all or at least 95% of the estimated coefficients are of equal sign. The third and fourth robustness test are the strong and weak EBA test, indicating whether all or at least 95% of the estimated coefficients are statistically significant and of the same sign. The fifth column reports the results of the weighted weak EBA test that indicates whether the weak EBA test is passed. In this test, effect sizes are weighted with the log-likelihood. The sixth column reports the fraction of cumulative density function that is to the right of zero.⁸ For this criterion, we label a variable robust if this fraction exceeds 95% or is less than 5%.

Table 3.1 Main estimation and robustness results for growth regressions*

Variable name	Mean	St. dev.	Conf. Int. left	Conf. Int. right	Positive	Sign +	Sign -	T1	T2	T3	T4	T5	T6
Schooling	-0.084	0.063	-0.104	-0.064	8.8%	0.0%	0.0%	-	-	-	-	+	0.287
Real GDP per capita 1970	-0.110	0.0725	-0.133	-0.087	10.3%	0.0%	0.7%	-	-	-	-	+	0.144
Investment good price 1970	-0.035	0.008	-0.038	-0.033	0.0%	0.0%	87.5%	+	+	-	-	+	0.003
Trust	0.061	0.011	0.058	0.064	100.0%	99.9%	0.0%	+	+	-	+	+	0.999
Confucius	7.991	0.411	7.778	8.204	100.0%	100.0%	0.0%	+	+	+	+	+	0.999
Investment/GDP	0.128	0.014	0.120	0.135	100.0%	98.1%	0.0%	+	+	-	+	+	0.998
Outward Orientation	0.774	0.224	0.658	0.891	100.0%	46.66%	0.0%	+	+	-	-	+	0.972
Buddhist	2.520	0.667	2.175	2.866	100.0%	31.90%	0.0%	+	+	-	-	+	0.967
Accessibility	0.372	0.253	0.241	0.503	90.0%	0.0%	0.0%	-	-	-	-	-	0.667
Area (* 10 ⁴)	0.316	0.245	0.189	0.443	94.7%	0.0%	0.0%	-	+	-	-	-	0.650
Black Market Premium	0.026	0.048	0.001	0.052	74.2%	0.0%	0.0%	-	-	-	-	-	0.577
Public Investment	1.205	3.587	-0.652	3.063	65.2%	0.0%	0.0%	-	-	-	-	-	0.551
Terms of Trade	-0.672	6.334	-3.954	2.608	35.7%	0.0%	0.0%	-	-	-	-	-	0.475
Exchange Rate Distortions	-0.001	0.002	-0.003	-0.0002	21.9%	0.0%	0.0%	-	-	-	-	-	0.409
Labour Force (*10 ⁵)	-0.204	0.806	-0.621	0.213	12.9%	0.0%	0.0%	-	-	-	-	-	0.391
Public Consumption	-1.774	3.054	-3.357	-0.192	33.8%	0.0%	0.0%	-	-	-	-	-	0.374
Political Assassinations	-2.009	1.935	-3.011	-1.007	16.6%	0.0%	0.0%	-	-	-	-	-	0.372
St. dev. Black Mrkt Pr.	-0.001	0.001	-0.001	-0.001	8.6%	0.0%	0.0%	-	-	-	-	-	0.346
Jewish	-17.65	12.38	-24.06	-11.24	9.5%	0.0%	0.0%	-	-	-	-	-	0.314
British	-0.316	0.329	-0.486	-0.145	18.6%	0.0%	0.0%	-	-	-	-	+	0.279
GDP in Mining	-4.089	1.431	-4.831	-3.348	0.0%	0.0%	0.0%	+	+	-	-	+	0.208
Chr. Orthodox	-0.013	0.004	-0.015	-0.011	0.0%	0.0%	0.0%	+	+	-	-	+	0.167
Sub Saharan Africa	-1.182	0.379	-1.378	-0.986	0.0%	0.0%	1.9%	+	+	-	-	+	0.133
Political Instability	-3.694	0.622	-4.016	-3.371	0.0%	0.0%	0.0%	+	+	-	-	+	0.085
Hindu	-2.896	1.708	-3.780	-2.011	0.0%	0.0%	6.6%	+	+	-	-	+	0.068
Ethnolinguistic Fractionalization	-0.015	0.003	-0.016	-0.013	0.0%	0.0%	37.1%	+	+	-	-	+	0.032

* The first three (*F*) variables are fixed in all regressions. Trust is also included in all regressions as our variable of interest (*x*). The results for these variables are based on 1540 regressions. The results for the other 22 (*C*) variables are based on 210 regressions. The columns with the test results refer to: the strong and weak sign test (T1 and T2, respectively), the strong and weak extreme bounds test (T3 and T4), the weighted extreme bounds test (T5), and the weighted confidence interval test (T6); + indicates 'pass', and - indicates 'fail'. The conditioning variables are ordered according to a declining score on robustness test T6.

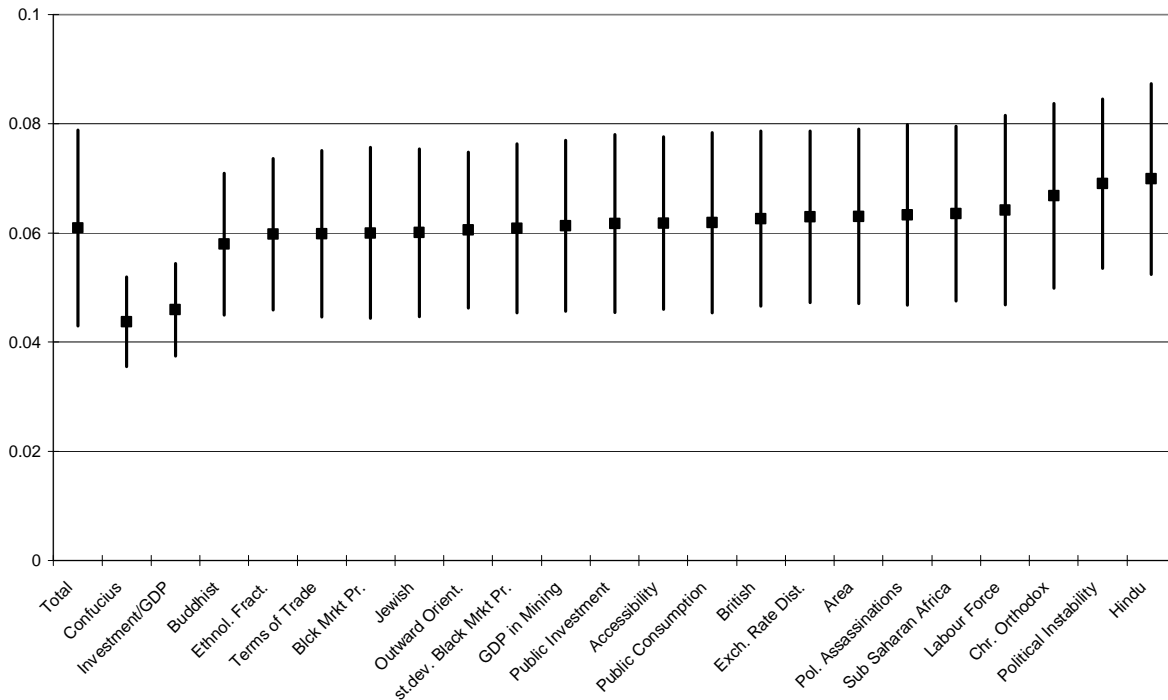
⁸ The last two tests were introduced and applied by Sala-i-Martin (1997).

The results reveal that only the variable Confucius passes the strong EBA test. Of most interest for the present study are the results for trust. Trust is statistically significant in 99.9% of the 1540 estimated equations. Regarding trust, the strong and weak sign test (T1 and T2), the weak extreme bounds test (T4) and the weighted extreme bounds test (T5) are passed. The strong extreme bounds tests (T3) is not passed.⁹

3.4.2 Dimension 2: Effect size

The second dimension of robustness focuses on the effect sizes of the estimated coefficients. The robustness tests so far have exclusively focused on the sign and statistical significance of the estimated coefficients. In the spirit of McCloskey (1985), we would like to emphasise the relevance of analysing robustness in terms of estimated effect sizes. For this aim we have calculated the *conditional* mean effect size of the trust coefficient. As Table 1 shows, the overall mean estimated coefficient of the trust variable equals 0.061. An important question that arises is to what extent the size of this coefficient is influenced by including or excluding specific conditioning variables. In order to test for this, we have calculated the conditional mean effect size of trust, viz. the mean effect size conditional on the inclusion of a specific variable of the set of 22 switch variables that we selected before. Fig. 1 graphically illustrates the results of our analysis for the (conditional) mean effect sizes.

Figure 3.1 Conditional mean effect size for trust coefficient (with 90% confidence interval). Note: The average and confidence interval for the TOTAL sample is based on 1540 estimated coefficients. The other conditional averages are based on 210 estimated coefficients.



⁹ For the Knack and Keefer sample, the relationship is much less robust. Trust is significantly positive in only 4.5% of the cases and only the weak sign test (T2) is passed. The weighted CDF equals 0.89.

The vertical bars in the figure represent the 90% confidence intervals around the average (conditional) estimated trust coefficient (indicated by the bold squares). The 22 conditioning variables indicated on the horizontal axis are ranked according to increasing conditional mean effect sizes. For the trust variable, it clearly matters which conditioning variable is included. The conditional mean effect size ranges from 0.044 in case the fraction of Confucians is included to 0.070 in case the fraction of Hindus is included.

In order to provide some quantitative intuition for the implications of the observed variation, we have determined what the minimum and maximum average estimated coefficient imply in terms of the predicted growth differential. We compare a hypothetical country that is characterized by a value of trust that exceeds the average of all countries with one standard deviation and a hypothetical country characterized by a value of trust that is one standard deviation less than the average of all countries in the sample. The trust variable in our database has a mean value of 32.3 and a standard deviation of 15.0. We thus calculate the predicted growth differential between a country with a score on trust equal to 47.3 (close to, for example, Australia) and a country with a score equal to 17.3 (close to, for example, Mexico). If we take the highest conditional average effect size (in this case when the variable Hindu is included), the predicted growth differential equals 2.10%, whereas if we take the lowest conditional average (in this case when the variable Confucius is included), it equals 1.30%. Zak and Knack's statement that 'growth rises by nearly 1 percentage point on average for each 15 percentage point increase in trust (a one standard deviation increase)' is in other words surrounded with a band of uncertainty given the sensitivity of the estimated coefficients for the set of conditioning variables.

3.4.3 Dimension 3: Sensitivity for fixed variables

So far, our robustness analysis has taken the fixed (F -) variables included in all the regression equations estimated by Knack and Keefer for granted. In this subsection, we analyse the sensitivity of their results for changing the set of fixed variables. First, we replace the schooling attainment used by Zak and Knack (the mean years of schooling for the population aged 25 and over) with enrolment rates in primary and secondary education (where all data are taken from the Barro-Lee dataset on human capital). The second change to the set of fixed variables is that we replaced initial income with the log of initial income, which is more common in empirical growth studies. The results of changing the set of fixed variables are presented in Table 2. The results reveal that the overall result of Zak and Knack on trust is rather robust for alternative specifications of these fixed variables.

Table 3.2 Sensitivity of trust for specification and choice of fixed variables

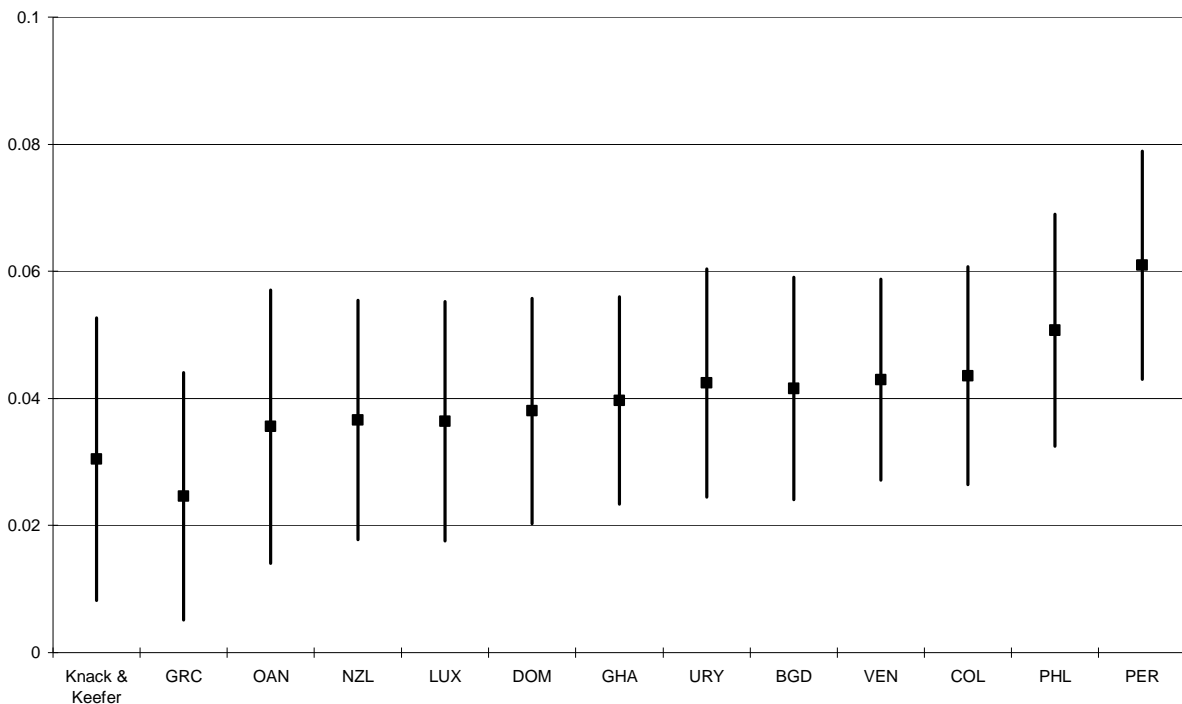
Model	Mean	Positive	Sign +	T6
Basic Model (see Table 1)	0.061	100%	99.9%	0.9995
Primary school enrolment rate instead of years of education (Barro and Lee)	0.059	100%	98.4%	0.9996
Secondary school enrolment rate instead of years of education (Barro and Lee)	0.058	100%	99.2%	0.9996
log (initial income) instead of initial income	0.059	100%	99.1%	0.9993

The different models correspond to different specifications of the fixed variables. Labels of the columns are similar to those in Table 1.

3.4.4. Dimension 4: Composition of the sample

After the robustness in terms of significance, effect size and alternative specifications, the final question that we will address is to what extent these robustness results differ between the analysis of Knack and Keefer (29 countries) and Zak and Knack (41 countries). Therefore we test the influence of the composition of the sample. To do so, we start with the sample of Knack and Keefer that included 29 countries. We subsequently add the 12 Zak and Knack countries according to decreasing values of trust (from Greece to Peru). Fig. 2 summarises our results on the influence of the composition of the sample on the conditional mean effect size.

Figure 3.2 Conditional mean effect size for trust coefficient with different underlying samples (with 90% confidence interval). Note: All averages and confidence intervals are based on 1540 estimated coefficients.



The vertical bars again represent the 90% confidence intervals of the conditional effect sizes of trust around their mean. The country added to the sample starting from the Knack and Keefer sample on the left-hand side of the Figure is shown on the horizontal bar. The result of including Peru (PER) logically corresponds with the earlier tests on the Zak and Knack sample of 41 countries.¹⁰ The results reveal that as the size of the sample increases and countries with lower values of trust are added, the mean effect size of trust on growth also increases.¹¹ This result points at the potential relevance of substantial parameter heterogeneity.

¹⁰ This is easy to check, since the conditional mean effect size on the far right in Fig. 2 is equal to the conditional mean effect size at the far left in Fig. 1 which equals the mean value of the trust coefficient in Table 1 (all 0.061).

¹¹ With the exception of Greece, our results in Fig. 2 support – although using a different methodology – the finding by Zak and Knack (2001, 310) that the effect of the non-WVS observations (Greece, Luxembourg and New Zealand) is limited.

In Table 3 we have summarised some key results for each step in which one of the 12 countries is added to the sample. It shows that in the Knack and Keefer sample, the use of the earlier mentioned 22 conditioning variables results in a fraction of significant positive values for trust of only 4.5%. Also there are negative estimated coefficients for trust. Table 3 in combination with Fig. 2 shows that by adding mostly less developed countries to the sample of Knack and Keefer, the robustness of trust is increased both in terms of significance and in effect size. More specific, especially the inclusion of Philippines and Peru increases the robustness of trust in Zak and Knack. The fraction of significant coefficients rises from 67.2% to 99.9% when these two countries are added.

Table 3.3 Effects of the composition of the sample on trust*

Sample (country added to previous sample)	Mean	Positive	Sign+	T6
Knack and Keefer sample (29 countries)	0.030	98.6%	4.5%	0.894
Greece (GRC)	0.025	97.9%	0.9%	0.859
Oman (OAN)	0.036	99.4%	11.2%	0.930
New Zealand (NZL)	0.037	99.8%	16.6%	0.948
Luxembourg (LUX)	0.036	99.8%	17.6%	0.949
Dominican Republic (DOM)	0.038	100.0%	22.7%	0.958
Ghana (GHA)	0.040	100.0%	28.1%	0.967
Uruguay (URY)	0.042	100.0%	49.2%	0.977
Bangladesh (BGD)	0.042	100.0%	42.7%	0.975
Venezuela (VEN)	0.043	100.0%	56.2%	0.981
Colombia (COL)	0.044	100.0%	67.2%	0.987
Philippines (PHL)	0.051	100.0%	91.6%	0.997
Peru (PER)	0.061	100.0%	99.9%	1.000

Labels of the columns are similar to those of Table 1. The countries are added to the sample according to decreasing scores on trust.

3.5 Conclusion

In this chapter, we have extensively analysed the robustness of the relationship between economic growth and trust, taking the analysis of Zak and Knack (2001) as a starting point and acknowledging the complexity of the robustness concept. Our analysis can be seen as a test on what can be learned from the macroeconomic literature on the relationship between trust and growth. Concerns on this literature were recently raised by Durlauf (2002b, F473) when he stated that ‘the appropriate specification of cross country regressions is very much an open question’ and that ‘they [Knack and Keefer] do not establish that their choice of regressors is rich enough to avoid the problem that their findings of social capital effects may be resulting from omitted variables[.]’. In our robustness analysis, we have tried to address this concern.

Our results reveal that the Zak and Knack findings on trust in terms of statistical significance of the estimated coefficients are highly robust. Also in terms of the estimated effect sizes, the results are reasonably robust. These results are in sharp contrast with those for the Knack and Keefer (1997) paper that is only very limitedly robust. However, it turns out that the robust findings obtained in Zak and Knack are to a large extent driven by the inclusion of countries that score low on trust.

Chapter 4

Social Capital and Regional Economic Growth

This chapter is a joint work with A.B.T.M. van Schaik.

4.1 Introduction

Recently, economists show an increased interest in the role of social capital in relation to economic development. New or modern growth theory has resulted in a number of empirical studies, in which traditional inputs capital and labor are complemented with human capital and indicators that proxy institutional and geographical differences between countries. Since the pioneering work of Kormendi and Meguire (1985), Baumol (1986), Grier and Tullock (1989), Barro (1991), and Mankiw, Romer and Weil (1992) growth empirics have become rather popular. However, as Temple (1999) argues, despite this stream of research there is only limited progression in this field. He concludes his impressive survey of empirical growth literature by arguing that there is a role for research on the broad relation between culture and economics. He writes: ‘Some of the most interesting thinking on economic growth is to be found on the borders of political science and sociology’ (Temple 1999, 146). Temple and Johnson reach a similar conclusion when stating that ‘there are many possible reasons why society might matter, and their investigation should be a worthwhile direction for further research’ (Temple and Johnson 1998, 987).

An influential contribution to the discussion on the relation between social capital and economic development is the publication of “Making democracy work” by Putnam, Leonardi and Nanetti in 1993. These authors study Italian regions and find that social capital matters in explaining the regional differences in economic and institutional (government) performance. Putnam et al. (1993, 167) define social capital as those ‘features of social organisation, such as trust, norms, and networks, that can improve the efficiency of society by facilitating co-ordinated actions’. The Worldbank uses a similar definition. According to the Worldbank, social capital refers to the norms and networks that enable collective action. It refers to the institutions, relationships and norms that shape the quality and quantity of a society’s social interactions¹.

In addition to standard economic variables, social capital is considered an important factor in explaining economic success, a statement that we choose to refer to as the Putnam hypothesis. Besides Putnam et al. (1993), Fukuyama (1995) has emphasized the importance of social capital. He argues that social capital in the form of non-family or generalized trust is of crucial importance for successful performance in advanced economies. As becomes clear in Putnam et al.’s definition of social capital, trust and networks are seen as dimensions of social capital. Where Putnam et al. (1993) stress the role of networks, Fukuyama (1995) stresses the role of trust.

A number of studies has appeared on the concept of social capital since then (Fukuyama 1995a; Granato et al. 1996; Helliwell 1996; Swank 1996; Inglehart 1997; Fedderke et al. 1999; Paxton 1999, 2002; Van Deth et al., 1999; Inkeles 2000; Paldam and Svendsen, 2000; Putnam, 2000; Piazza-Georgi, 2002; Zak and Knack, 2001; Durlauf, 2002; Francois, 2002). However, empirical studies that focus on the question if the Putnam hypothesis can be generalized are scarce. Though the concept of social capital is intuitively highly appealing, it is hard to measure it empirically, and there is little systematic *quantitative* evidence on the effects of social capital (Paldam and Svendsen, 2000). Moreover, as Woolcock (1998) puts it, vagueness has plagued social capital scholarship. A number of

¹ See <http://www.worldbank.org/poverty/scapital/>

concepts are used in similar ways as social capital, like social infrastructure (Hall and Jones 1999) and social capability (Abramowitz 1986; Temple and Johnson 1998). The indicators used in the literature on social capital are often trust and social participation. A key empirical paper relating social capital with economic growth is Knack and Keefer's study (1997). Nevertheless, as shown in the previous chapter, the statistical robustness of their study is limited (see also Beugelsdijk et al., 2002). The question if social capital in terms of generalized trust and associational activity influences economic growth is still not answered. The core question remains if Putnam et al.'s (1993) study on Italian regions can be generalized.

Besides great academic and journalistic attention, policy makers also show increased interest in the concept of social capital. According to the European Committee and the European Investment Bank (EIB) the endowment of social capital in the form of business culture and shared norms of behavior is of particular importance for regional development (EIB 2000; EC 1999). "The need, in sum, is for a long term strategy which addresses simultaneously the many aspects of the problem of a lack of competitiveness and attempt to build up the social capital of a region in parallel with its physical infrastructure, the skills of its work force and its productive base" (EIB 2000, 20). Research on the relationship between social capital and regional economic development in the EU may have consequences for the allocation of the structural funds. At the moment, there is too little known about social capital, its functions and the impact on economic growth to formulate clear policy implications. From a policy point of view it is therefore important to find empirical evidence for the role of social capital in regional economic development.

This chapter presents an analysis of the relation between social capital and economic growth for European regions. We build on two strands of literature, i.e. the explanation of regional growth differentials in Europe as developed by Barro and Sala-i-Martin (1995) and the discussion on the economic payoff of social capital as discussed by Knack and Keefer (1997) and later continued by Zak and Knack (2001). By doing so, we are able to test Putnam et al.'s hypothesis on a sub-national level analogous to that used in their study². The data we use to measure social capital at the regional level in Europe are unique.

Our study has two major findings. First, we do not find that on a regional level trust and growth are associated with each other. Second, associational activity and in specific active -unpaid- voluntary work is positively related to regional economic growth.

The outline of the chapter is as follows. First we summarize theory on social capital and how it is perceived in the literature. In doing so, we focus on trust and group membership. We describe several functions of trust and argue that trust fulfils different functions at different stages of economic development³. Besides as a substitute for a well-functioning institutional system, trust can be seen as a necessary element in complex transactions with incomplete contracts. The second element of social capital we discuss is group membership. Then we turn to statistical analyses, and test if trust and group-membership are related to regional economic growth. After an extensive robustness analysis, we conclude with suggestions for further research.

² There is small difference however. Putnam et al. analyse regions on a different level than we do. Where we use the NUTS1 level (resulting in 11 regions), Putnam et al. apply another definition resulting in 20 regions. In line with Putnam et al. we study sub-units of a country.

³ A more extensive discussion on trust can be found in chapter 2.

4.2 Trust

In general, trust can be seen as the perception and interpretation of the other's expected dependability. Trust is based upon the expectation that one will find what is expected. Trust is the mutual expectation that arises within a community of regular, cooperative behavior, based on commonly shared norms (Paldam and Svendsen, 2000, 342). It refers to the confidence that a partner will not exploit the vulnerabilities of the other (Gambetta 1988). Several authors have shown the importance of trust in economic transactions. These studies can be seen as an extension of Williamson's (1975, 1985, 1998) transaction cost theory. Ring and Van de Ven (1992) have shown that informal, personal connections between and across organizations play an important role in determining the governance structures used to organize their transactions. Gulati (1995) pointed to the fact that both transaction cost elements as well as social factors are relevant in studying inter-firm relationships and co-operation. Repeated ties between firms engender trust that is manifested in the form of the contracts used to organize subsequent alliances. Trust within social networks provides options for control through third parties and serves therefore as a substitute for a legal system. This function is related to the reduction of transaction costs, the costs of running the economic system. Moreover, trust is linked with the facilitation of highly uncertain and complex transactions. It reduces the uncertainty of these kinds of transactions. Uzzi (1996) shows in a study on the apparel industry in New York that trust facilitates the exchange of resources and information that are crucial for high performance but are difficult to value and transfer via market ties. This second function of trust is related to its information function. As Malecki puts it (2000, 195) 'through the economic and social relationship in the network, diverse information becomes inexpensive to obtain'. When discussing alliances, Gulati (1998, 308) argues that 'trust not only enables greater exchange of information, but it also promotes ease of interaction and a flexible orientation on the part of each partner'. It operates as a mechanism that facilitates communication and co-operation between firms. For example, trust relationships can result in a supplier exceeding contractual requirements, whether by early delivery, higher quality, or some other means of assuring goodwill (Sako 1992). Or as Williamson (1985, 62) states 'where personal integrity is believed to be operative, individuals [...] may refuse to be part of opportunistic efforts to take advantage of the letter of the contract when the spirit of the exchange is emasculated'. Nooteboom (1999) even reasons that too detailed and formal contracts may seriously inhibit the growth of trust. Trust and contractual safeguards are to some degree substitutes. Among those who see trust as a substitute for rules and contracts, Kenneth Arrow (1971, 22) is perhaps the most explicit:

"It is useful for individuals to have some trust in each other's word. In the absence of trust, it would become very costly to arrange for *alternative sanctions* and *guarantees*, and many opportunities for mutually beneficial co-operation would have to be foregone". (emphasis added)

According to Fukuyama (1995), societies endowed with generalized trust enjoy a form of social capital, that - complementary to traditional factor endowments like labor and capital -

contributes at least as much to their success in modern economic competition. Generalized trust is based on a set of ethical habits and reciprocal moral obligations internalized by members of a community (Fukuyama 1995). High trust societies can do with fewer regulations and coercive enforcement mechanisms. In this view, trust is seen as a substitute for contracts. But in case an institutional system functions properly, the function of trust should be seen in the light of the facilitation of complex transactions. It lowers transaction costs and moreover, it contributes to flexibility. Fukuyama argues that non-family or generalized trust is therefore of importance for successful performance in advanced economies. First, trust allows for the dis-embedding of social relations and second, trust allows for co-operation without the direct influence of power and market. Korczynski (2000) argues that these two functions are of crucial importance to advanced capitalist economies given their increasingly globalised and turbulent nature. Thus, trust not only serves as a substitute for legal systems, but also functions as a facilitator of complex transactions that even in case of a well-functioning institutional system cannot be fully 'arranged' in terms of contracts.

Hence, in general the economic function of trust refers to the reduction of transaction costs and its influence on promoting co-operation and reducing the need (costs) for intervention to prevent or correct dishonesty. But also from a sociological point of view, trust has several functions. Especially Parsons' (1969) study and Luhmanns' (1979) study are important in this respect. Parsons places trust in the center of the construction of social order. In Parsons' view, a common value system based on widely shared norms and values, stabilizes interactions in a social system. Trust is grounded in pre-existing consensus and is a product of an effective integration of norms and values. Trust fulfils an integrative function in the establishment of social order. The second function of trust in sociological thinking has been put forward by Luhmann in 1979. He views trust as a social mechanism that reduces complexity and enables individuals to deal with the complexity and contingency of modern life. This corresponds with Williamson's (1985) argument that exchange relations that feature personal trust will survive greater stress and will display greater adaptability.

4.3 Group membership

Regarding the function of associational activity and its link to economic growth, theory is less clear than with respect to trust (Bertrand et al. 2000). We distinguish two functions of associational activity or group membership on welfare.

Putnam et al. (1993) show that networks relationships improve the efficiency of society by facilitating coordinated actions. Their study on Italian regions has shown that the critical factor in explaining effectiveness of regional governments and regional economic performance in Italy is to be found in regional differences in social structure. Effective governance hinges critically on traditions of civic engagement and the structure of the civic networks. In regions where social relationships are more horizontal, based on trust and shared values, participation in social organizations is higher and social capital is higher. They conclude that regions in which the regional government is more successful and the economy is more efficient, are characterized by horizontal relations that both favored and fostered greater networks of civic engagement and levels of organization in society. The reason

Putnam et al. specifically study the degree of civic community membership is that ‘Citizens in a civic community, though not selfless saints, regard the public domain as more than a battleground for pursuing personal interest’ (Putnam et al. 1993, 88). In this way fewer resources are used incurring transaction costs. Or as Leonardi (1995, 169) writes, high social capital means that citizens accept the positive role played by collective action (organized group behavior) in pursuing collective goods.

The second function of associational activity is closely related to the theory of networks and the advantages of being embedded in networks. There are two theoretical approaches for understanding how social relations and networks create economic and social benefits (Gargiulo and Benassi 2000; Uzzi 1999). The weak-tie approach argues that a large network of arm’s-length ties is most advantageous. On the other hand there is the strong-tie approach claiming that a closed tightly knit network of embedded ties is most advantageous. This corresponds with the two opposite views in literature on the optimal structure of networks. Whereas Coleman (1990) argues that closed networks may provide a better basis for co-operation, Burt (1992) stresses cohesive ties as a source of rigidity. However, in both cases the core of the argument relates to the transfer of knowledge between actors. In Burt’s (1992) concept, structural holes are important sources of new information. A fundamental idea that inspired Burt’s structural-hole theory is Granovetter’s description of the “strength of weak ties” (Granovetter 1973). Granovetter reasoned that access to new information is obtained through an ego’s weak ties to nodes at a distance from his own local network. The reasoning is that information within the local network is widely shared locally, hence most of the local contacts are redundant. New information comes from non-redundant ties.

Though Coleman’s closed network approach seems to be opposite to Burt’s view of structural holes (open networks), Coleman states that exactly the closure of the network and the embeddedness of the actors provide opportunities to obtain information that otherwise would be impossible or too expensive to obtain. In both views, embeddedness in networks creates advantages like increased sources of information, and obtaining information that is not easily available (spillover effects).

In sum, the economic function of associational activity contains two elements. The first refers to the concept of collective action and argues that organized group behavior may lead to the generally shared idea that the pursuit of collective goods is not seen as contradictory to the achievement of personal wealth. Associational activity limits the costs of free riding. Secondly, embeddedness in networks (group membership) promotes the spillover of knowledge and information between the different actors involved.

4.4 Empirical test

In order to test if social capital influences regional economic growth, we investigate 54 European regions. By doing so, we are able to test if Putnam’s thesis on social capital based on Italian regions can be generalized. In addition, there are other advantages of investigating regions in Europe. First of all, the set of regions is relatively homogeneous compared with studies on culture and economic development that incorporate countries like Taiwan and Germany or Japan and the United States in the same regression analysis. Temple’s critical comment (1999) that countries differing widely in social, political and institutional

characteristics are unlikely to fall on a common surface, is heeded by taking this relatively homogeneous set of European regions. A second advantage of studying regions is the number of observations. Instead of only 29 countries (e.g. Knack and Keefer 1997), we study 54 regions. Most important, however, is the fact that by comparing *national* cultures, ‘we risk losing track of the enormous diversity found within many of the major nations of the world’ (Smith and Bond 1998, 41). By studying regions and regional differences this risk is limited.

4.5 Data

Data on social capital are taken from the European Value Studies (EVS), which is a survey on norms and values. The European Values Study is a large-scale, cross-national survey research program on basic human values, initiated by the European Value Systems Study Group (EVSSG) in the late 1970s. The EVS aimed at designing and conducting a major empirical study of the moral and social values underlying European social and political institutions and governing conduct. Its coordination centre is located at Tilburg University, The Netherlands⁴. By now, the survey comprises three waves (1981/1990/1999), of which we use the second one. In order to obtain regional scores on our indicators of social capital we had to regroup the original individual data. We could not use the first wave that was carried out in 1981, because we could not trace the individual scores in terms of regions. Moreover, we want to use indicators of social capital that date back to the starting point of our period of analysis as much as possible. Therefore we use the 1990 data. The set comprises 7 countries, i.e. France, Italy, Germany, Spain, The Netherlands, Belgium, and the United Kingdom. In order to compare the data on norms and values with regional economic data we used the Eurostat definition of regions. The regional level in our analyses is the NUTS1 level. This implies that France consists of 8 regions, Italy 11, Germany 11 (former eastern regions excluded), Spain 7, The Netherlands 4, Belgium 3, and the UK 10 (including Scotland, excluding Northern Ireland). The total number of regions equals 54 (see figure 1). The numbers of the European regions are defined in Table 1.

⁴ Details regarding the sample size, response rate, the survey questions and the procedures followed to obtain non-culturally biased estimates (e.g. backward translation procedures), are extensively discussed at the website <http://uvt.nl/evs>.

Figure 4.1 Map of European regions

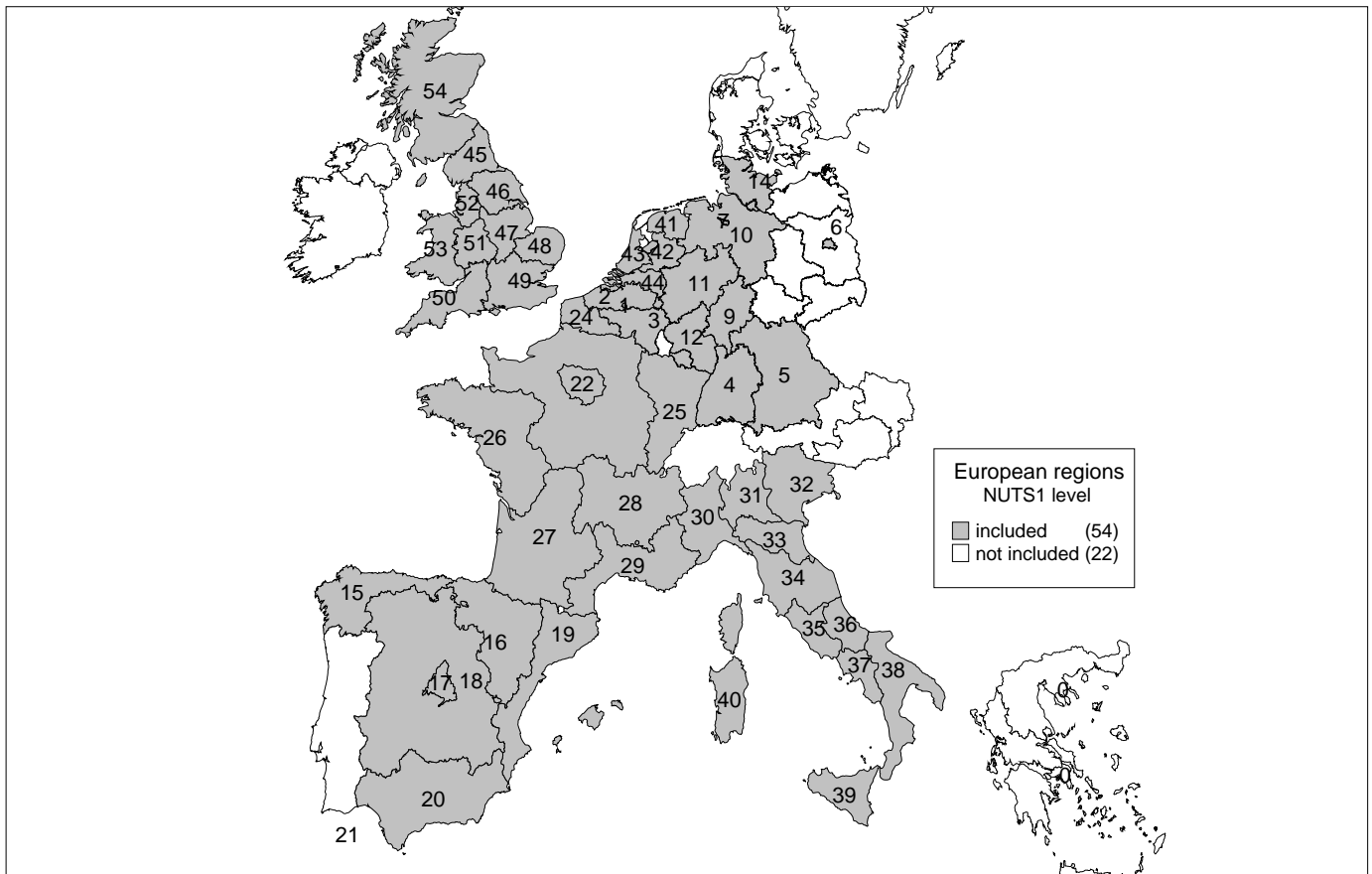


Table 4.1 Data for European regions

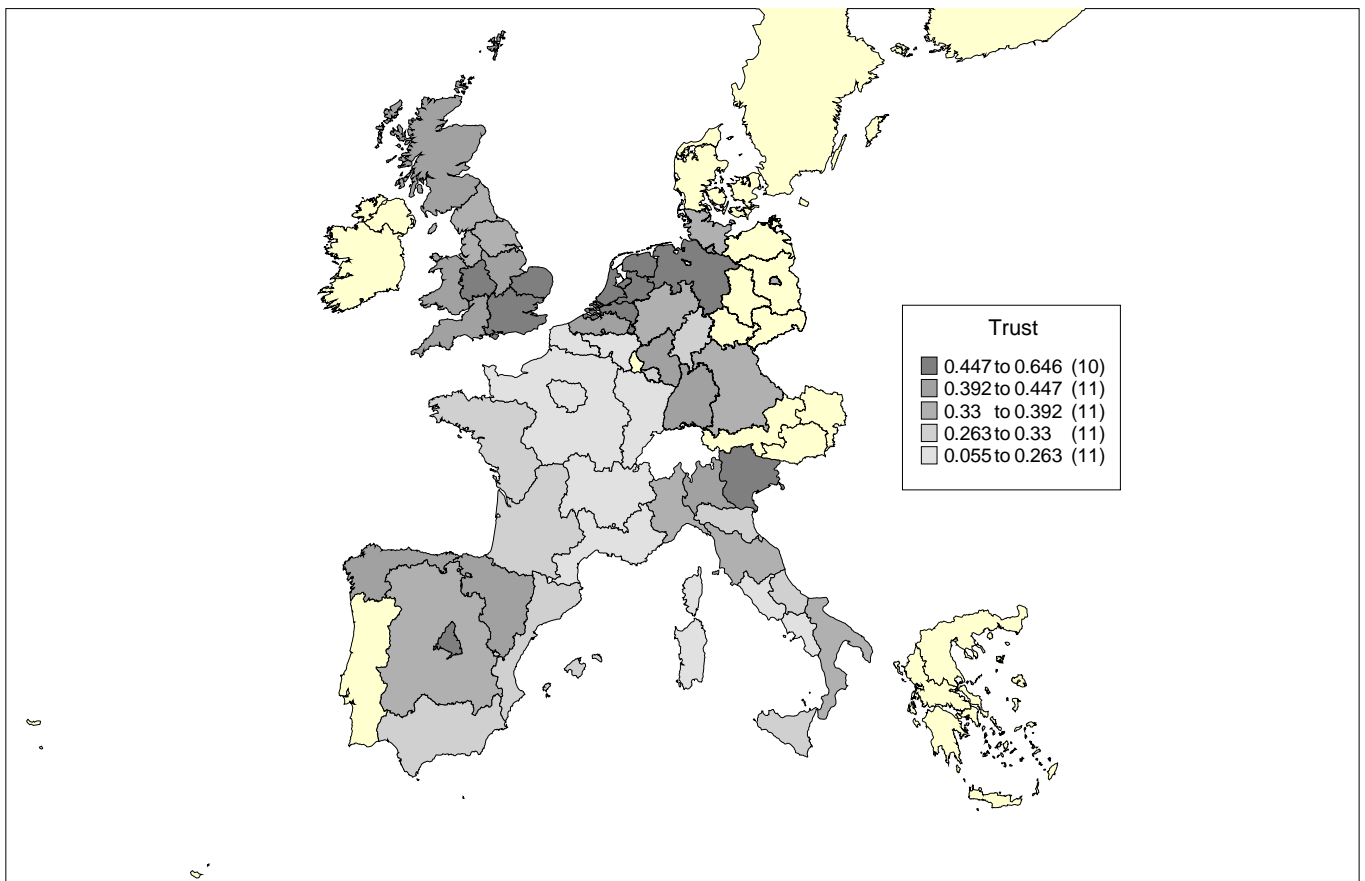
Region	NUTS1 code	Region	NUTS 1 code		
1	Reg. Bruxelles-Cap.	BE1	28	Centre-Est	FR7
2	Vlaanderen	BE2	29	Méditerranée	FR8
3	Wallonie	BE3	30	Nord Ovest	IT1
4	Baden-Württemberg	DE1	31	Lombardia	IT2
5	Bayern	DE2	32	Nord Est	IT3
6	Berlin	DE3	33	Emilia-Romagna	IT4
7	Bremen	DE5	34	Centro	IT5
8	Hamburg	DE6	35	Lazio	IT6
9	Hessen	DE7	36	Ambruzzo-Molise	IT7
10	Niedersachsen	DE9	37	Campania	IT8
11	Nordrhein-Westfalen	DEA	38	Sud	IT9
12	Rheinland-Pfalz	DEB	39	Sicilia	ITA
13	Saarland	DEC	40	Sardegna	ITB
14	Schleswig-Holstein	DEF	41	Noord-Nederland	NL1
15	Noroeste	ES1	42	Oost-Nederland	NL2
16	Noreste	ES2	43	West-Nederland	NL3
17	Madrid	ES3	44	Zuid-Nederland	NL4
18	Centro	ES4	45	North	UK1
19	Este	ES5	46	Yorkshire and Humberside	UK2
20	Sur	ES6	47	East Midlands	UK3
21	Canarias	ES7	48	East Anglia	UK4
22	Île de France	FR1	49	South East	UK5
23	Bassin Parisien	FR2	50	South West	UK6
24	Nord-Pas-de-Calais	FR3	51	West Midlands	UK7
25	Est	FR4	52	North West	UK8
26	Ouest	FR5	53	Wales	UK9
27	Sud-Ouest	FR6	54	Scotland	UKA

4.5.1 Trust

The question we used to assess the level of trust in a society is: “Generally speaking, would you say that most people can be trusted, or that you cannot be too careful in dealing with people?”. After deleting the number of respondents that answered “don’t know”, we took the fraction of people that answered “most people can be trusted”.

For our sample of 54 regions we have obtained scores on trust. These scores range from 5.5% of the respondents answering that most people can be trusted in Sardegna in Southern Italy to 64.6% in the eastern part of the Netherlands. Mean score equals 0.35 with a standard deviation of 0.11. In figure 2 the scores on percentage of people answering that most people can be trusted are shown.

Figure 4.2 Trust scores at NUTS1 level in Europe



As can be seen in figure 2, the regional scores on trust differ considerably within Europe. When looking at countries, we see for example that The Netherlands are rather homogeneous in terms of trust, but regions in Italy differ a lot. Putnam et al. (1993) seemed right in the case of Italy, when describing the differences between the Northern and the Southern regions. The North has higher scores on trust than the South. However, at first sight such a picture for Europe as a whole cannot be obtained. While some researchers have suggested that religion, especially Protestantism, correlates with trust (e.g., Inglehart 1990, Knack and Keefer 1997,

1283), our regional analysis suggests this is not the case. Traditional Catholic regions in the South of the Netherlands, Flanders, Madrid and the North of Italy all fall in the group of regions that have the highest scores on trust (0.447-0.646)⁵, far above average (see figure 2).

4.5.2 Group membership

Besides interest in general trust, Putnam et al. (1993) explicitly studied memberships of clubs and associations. They suggested that dense horizontal networks positively affect the level of trust and citizenship⁶. As mentioned earlier, social capital is often perceived in terms of networks and being member of such a group or network. Similar to Knack and Keefer (1997), we measure the average number of groups cited per respondent in each region. However, as Knack and Keefer also argue, the level of involvement is not measured, which may reduce the validity of this measure of social capital. The hypothesized benefits of network embeddedness may not be captured when taking passive membership of groups and associations. Therefore, we have decided to measure active membership of a number of associations next to our measure of passive membership. The question we use to measure group membership, is stated as follows: ‘which, if any do you belong to?’. The categories are:

- a) Social welfare services for elderly handicapped or deprived people
- b) Religious or church organizations
- c) Education, arts, music or cultural activities
- d) Trade unions
- e) Political parties or groups
- f) Local community action
- g) Third world development or human rights
- h) Conservation, the environment, ecology
- i) Professional associations
- j) Youth work
- k) Sports or recreation
- l) Women’s groups
- m) Peace movement
- n) Animal rights
- o) Voluntary organizations concerned with health

The above categories are the same for our measures of passive and active group membership. The difference between the two is that in case of active membership respondents are not only a member but also do voluntary work for the particular association. As described earlier and in line with Putnam et al. (1993), we think of the level of doing unpaid voluntary work as an indication of collective feelings of responsibility. As such these moral norms may have positive effects on the provision of public goods. Moreover, as we argued in the previous section on network theory, these networks may provide spillover

⁵ The ranges in the figures are based on the equal count criterion in the Mapinfo Geographical Information System (GIS)-application.

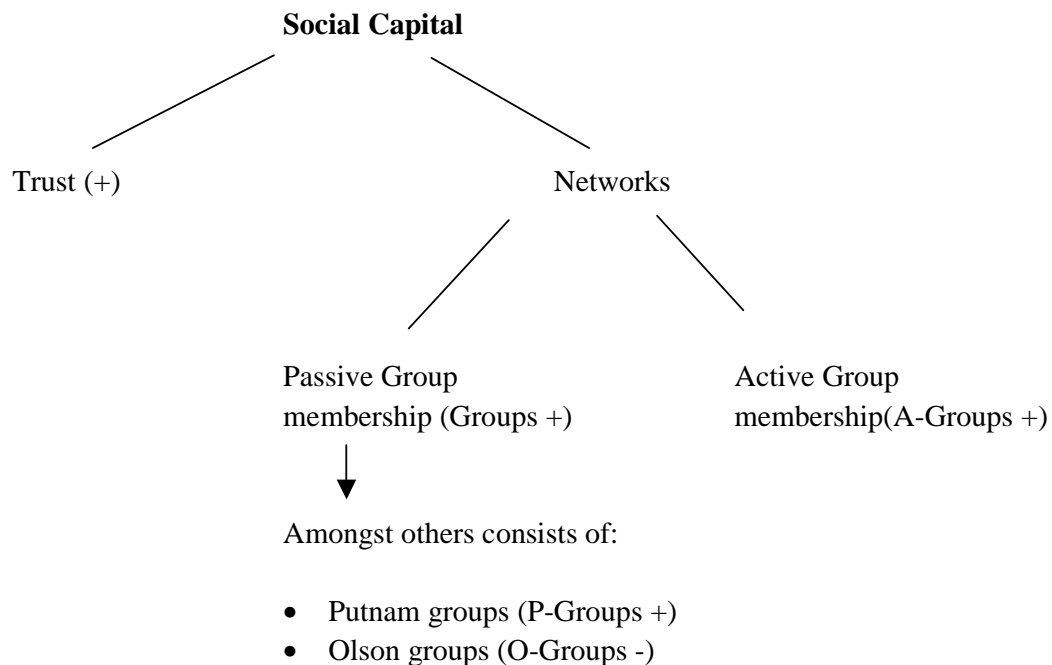
⁶ This argument is not new. Already in 1835 Tocqueville argued that membership in voluntary associations was conducive to democracy. Putnam (1993) however extends the argument and argues that voluntary associations are not only conducive to democracy, but also to economic development.

channels (Oerlemans et al., 2001). The scores are obtained by taking the average score per region of respondents answering yes to the question mentioned above⁷.

Besides the difference between active and passive group membership, we distinguished between types of group membership. We follow Knack and Keefer's distinction between different types of associational activity that may have different effects on growth. In line with their analysis we made a distinction between the so-called Putnam and Olson groups. As already discussed, Putnam (1993) argued that the economic success of northern Italian regions can be attributed to its richer associational life, because associations 'instill in their members habits of cooperation, solidarity, and public-spiritedness' (1993, 89). Olson (1982), on the other hand, observes that associational activity may hurt growth because of rent-seeking activities. According to Olson, many of these associations may act as special interest groups lobbying for preferential policies that impose disproportionate costs on society (see also Knack and Keefer, 1997). In sum, whereas Putnam groups may be evoking positive effects, these may be reduced by harmful effects of the Olson groups.

We have calculated regional scores on the Putnam and Olson groups corresponding to Knack and Keefer's analysis at a country level. The Putnam groups refer to membership of b) religious organizations, c) education, arts, music or cultural activities and j) youth work. The Olson groups consist of membership of d) trade unions, e) political parties of groups, and i) professional associations. For reasons of clarity, we depicted an overview of the different measures of social capital in figure 3.

Figure 4.3 An overview of the different measures of social capital (+ or – indicates direction of hypothesized relationship with regional economic growth)



⁷ Note that Knack and Keefer (1997) have fewer types of associations included in their measure of group membership, because of lack of data. In addition to the associations they analyse, we include items k,l,m,n, and o extra.

Regarding the question on unpaid voluntary work (active group membership) we obtained an average score of 0.41 and a standard deviation of 0.17. The highest score is obtained in Bremen, Germany (0.82) and the lowest score on active membership can be found in Sardegna (0.08). Figures 4 and 5 show the scores on the Putnam and Olson Groups respectively. Figure 6 reflects the regional scores on active group membership.

Figure 4.4 Regional scores on Putnam Groups in Europe

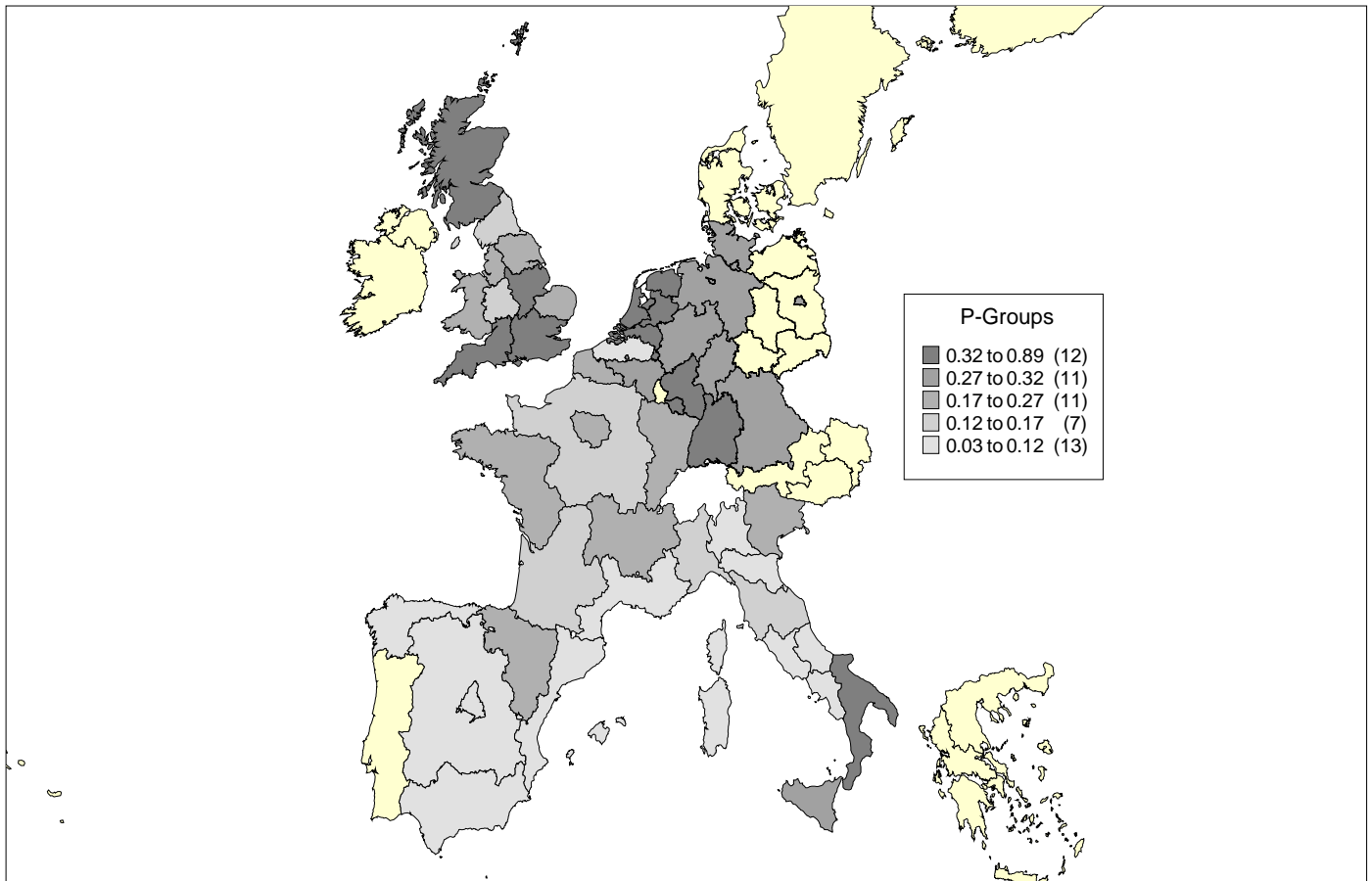
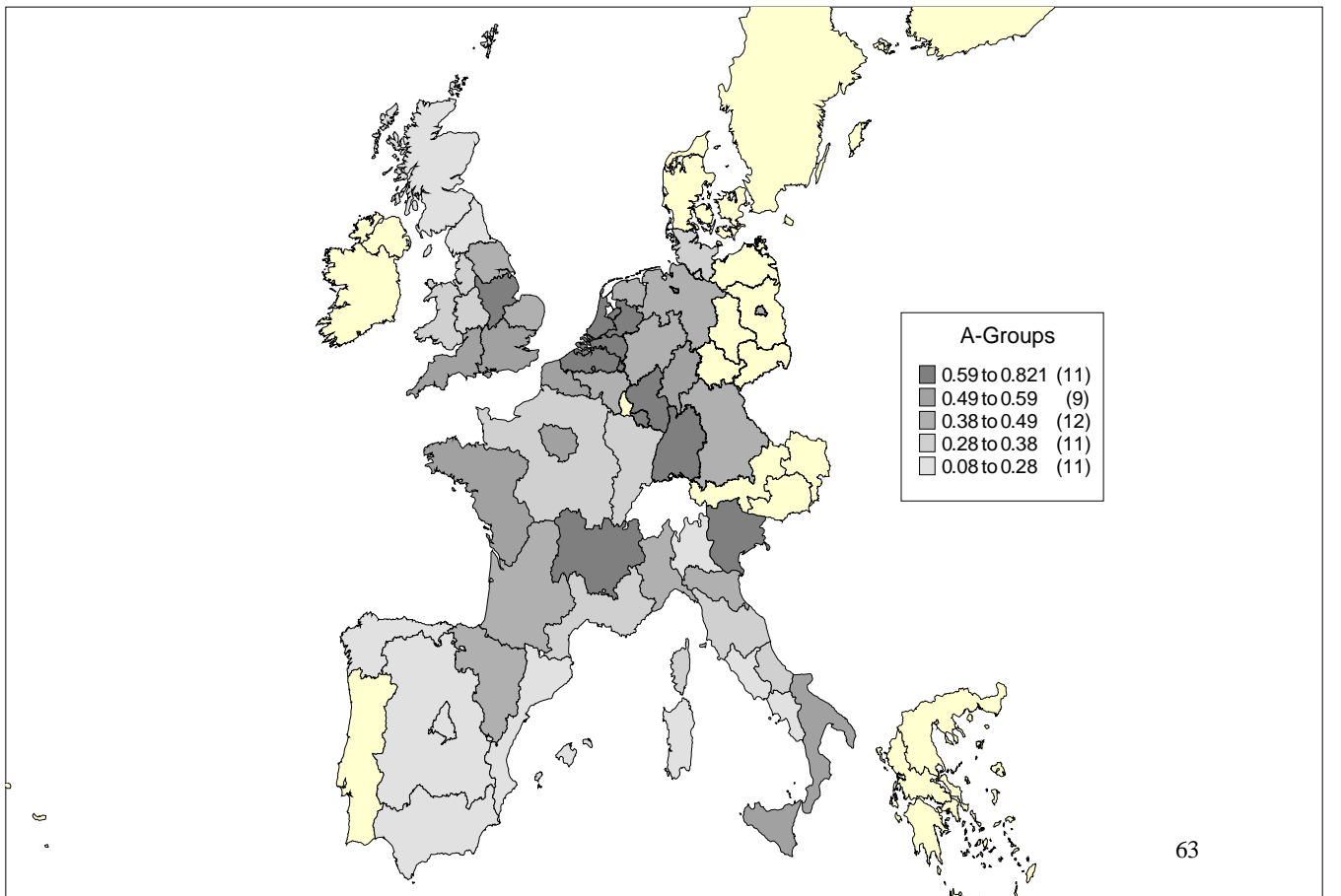
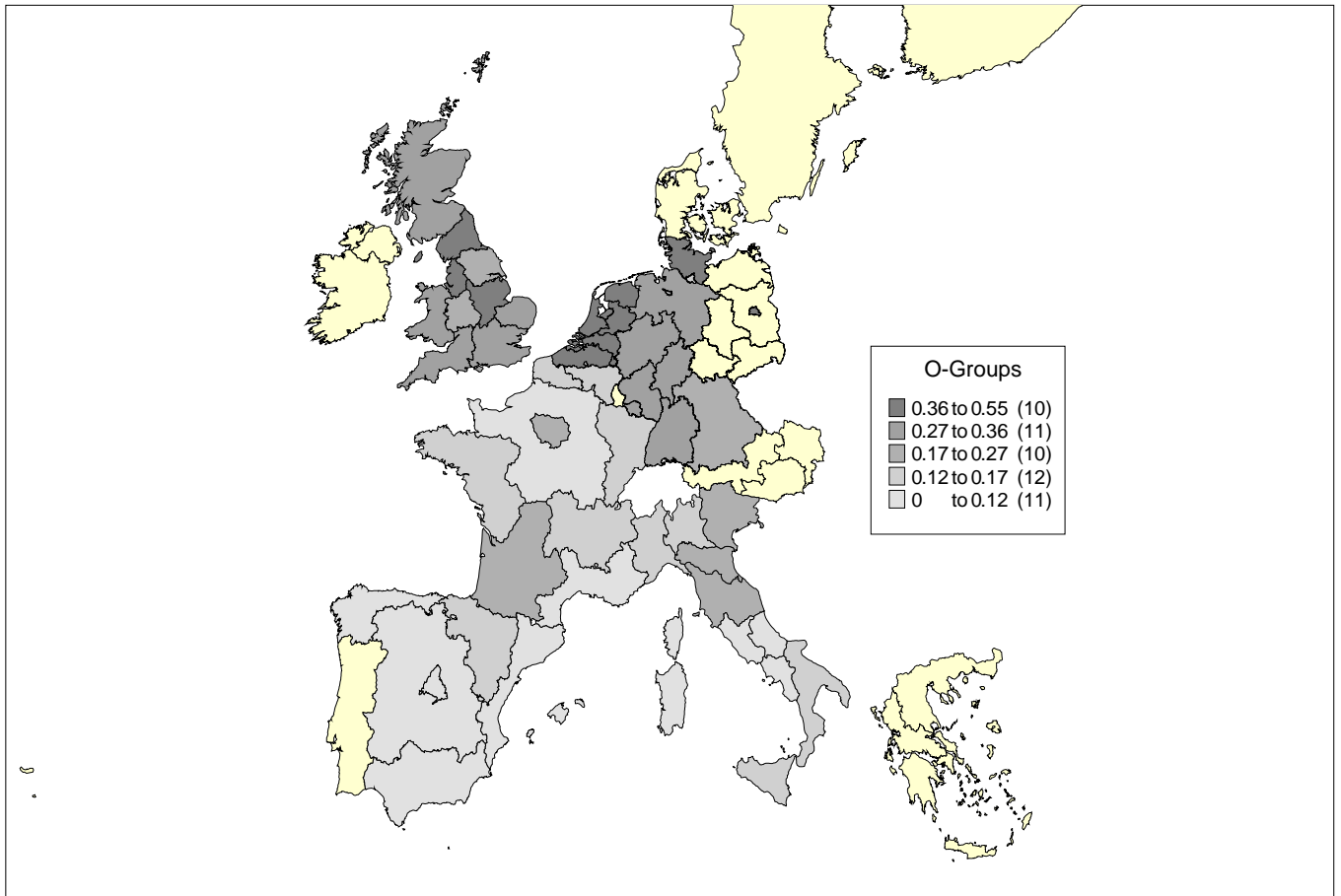


Figure 4.5 and 4.6 Regional scores on Olson Groups and Active group membership



The mean score on the Putnam groups at the regional level is 0.26 with a standard deviation of 0.18. The highest score is found in the eastern part of the Netherlands, with a score of 0.89. This implies that on average 89% of the people is member of at least one of the organizations included in the Putnam groups. The lowest score can be found in Sardegna, Italy, where only 3% of the people are member of at least one of these organizations. The scores on the Olson groups range from 0 in Sardegna (Italy) to 0.55 in the eastern part of the Netherlands. The mean value is 0.22 with a standard deviation from 0.12. Table 2 shows the mean scores and the standard deviation for the social capital variables.

The correlation between active membership and Putnam groups is 0.7, between active membership and Olson groups 0.69 and between active membership and interpersonal trust 0.21. Table 3a shows the correlation of the social capital variables.

Table 4.2 Descriptive Statistics

	Mean	Std. Dev.
Trust	.35	.11
Putnam Groups	.26	.18
Olson Groups	.22	.12
Active group membership	.41	.17
Passive group membership	.62	.38
Investment	24.25	3.74
Schooling	.51	.067

Table 4.3a Correlation table of social capital variables

	Growth 1950-1998	Trust	Putnam Groups	Olson Groups	Active group membership	Passive group membership
Growth 1950-1998	-	.05	.16	.23*	.29*	.25*
Trust		-	.42*	.52*	.21	.46*
Putnam Groups			-	.72*	.70*	.79*
Olson Groups				-	.69*	.79*
Active group membership					-	.85*
Passive group membership						-

*, significant at 0.10.

Table 4.3b Correlation table of standard economic variables

	Growth 1950-1998	Initial level of welfare (1950)	Schooling	Investment	Agglomeration	Spatial spillover
Growth 1950-1998	-	-.55*	-.15	.13	-.07	.05
Initial level of welfare (1950)		-	.29*	-.006	.35*	.17
Schooling			-	-.31*	-.10	-.05
Investment				-	-.03	-.19
Agglomeration					-	-.19
Spatial spillover						-

*, significant at 0.10.

4.5.3 Economic data

In order to test if trust and group membership are related to economic growth, we have taken a standard growth framework, that corresponds with Knack and Keefer's empirical test, and which includes initial level of GDP per capita, the investment ratio and the school enrolment ratio. We closely follow Barro and Sala-i-Martin (1995) who explain regional growth differentials in Europe between 1950 and 1990. As we have more recent economic data, we analyze the period 1950-1998⁸.

As the availability of data on the level of European regions is relatively scarce, the number of empirical studies is relatively limited compared to cross-country studies. Similar to Barro and Sala-i-Martin (1995), we have computed regional growth differentials by relating the regional GDP per capita information to the country mean⁹. There are two reasons to use the country mean as a correction factor. First of all we do not have regional price data. Second, the figures on regional GDP are provided in an index form that is not comparable across countries. Hence, we have used Gross Regional Product (GRP) figures that are expressed as deviations from the means from the respective countries. An additional advantage of using relative data versus non-relative data is the direct control for national growth rates that might bias regional growth rates. The 1950 data are based on Molle, Van Holst and Smits (1980), whereas the data for Spain refer to 1955 and are based on Barro and Sala-i-Martin's (1995) calculations. The 1998 data on GRP are drawn from Eurostat information.

If we look at the correlations between Growth and the different measures of social capital, we observe relatively low correlations. The correlation between Growth and Trust is only 0.05 (see table 3a). The correlation between Growth and the different measures of group membership is around 0.25 with the highest correlation of 0.29 between Growth and Active groups membership (see table 3a). The correlation table shows that the relationship between our social capital variables and regional economic growth does not seem to be that strong. However, the question is if this holds when controlling for other economic variables, like investment in physical capital.

Investment ratio is measured at country level. Data are taken from the Penn World Tables 5.6. The period for which we have calculated the average of the investment ratio is 1950-1992¹⁰. Apart from availability of reliable regional investment data¹¹, another reason to take the *country* level investment data and not the regional scores, is the underlying assumption of a closed economy. Because of spatial interaction, regional investment figures would only provide a limited understanding of regional economic growth (Nijkamp and Poot 1998). Therefore we have taken the country level data.

School enrolment ratio measures the total number of pupils at first and second level in 1977, divided by total number of people in the corresponding age group. The basic growth period we analyze is 1950-1998. The school enrolment rate in 1977 falls in between these

⁸ We also observed shorter periods of analyses for our dependent variable, e.g. the period 1970-1998.

⁹ Gross Regional Product of a region in 1950 is divided by the mean of the Gross Regional Products of all regions belonging to a certain country. A similar formula is applied to calculate the 1998 relative regional product. Regional growth over the period 1950-1998 is then based on these two indices.

¹⁰ Penn World Tables 5.6 provides data up to 1992.

¹¹ Eurostat and Cambridge Econometrics do provide data on Gross Fixed Capital Formation. However, data are incomplete for some countries or in time.

dates and given the fact that school enrolment rates have increased since 1950, the 1977 information is a reasonable proxy for the average over the entire period. Data come from Eurostat. Data on school enrolment rates in Spanish regions refer to 1985. We have taken uncorrected regional figures because it has been shown that migration plays only a minor role in European regions and the relation with per capita GDP is weak (Barro and Sala-i-Martin 1995; Begg 1995).

The basis for our analyses is the standard ‘Barro’ type of a growth regression, including the investment in physical capital, human capital and the initial level of economic development. In order to control for concentration of human capital in major agglomerations, we included a variable that consists of the score on the school enrolment rate multiplied by a dummy variable for the region in which a major agglomeration is located¹². Furthermore we tested if spatial correlation influences our results. Ideally one should use interregional input-output tables to calculate regional multipliers and construct a variable that controls for spatial correlation¹³. However, this information was not available. In order to control for spatial correlation, we applied Quah’s (1996) approach and calculated the so-called neighbor relative income. This method implies that we use average per capita income of the surrounding, physically contiguous regions to control for spatial auto-correlation. In our sample, however, the 1950 GRP data are related to national average and therefore reflect regional welfare relative to country mean. By using these data we implicitly assume that scores for neighboring regions in foreign countries influence regional growth if the welfare in this neighboring region is relatively high compared to their own national average. Of the 54 regions in the sample, 19 have neighboring regions in countries other than the region’s own host itself, whereas 4 had no neighboring regions at all¹⁴.

Hence, our basic regression analysis includes initial level of welfare, school enrolment rate, investment ratio, and the control variables for spatial correlation and the concentration of human capital in agglomerations. We have taken log-specifications for the first three variables. The results are shown in table 4.

¹² We selected the Western part of the Netherlands, Greater Paris, Greater Berlin, Greater London, Barcelona area, Brussels, and the Italian region Lazio (Rome).

¹³ There exist other ways to have a more refined control variable that can be taken into consideration, for example the physical length of abutting boundaries or the physical characteristics of the border terrain. However, these kinds of extensions go beyond the scope of the current chapter.

¹⁴ The average number of physical neighbour regions is 3.3, which corresponds with Quah’s score of 3.3.

Table 4.4 Regression results

Trust, Group Memberships and Regional Economic Performance, 1950-1998					
Model	1	2	3	4	5
Dependent Variable	Growth 1950-1998				
Constant	-1.44** (.623)	-1.45** (.629)	-1.49** (.611)	-1.37** (.584)	-1.01* (.582)
Initial level of welfare	-.971*** (.201)	-.968*** (.212)	-.938*** (.196)	-.942*** (.190)	-.969*** (.196)
Investment	.476** (.203)	.481** (.210)	.553*** (.201)	.484** (.188)	.422** (.184)
Schooling	.527* (.314)	.518 (.329)	.397 (.244)	.449* (.258)	.569** (.232)
Agglomeration	.528*** (.195)	.522** (.214)	.423** (.204)	.404** (.209)	.472** (.197)
Spatial spillover	.308*** (.093)	.301** (.118)	.213** (.103)	.233** (.101)	.244** (.097)
Trust		.011 (.086)			
Putnam Groups			.007 (.063)		
Olson Groups			.119** (.056)		
Passive group membership				.109** (0.41)	
Active group membership					.175*** (.054)
R-square	0.4089	0.4090	0.4673	0.4641	0.4813
F-value	5.80	5.06	5.63	7.16	7.56
CW-test	.6845	.6907	.4543	.8885	.8596
VIF (Maximum)	1.49	1.53	2.45	1.50	1.49

*Standard errors (White corrected) between parentheses. N = 54. *** 1% significance, ** 5% significance, * 10% significance. CW test refers to the Cook-Weisberg test for heteroskedasticity. Values above 0.05 indicate heteroskedasticity is not problematic. VIF refers to Variance Inflation Factor and values above 10 are indications of multi-collinearity inflating the R-square. We considered log-specifications in our analysis. In case we do not take the log- specifications, results are not influenced. We also tested for country-specific effects and possible interaction effects. Results indicate that Olson Groups are not significant when country-specific effects are included. The overall conclusion on Group membership is not influenced. An overview of these additional tests can be found in a 'statistical appendix', which is available upon request.

The first model we estimated is the standard model. As the results show, all variables except for the school enrolment rate are significant at the 5% level. Schooling is significant at the 10% level. The initial level of welfare is negatively related to economic growth, which supports the convergence hypothesis. This corresponds with other findings on regional convergence in Europe (Martin and Sunley 1998). However, if we take shorter periods of time (e.g. 1970-1998) we cannot find proof for the convergence hypothesis. This corresponds with findings on country (Levine and Renelt 1992) and regional level (Fagerberg and Verspagen 1995). The period in the eighties can be roughly characterized by divergence instead of the observed convergence in the period before (Maurseth 2001). However, based on our sample, we conclude that for the overall after war period, the β -convergence

hypothesis holds, i.e. the growth rate of per capita GDP is negatively related to the starting level of per capita GDP.

To test the hypothesized positive relation between social capital and economic growth, we included social capital variables discussed above. First, as shown in the second model specification in table 4, we added the scores on generalized trust. The Trust variable is not significant. This might seem surprising given the results of Knack and Keefer's (1997) study on country level in which it was found that trust significantly influenced economic growth between 1980 and 1992 in 29 countries. However, as has been shown in the previous chapter, Knack and Keefer's findings on trust are not statistically robust.

In the third model we included group membership. In accordance with Knack and Keefer (1997) we split up this variable in two sub-groups, namely horizontal networks (Olson groups) and vertical networks (Putnam groups). As can be seen in table 4, Putnam Groups are not significant and Olson Groups are significant at the 5% level. In the fourth model we include the measure for passive group membership. Passive group membership has a significant and positive influence on regional growth rate. In the final step we included the variable that indicates active membership. The active membership variable is highly significant (1% level) and as a consequence, the resulting model has the highest variance explained. Hence, active membership, doing unpaid voluntary work is significantly correlated with regional economic growth. The question is whether these findings are robust.

4.6 Robustness test

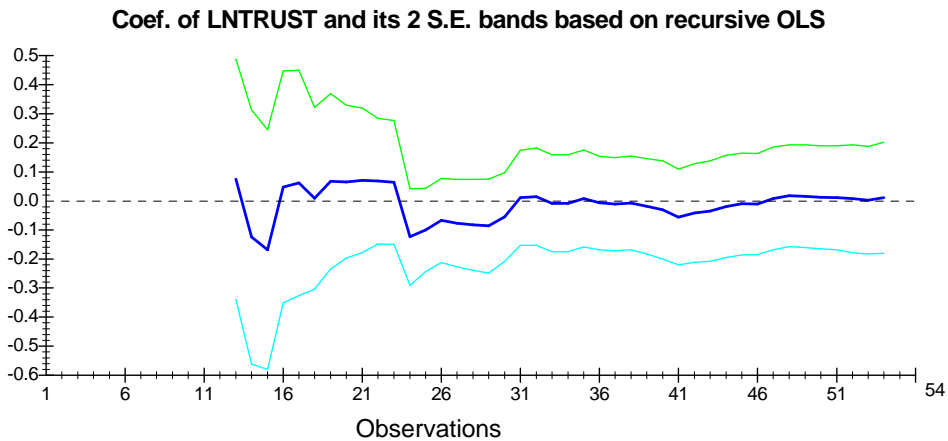
In order to test if the above findings are robust, we performed several tests. First, we tested for multi-collinearity and heteroskedasticity. As the results in table 4 indicate, these do not significantly influence the results. The Cook-Weisberg (CW) test for heteroskedasticity and the Variance Inflation Factor (VIF) for multi-collinearity both indicate that in the models specified in table 4, these are not problematic and do not influence the results. However, a sensitivity analysis that only consists of test for multi-collinearity and heteroskedasticity is not complete. We choose to extend our sensitivity analysis in several ways, among which the recursive method and tests based on the Extreme Bounds Analysis (EBA).

First, we performed several regression analyses in which the different social capital variables are combined. Regarding Trust and the Putnam and Olson groups, results do not change. However, if we include both active and passive membership, passive membership becomes insignificant. As the correlation between the active and passive membership is 0.85 (see table 3), this is likely to be due to multi-collinearity problems. In case we perform a regression analysis in which both passive and active group membership are included, multi-collinearity analysis shows that the variance inflation factor (VIF) for these two variables is larger than 4.9, whereas the rest of the variables do not exceed 1.5. Though rule of thumb reads that VIFs exceeding 10 are problematic, we consider the strong correlation and the VIF analysis as an indication of problematic multi-collinearity.

Next, we have applied the recursive method to test if the composition of the sample influences our results. First we order the 54 observations according to a certain variable. In this case we chose for regional economic growth. This means that the first observation is the region with the lowest growth rate over the period 1950-1998, and observation 54 is the

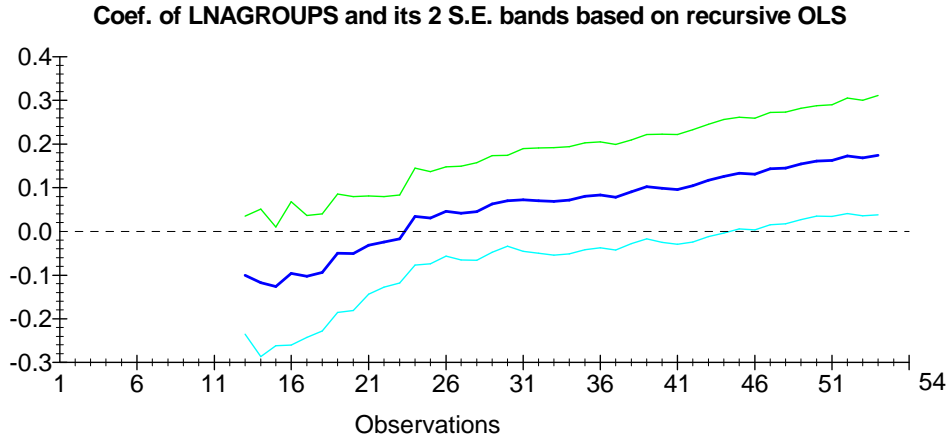
fastest growing region over this period. The recursive method implies that based on the order in which the observations are represented observations are deleted and the coefficients are estimated based on this smaller sample. In figure 7 we have plotted the coefficient of Trust when the order of observations is based on growth, according to the second model of table 4.

Figure 4.7 Coefficient and bands of Trust based on recursive OLS



The line in the middle plots the value of the regression coefficient for Trust. The outer lines represent 95% confidence intervals. The horizontal axis represents the observations, where observation 54 is the fastest growing and observation 1 the slowest growing region. The vertical axis represents the value of the Trust coefficient at a certain number of observations. If 54 observations are included the value of the Trust coefficient equals 0.011, which can be seen in the figure on the far right of the horizontal axis and corresponds to the results in table 4. Moving from the right to the left on the horizontal axis means deleting regions that are the fastest growing. For example, observation 50 implies that the 4 fastest growing regions are deleted. The corresponding value of the Trust coefficient based on the sample of 50 regions is close to 0.011. The stable line in figure 7 leads us to conclude that the Trust coefficient is independent of the deletion –or inclusion- of fast growing regions in the sample.

We performed similar tests for the other variables, that all behaved in a stable way or according to economic theory. In the latter case we refer to the initial level of welfare. Inclusion of fast growing regions causes the coefficient of initial level of welfare to decrease (more negative), which corresponds to the convergence hypothesis. Figure 8 represents the results of the recursive method for the variable that measures active group membership, according to the fifth model of table 4. Observations are again ordered according to regional economic growth. As the figure shows, the coefficient of active group membership slightly increases when faster growing regions are included.

Figure 4.8 Coefficient and bands of Active group membership based on recursive OLS

A final step in our robustness analysis is the test whether the variables in our model fulfil the weak and – or strong Extreme Bounds Analysis (EBA) test. The program that is available to perform this robustness test is called *MetaGrowth* and was developed against the background of the robustness discussion in growth literature¹⁵. The Extreme Bounds Analysis (EBA) has been developed by Leamer (1985). It labels a relationship between an independent variable and an explanatory variable X_i as robust if the relationship is of the same sign and statistically significant for any possible model specification. However, subsequent analysis relaxed this requirement. Sala-i-Martin (1997) introduced the criterion that the relationship should be significant in at least 95% of the cases, which has become known as the weak EBA test.

The procedure we applied consists of several rounds, in which we test all possible combinations of the explanatory variables¹⁶. For each variable, the program calculates the fraction of significant results. The strong EBA test is fulfilled when a value of 1 is achieved. This means that a variable has the same sign and is statistically significant in all possible model specifications. The weak EBA-test is fulfilled when the above holds in at least 95% of the cases. If we choose to regress on all possible combinations of the explanatory variables, we estimate 512 regression models. If we limit the number of combinations by running regression models that always include initial level of welfare and exclude the combination of passive and active membership, the number of models that can be run is limited to 32. Based on this extensive robustness analyses, we conclude that two variables fulfil the strong EBA test when explaining regional economic growth in the period 1950-1998. These two variables are level of welfare in 1950 and (active) membership, as an indicator of social capital.

Instead of this linear procedure to test for robustness, it is more common to test the robustness of the regression results using a stepwise procedure that is available in most statistical packages. When applying the stepwise method in *STATA* and starting from an empty model, the same result is achieved as the result using *MetaGrowth*. In both cases, initial level of welfare and active membership are variables that are 100% robust. In sum, our

¹⁵ More information on the package can be found at <http://www.feweb.vu.nl/re/MasterPoint/>. See also chapter 3.

¹⁶ As this procedure yields a number of tables, we have decided to discuss the results and not include all output that was generated. Tables are shown in the statistical appendix and/or available upon request.

extensive robustness analysis shows that regarding the social capital variables, active membership is robust and fulfils the strong EBA test. Trust is never significant.

4.7 Conclusion

Economists show increased interest in the concept of social capital. An important study in this field of social capital is Putnam's study on Italian regions. He showed that differences in economic performance and the well functioning of the institutions in Northern and Southern Italy can be traced back to differences in social capital.

In this chapter we build on regional growth empirics as developed by Barro and Sala-i-Martin (1995) and the social capital debate to which Knack and Keefer (1997) made an important contribution. We studied 54 regions in Europe and applied a standard economic model to test if the Putnam hypothesis can be generalized. The dataset we use is unique, in the sense that it has so far not been possible to measure social capital at the European regional level. Social capital is operationalized in terms of generalized trust and associational activity, split up in several elements. Similar to Knack and Keefer (1997) we made a distinction between Putnam groups and Olson groups, and in addition we distinguished active and passive membership.

We have reached several conclusions. First, we found that for the after-war period the convergence hypothesis at the regional level holds. Second, we could not find robust proof for the significant influence of investments and regional school enrolment rates on regional economic growth. Third, our results suggest that social capital in terms of trust is not directly related to economic growth at the regional level in Europe. Fourth, in line with Knack and Keefer (1997) we also find that the distinction between Putnam and Olson Groups does not yield additional insights. The findings on Olson Groups are not robust. However, the main implication of our study is that we found that social capital in terms of (active) group membership is positively related to regional economic growth in Europe.

We have shown the hypothesis put forward by Putnam et al. (1993) that social capital matters for regional economic success in Italy, can be generalized to the extent that it is not only the existence of social networks that contribute to regional economic growth, but also the actual level of involvement in it. Our regional analysis does not support the hypothesis that trust is positively correlated with economic growth.

Our findings regarding active membership may have implications for policymakers. We showed that social capital in terms of active volunteering work is positively related to regional economic growth. Does this mean that governments may want to increase active membership of all kinds of associations? Does this imply that policymakers need to take a new look at the relation between labor and leisure? It is clear that a number of factors that policymakers can influence are related to the degree of associational activity. However, as long as we do not exactly know the mechanism between active membership and regional economic growth, it is too early to formulate clear policy implications.

Obviously this study suffers from a number of limitations. First of all, lack of proper regional economic data forced us to use country relative regional products. Second, the period

of observation is 1950-1998, whereas the social capital data refer to 1990¹⁷. Ideally, one would prefer social capital data referring to the start of the period of analyses. However, the earliest period of which we have data on our measurement of social capital (1981) is highly correlated to the 1990 data we used (over .90)¹⁸.

Future research should focus on the exact mechanisms through which social capital in terms of associational activity influences economic growth in the European regions. As we described in the section on group membership, theory argues that associational activity may promote the spillover of knowledge in networks and, second, may limit the costs of free riding through feelings of collectivity. However, there is no clear understanding how these mechanisms exactly work. More insight in these mechanisms is especially important for policymakers at the regional, national and European level. As we discussed above, the importance of (active) membership of all kinds of associations for regional economic growth may lead to a re-thinking of the relation between work and spare time. Related to this is the potentially important distinction between different types of social capital. In his most recent work Putnam (2000) distinguishes what he calls 'bridging social capital' in which bonds of connectedness are formed across diverse social groups, and 'bonding social capital' that cements only homogenous groups. Putnam clearly prefers the bridging type of social capital. Future research could follow Putnam's line of thinking and try to find empirical evidence for the assumed positive effects of bridging social capital and the potentially negative effects of the bonding type of social capital.

Nevertheless, before actual policy plans are developed, we need to know more about the mechanism between social capital and regional economic growth. The current attempts and activities of the Worldbank in the field of social capital and developing countries are worth mentioning. The importance of network relationships and the promotion of associational activity have led to a number of successful development projects. Increasingly, the Worldbank acknowledges that social capital may play a crucial role in the reduction of poverty and the success of development programs. Social capital is integrated into Worldbank policies in a number of ways¹⁹. Nevertheless, these initiatives mainly focus on developing countries and the question remains if the relationship between social capital and economic growth is the same for rich and poor countries.

As referred to in the introduction, a related policy question is if the lack or abundance of social capital influences the success of the regional development programs in the less favored regions of Europe. It would be interesting in future research to relate the degree of success of the Structural Funds of the EU in certain regions to the presence (or absence) of social capital.

¹⁷ As already mentioned we also performed regression analyses on shorter periods, for example the period 1970-1998. Although we miss data for Spain in 1970 and the number of observations is reduced to 47, results show that model fit decreases slightly and significance levels generally go down, but overall conclusion on social capital holds.

¹⁸ Knack and Keefer (1997, 1257) also discuss the stability in time of the trust measure and conclude that there is no severe noise in this survey-based measure of social capital. They base their conclusion on experiments conducted by the *Reader's Digest* and reported in *The Economist*, June 22, 1996. In an experiment of "accidentally" lost wallets, the percentage of wallets returned in each country closely tracks the Values Survey measure of trust.

¹⁹ For an overview of the Worldbank social capital initiatives we refer to <http://www.worldbank.org/poverty/scapital/bank2.htm>

Chapter 5

Bridging and Bonding Social Capital: Which type is good for economic growth?

This chapter is a joint work with J.A. Smulders.

5.1 Introduction

Most of our time is spent in the presence of others. We spend our working time, leisure time, and family hours with others. However, preferences for socialising differ among individuals and cultures. As Fukuyama puts it, ‘Some [societies] show a markedly greater proclivity for association than others, and the preferred form of association differ. In some, family and kinship constitute the primary form of association; in others, voluntary associations are much stronger and serve to draw people out of their families’ (1995, 28). Moreover, socialising is time-consuming and may be traded-off against other activities. Participation in the economy and market exchange (working and shopping) compete with social activities, family life and voluntary organisations.

We may expect that cultural differences affect the degree to which individuals are more oriented to personal possessions and status. These variations in materialistic attitudes result in different levels of socialising. What is especially interesting is how these differences in social structure in turn affect economic outcomes. Are countries or regions in which materialistic attitudes dominate characterized by fast economic growth, or does scarcity of socialising somehow hamper growth? Is socialising with family friends and citizens a good in its own, for which some material benefits are happily given up? Or is socialising also instrumental in promoting material well-being and increasing economic growth?

To study the link between socialising and economic performance, the concept of social capital has been developed, which is often related to trust. Trust and interaction among citizens may stimulate economic growth, when trust facilitates transactions and reduces transaction and monitoring costs in economic exchange. Trust arises mainly within groups with strong social network ties. The repeated interaction among group members prevents opportunistic behaviour and cheating in prisoners’ dilemma kind of situations. Thus, the formation and maintenance of networks constitutes social capital that works as a productive asset in the economy.

However, social interaction and the exploitation of social capital may work in the opposite direction. Closed networks may act as organisations that lobby and act against the interests of other groups. Rent-seeking behaviour reduces overall well-being as a zero-sum (or even negative-sum) game. Corruption often relies on strong personal connections and extortion practices by mafias may operate through personal connections.

In this chapter we aim at formalising and testing the double-sided role of social networks on growth. We model social capital as participation in two types of social networks: first, closed networks of family and friends, and, second, open networks that bridge different communities. Agents have a preference for socialising, which they trade off against material well-being. Participation in both social networks is time-consuming and comes at the cost of participation in the formal economic sphere and working time. Through this channel, higher levels of social capital may *crowd out* economic growth. In addition, participation in intercommunity networks reduces incentives for rent seeking and cheating through reputation. Through this channel, higher level of bridging social capital may *enhance* economic growth. Testing the model, we find that regions of which the inhabitants are more materialistic and attach more value to family life have significantly lower bridging social capital, which in turn reduces output growth in these regions.

The two types of social networks we distinguish correspond to Putnam's (2000) concepts. He defines 'bridging social capital' as bonds of connectedness that are formed across diverse social groups, whereas 'bonding social capital' cements only homogenous groups. The added value of this chapter lies in the formal macroeconomic modelling and the empirical testing of the influence of different types of social capital on economic growth. We show that bridging social capital has a positive effect on growth, whereas bonding social capital has a negative effect on the degree of sociability outside the closed social circle. We find evidence for Fukuyama's claim that 'the strength of the family bond implies a certain weakness in ties between individuals not related to one another' (Fukuyama, 1995, 56). Moreover, we show that an important mechanism that influences the degree to which people are willing to step out of their closed social circle with the associated advantages and build bridging social capital depends on the materialistic attitude of that people. People who are more materialistic tend to stick to the type of socialising that has a direct payoff, whereas less materialistic people are more embedded in social structures that do not directly yield materialistic or worldly advantages.

The rest of the chapter is structured as follows. We first review the main ideas in the literature on social capital and materialistic attitudes. Then we present our economic model in which we show the different channels through which the different types of social capital affect economic growth and what the role of materialistic attitude is. Readers not interested in the details of economic theoretic modelling can move directly to Section 4 in which we summarize in a less formal way the testable implications of the model and formulate the central hypothesis to be tested. In section 5 we describe the data. Section 6 presents our empirical estimations for 54 European regions using the European Values Studies (EVS). We conclude with a discussion on our findings and suggest future research questions.

5.2 Background

Social capital is the key theme of this chapter. As discussed in chapter 2, there is not a single unified or generally accepted theory of social capital. The field of social capital ranges across the whole social sciences, from economics, organisational sociology to political science. As Fine states, 'social capital provides a technological umbrella for grouping together an extraordinarily diverse range of casually constructed illustrations' (Fine, 2001, 78). An important reason for the fuzziness of the concept is caused by the fact that researchers from different disciplines use social capital for what at first sight seem to be entirely different objects of study. When organisation scholars discuss social capital they think of it in terms of the network a firm is embedded in and the resources and limitations this network may provide (e.g. Burt, 1992; Coleman, 1988; Gulati, 1999). When macro-economists and political scientists use social capital, they also think of it in terms of networks, but then referring to networks of associational activity, which is not the same as the previous type of networks (e.g. Putnam, 1993, 2000; Knack and Keefer, 1997). As discussed in chapter 2, it is necessary to break down the concept of social capital in two levels, i.e. at the level of the firm (micro) and of the nation state (aggregate level) for a better understanding of the theoretical concept of social capital and its cause and effect structure (cf. Glaeser et. al., 2002).

At the individual level, social capital refers to the network an individual belongs to. Individuals derive benefits from knowing others with whom they form networks of interconnected agents. The network enhances access to and exchange of information, enforcement of contracts, and focusing on a shared vision and collective goals. (Nahapiet and Goshal, 1998).

At the aggregate level, it is argued that nations or regions can hold different levels of social capital which affects the level of democracy and economic growth (Fukuyama, 1995; Putnam, 1993, 2000). Social capital at this level refers to the social structure that enhances the effectiveness of local governments through traditions of civic engagement and the structure of civic networks.

At both levels the effects of social capital can be positive and negative. At the micro-level, dense networks may provide useful resources such as improved quality of information, a means for control, influence and power, and also a closed social network may encourage compliance with local – sometimes implicit – rules and customs and reduce the need for formal monitoring. However, the danger of closed social networks lies in the fact that the relation specific capital that is developed over time may lead to a tendency to stick to existing linkages and networks start to suffocate (Nooteboom, 2002). This may result in a loss of flexibility and lock-in.

At the aggregate level, the effects of social capital are empirically harder to prove and less clear. Although Putnam (1993) claims to have proven that more social capital in Italian regions is positively correlated with effective governance and economic performance, he has been especially criticised for the method and the lack of a theoretical mechanism between social capital and the other ‘dependent’ variables (Jackman and Miller, 1996; Tarrow, 1996; Dekker et al., 1997; Harris and DeRenzo, 1997; Paxton, 1999; Torsvik, 2000; Boggs, 2001). Boix and Posner attempt to describe mechanisms through which social capital is translated into better economic performance. They argue, among other things, that social capital may reduce the probability of individuals to engage in opportunistic behaviour. This saves on resources devoted to monitoring agent’s performance and makes more resources available for more productive investments.¹

In a later work, Putnam (2000) has made a distinction between ‘bridging social capital’ in which bonds of connectedness are formed across diverse social groups, and ‘bonding social capital’ that cements only homogenous groups. Bonding social capital has negative effects for society as a whole, but may have positive effects for the members belonging to this closed social group or network. Bridging social capital, hence, making contacts between different groups or networks is positive. At the micro level this is related to Burt’s theory of structural holes, where the optimal position for an individual is between several groups (Burt, 1992).

The literature on social capital has mainly focused on what constitutes social capital, on the differences in its structure, and the consequences, rather than on explanations where social capital comes from (cf. Glaeser et. al., 2002). Since social capital is formed through

¹ Boix and Posner also mention that a) social capital contributes to effective governance by facilitating the articulation of citizen’s demands, b) social capital reduces the need to secure compliance by creating complex and costly mechanisms of enforcement and reduces transaction costs in the arena of citizen-government relations and c) social capital encourages the articulation of collective demands that are to everyone’s benefit.

network participation and social interaction in groups, it may well arise as a by-product of social interaction that is initiated mainly for other reasons. As argued above, man simply has a desire for socialising, just like he has a preference for food, shelter and material possessions. Our argument is that there may be a trade-off between satisfying materialistic wants and desires for socialising. Materialistic attitudes may thus come at the cost of socialising and reduce the accumulation of social capital.

Materialism, materialistic attitudes and acquisitive desires are studied in the marketing literature and studies on (business) ethics and economic psychology. Belk (1984, 1985) defines materialism as the importance that possessions play in an individual's life or the importance one attaches to their worldly possessions. Materialism is seen as a personal trait measured along the dimensions of envy, possessiveness and non-generosity. We are more interested in materialism as a value. Richins and Dawson (1992) approach materialism as beliefs on the value of material objects. They measure it along three dimensions: how central is acquisition, how much is it used as the pursuit of happiness, how important is possession-defined success. The study by Inglehart (1997) comes closest to our approach to materialism: he is also interested in the connection between economic development and materialism. In his view, high levels of development correlate with post-materialism, in which material consumption becomes less important relative to the consumption of services and civic liberties. In our view, the degree of materialism affects economic development through its effect on social capital.

We try to bring together some aspects of social capital at the micro level and the aggregate level and establish links with materialism. In our theoretical model, individuals endogenously choose how much time they spend on closed networks and open networks, depending on their preferences and the opportunity costs. Both networks provide opportunities for social interaction, for which individuals have a preference². Participation in open networks has the side-effect of protection against opportunistic behaviour by others. Each individual also optimally chooses time spent on rent-seeking activities, on work and on investment and learning. At the aggregate level, participation in open networks (i.e. bridging capital) translates in civic engagement. If the level of civic engagement is high in society, opportunistic behaviour becomes less attractive for individuals and a more efficient system of exchange stimulates the economy. We formally link these mechanisms to investment and economic growth and show that more bridging social capital may (but need not) go together with faster growth. The reason why bridging capital is not necessarily good for growth is that it requires the maintenance of networks, which is a time-consuming process and comes at the cost of working time³.

Our empirical model follows closely the structure of the theoretical model. By doing so, we aim to counter (parts of) the criticism raised by Durlauf (2002b, F474) on the

² In this respect, Putnam mentions the (Yiddish) distinction between *machers* and *schmoozers* (Putnam, 2000, 93-115). People who invest a lot of time in formal organizations are called *machers*, while those who spend many hours in informal conversation are termed *schmoozers*.

³ It is important to note that for atomistic agents any form of social interaction – be it either bridging or bonding social capital – yields benefits. The issue is that bridging social capital has a larger (positive) impact on economic growth than bonding social capital. Hence, we do not claim that socialising with family and close friends is a bad activity as such. The crucial point is the distinction between types of socialising; investing in bridging social capital is better from a growth perspective. In this respect Putnam (2000) makes a relevant distinction between ‘getting by’ (bonding social capital) and ‘getting ahead’ (bridging social capital).

empirical social capital literature. He writes that empirical studies seem to be particularly plagued by vague definition of concepts, poorly measured data, absence of appropriate exchangeability conditions, and lack of information necessary to make identification claims possible. Moreover, he writes that these problems are especially important as social capital arguments depend on underlying socio-psychological relations that are difficult to quantify, let alone measure. This chapter is a modest attempt to try to counter these criticisms. In this chapter, network participation is an endogenous variable so that the effect of social capital, formed through network participation, on growth requires a careful way of testing. In particular, we need to find relevant exogenous factors that determine simultaneously the level of social capital and economic growth. In accordance with the model, we use materialistic attitudes as an instrument: a preference for materialistic aspects of life relative to the social aspects of life directly affects network participation, and it affects growth only indirectly through network participation. The European Value Study provides the data on materialistic attitudes and social capital. Our results show that materialism can indeed explain the level of bridging social capital and that bridging social capital is positively correlated with economic growth.

5.3 The Model

5.3.1 Individuals' static decision problem

Individuals care about produced consumption goods (c) and social interaction⁴ (s). That is, their utility function has both material goods and social aspects as arguments:

$$u = U(c, s), \quad U_c, U_s > 0,$$

where subscripts to function symbols denote (partial) derivatives.

Social interaction is defined as participating in social networks, so that higher levels of network participation can be labelled as higher levels of social capital. We distinguish two types of networks. First, social interaction takes place with close friends and family (which we categorize as f-networks). Second, networks consist of more remote contacts outside the family, within and outside the community one lives, in clubs, pubs and public meeting places, in voluntary organisations (called v-networks). In Putnam's (2000) terms, f-networks and v-networks represent bonding and bridging capital, respectively. Interacting with others is possible in both of these networks, so that they are substitutes to a certain degree in satisfying the individual's preference for social interaction. As Fukuyama argues 'People are embedded in a variety of social groups – families, neighbourhoods, networks, businesses churches, and nations – against whose interests they have to balance their own' (Fukuyama, 1995, 21). However, each network type has its own specific type of social interaction: among friends and family feelings of affection and safety can be nurtured; among more remote contacts other interests may be pursued like self-realisation, social status seeking, information exchange, adventurous contacts with less known ideas and cultures. Hence, on balance the

⁴ From now on, when we write social interaction we mean socialising or sociability. In general, social interaction can also imply the fighting of a war, whereas socialising implies informal friendly social interaction. Nevertheless, in the remainder we restrict social interaction to the process of socialising.

two are substitutes but imperfect ones in the utility function, which is reflected in the sub-utility function for satisfaction from social interaction (s):

$$s = S(f, v), \quad S_f, S_v > 0.$$

Here, f (v) is the intensity of participation in f-networks (v -networks), to be measured by the time devoted to it. A convenient specification of the (sub)utility function is a constant elasticity of substitution (CES) function, in which two important parameters play a role: one indicating the relative weight of the arguments, and the other indicating how easily the two can be substituted for each other. The specifications are:

$$U(c, s) = \left(\mu^{1/\sigma_{cs}} c^{(\sigma_{cs}-1)/\sigma_{cs}} + s^{(\sigma_{cs}-1)/\sigma_{cs}} \right)^{\sigma_{cs}/(\sigma_{cs}-1)},$$

$$S(f, v) = \left(\phi^{1/\sigma_{vf}} f^{(\sigma_{vf}-1)/\sigma_{vf}} + v^{(\sigma_{vf}-1)/\sigma_{vf}} \right)^{\sigma_{vf}/(\sigma_{vf}-1)}.$$

The relative importance of material consumption is denoted by μ and will be referred to as the materialism preference parameter. The importance of f-networks relative to v-networks is denoted by ϕ and will be referred to as the family ties preference parameter. The elasticities of substitution between the two types of social networks is denoted by σ_{vf} , that between material consumption and social interaction by σ_{cs} .

Individuals choose how much they consume and how much they engage in social interaction. Their choices are constrained by a crucial time (or budget) constraint. Consumption is constrained by income, which is derived from working at a wage w and from transfers x according to the following budget constraint:

$$c = (n_0 - f - v)w + x,$$

where n_0 is total time available for working and social interaction, f and v is time devoted to social interaction in f-networks and v-networks respectively, w is the individual's wage and x is a transfer (which may be negative). Social interaction (that is, maintaining social capital) requires time, which comes at the cost of working time. Thus there is a trade-off between social interaction and material consumption. Through this channel, social interaction crowds out economic activity, so that the social capital created by social interaction has a negative effect on the economy.

To allow for a potential positive effect of social capital on the economy, we assume that social interaction in certain networks affects the degree of opportunistic behaviour. The idea is that agents engage in (time-consuming) rent seeking activities, by which we mean corruption and extorting, shirking and distrusting. By doing so they can effectively extract some of the income of others. However, participation in open networks (v) protects agents against rent-seeking: people that are in the same open network never rob each other. As an example consider a shopkeeper, who is left with some products that are below his normal quality standard (say a grocer with some vegetables not so fresh anymore). He could mix high-quality goods and low-quality goods and sell all of them as high-quality goods. The customers might notice the low quality only when they are at home. But then they do not find

it worthwhile to return to the shop and complain. The shopkeeper might also refrain from selling the low quality goods, or might sell them at a discount with the explicit warning about the quality. The shopkeeper can be argued to be less declined to cheat his customers, if he knows he will meet the customer at another occasion, in particular when socialising with the same person. This is because the customer might start to complain if product quality was low.

The idea is that open networks act like bridging capital in connecting different groups. Within these networks, participants build up reputation and show trustworthiness in order to be able to derive value from social interaction across the groups represented in the network. Thus, while the desire for social interaction is the primary reason to join the network, trust and protection against rent-seeking is created as a side-product.

To be precise, let z be the time devoted to preparing rent-seeking activities. Rent-seeking implies randomly selecting a number of persons and extracting income from them. The most direct interpretation of income extraction is simply theft or robbery. Many more indirect interpretations are possible also: shopkeepers may exploit uninformed customers by selling goods of inferior quality; workers may cheat employers by shirking; one might think of opportunistic behaviour in general. You can avoid cheating family or friends. Naturally, we assume rent-seeking is directed at persons outside your own community (f-network). However, you may run the risk that some of your some rent-seeking activity affects fellows from your v-network, something you can only avoid after you have already spent the time preparing the rent-seeking activities (that is after choosing z). We also assume you actually want to avoid damage to fellows from your v-networks, because they can exploit the network for some punishment or ostracism strategy.

On average a fraction $B(z)$ of the average wage of a person you target can be extracted. If all these possible gains would be taken, the expected benefit of rent-seeking would be $B(z)\bar{w}$, where \bar{w} denotes the average wage. However, only persons with whom one has no ties through v-networks will be eventually robbed, so the actual benefit is $(1-\nu)B(z)\bar{w}$.

Rents extracted from others amount to positive transfers to you. However, rents being extracted from you amount to negative transfers. The latter are higher, the higher is your wage, the more rent-seeking prevails in society and the smaller is the number of fellows in your v-network who will abstain from robbing you. These (gross) negative transfers can be expressed as $(1-\nu)D(\bar{z})w$, where $D(\bar{z})$ is the damage from being robbed per unit of wage income, and \bar{z} is the average level of rent-seeking activity in society. Thus, net transfers are:

$$x = (1-\nu)[B(z)\bar{w} - D(\bar{z})w], \quad B_z > 0, D_z > 0.$$

Since z is the time devoted to rent-seeking, it comes at the cost of time devoted to labour and social interaction. Normalising the total time endowment to unity, the following time constraint applies:

$$n_0 = 1 - z.$$

The complete decision problem of the individual agent can now be summarised as:

$$\begin{aligned}
 &\text{maximize} && u = U(c, s), \\
 &\text{subject to} && s = S(f, v), \\
 &&& c = (1 - v - f - z)w + (1 - v)[B(z)\bar{w} - D(\bar{z})w].
 \end{aligned} \tag{1}$$

The individual takes as given its wage, the average wage and average rent seeking level in society (w, \bar{w}, \bar{z} respectively). The first-order conditions for a maximum can be written as:

$$(1 - v)B_z(z)\bar{w} = w, \tag{2}$$

$$\frac{S_v(f, v)}{S_f(f, v)} = 1 - \left[D(\bar{z}) - B(z) \frac{\bar{w}}{w} \right], \tag{3}$$

$$\frac{U_c(c, S(f, v))}{U_s(c, S(f, v))} = \frac{S_f(f, v)}{w}. \tag{4}$$

Equation (2) is the condition for optimal rent-seeking: it states that the marginal benefits of rent-seeking (marginal expected gross transfers, left-hand side) should equal the marginal opportunity cost (the wage on foregone labour time, right-hand side). Equation (3) determines the optimal trade-off between the two types of network interaction. The left-hand side represents the amount of time devoted to v-networks a individual is maximally willing to give up in exchange for an additional unit of time devoted to v-network participation (marginal rate of substitution). The right-hand side gives the opportunity cost of engaging in f-network participation rather than in v-network participation (marginal rate of transformation). Spending time with friends has a relatively low cost compared to spending time in extra-community networks if the net loss from rent-seeking (term in brackets) is high. Equation (4) determines the optimal trade-off between the material consumption and social interaction in f-networks.

5.3.2 Static equilibrium under symmetry

The decisions of the individual agent depend on the society-wide variables like average rent-seeking, which in turn depend on the decisions of others. To solve for the macro-economic levels of the variables, we employ the simple assumption of complete symmetry: all agents have the same preferences and income and will make the same choices. Hence we have

$$\bar{z} = z, w = \bar{w}. \tag{5}$$

We can now also link the benefits of rent-seeking to the losses. We assume that if all agents engage in the same intensity of rent-seeking, the losses are a constant factor $1 + \zeta$ larger than the benefits:

$$D(z) = (1 + \zeta)B(z), \quad \zeta > 0. \tag{6}$$

Thus rent-seeking is a negative sum game: what the extorter gains, is less than the damage to the person being extorted. Part of the transfer may be lost “in the battle” or confiscated by authorities. One might also see this as an implicit way of modelling the costs that the victim has to incur to avoid cheating and shirking (monitoring costs). Parameter ζ captures this externality cost of rent-seeking.⁵

Our main question in this subsection is how economic activity (c) and bridging social capital (v) are related. Note that both variables are endogenous. Therefore, we need to identify how variations in exogenous variables simultaneously affect economic performance and social capital. The exogenous driving forces in the model are labour productivity (w), preference for family and friends ties (ϕ), and preference for material consumption (materialism μ). We reduce the model to two equations in terms of the endogenous variables c and v and the exogenous variables w, ϕ, μ . First note from (2) and (5), that z is a negative function of v :

$$z = Z(v), \quad Z_v < 0. \quad (7)$$

Next, substitute this result and (6) into (3) to find that f is a positive function of v and ϕ :

$$f = F(v; \phi), \quad F_v, F_\phi > 0. \quad (8)$$

Substituting these results into the budget constraint, we find:

$$\begin{aligned} c &= w[1 - v - F(v; \phi) - Z(v) - (1 - v)\zeta B(Z(v))] \\ &\equiv T(v; \phi, w), \quad T_\phi < 0, T_w > 0. \end{aligned} \quad (9)$$

This is a key result. It reveals that networks have an impact on the economy through five channels (corresponding to the five places where v shows up in the equation). First, more social interaction in v -networks directly reduces labour time and hence reduces output (see second term in brackets). Second, different types of social networking are positively correlated, so an increase in v -networking also increases time spent with friends and family and further reduces working time (third term in brackets). Together, we call these effects the *labour time crowding out effect*. The other three effects stem from the fact that v -capital protects against rent-seeking. In more dense social networks, rent-seeking is less, so that not only time is freed up for production (fourth term in brackets, recall that Z depends negatively on v), but also the negative sum externality is smaller (through lower probability that non-members meet and rob each other and through the smaller rent-seeking effort z). Whether economic activity is positively or negatively related with v -networks depends on whether the negative labour time crowding out effect dominates or not the positive protection against rent-seeking effect.

Equation (9) also reveals that materialism (μ) has no direct impact on the economy, but can have an indirect impact only through affecting v . Indeed, from (4), we find (after

⁵ We think that it is realistic to add this negative externality. However, all our qualitative results go through when $\zeta=0$.

substituting the solutions for f and z) another equation in c and v , which depends on all key exogenous variables, including μ :

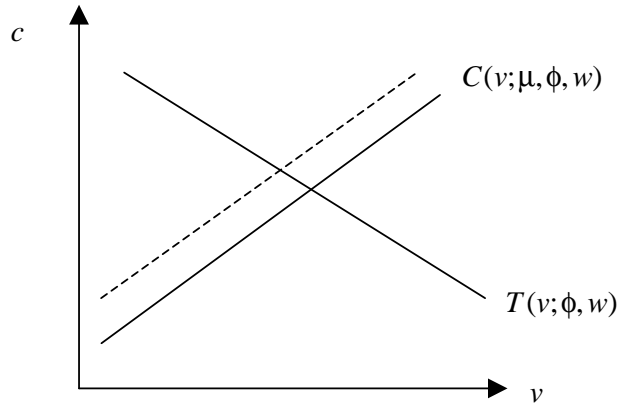
$$c = C(v; \phi, \mu, w), \quad C_v, C_\mu, C_w > 0. \quad (10)$$

In the appendix we derive a more precise solution by linearizing the model. We can prove that C increases in v , μ and w , but that the impact of ϕ cannot be unambiguously signed. This relationship shows that consumption and v -networks are positively related. The reason is simply that social interaction and material consumption goods are normal goods: richer persons spend more on both. As expected, more materialistic preferences (higher μ) or higher income (w) result in higher consumption for given v . A stronger preference for family ties (higher ϕ) has two opposite effects: it shifts attention away from material consumption (substitution effect), but it also implies that a given level of interaction with family and friends generates more utility from social interaction (cf. income effect). The latter effect makes material consumption scarcer relative to social interaction (s) and tends to raise c .

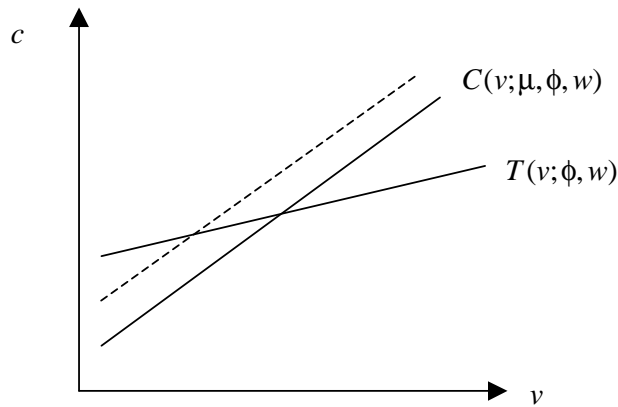
The two equations (9) and (10) simultaneously solve for the two endogenous variables, material consumption (c) and bridging capital (v). The two equations can be represented as the lines labeled T and C, respectively, in a simple diagram in the v, c plane (we draw lines instead of curves to stress that results are based on comparative statics, see appendix). The slope of the T-line is ambiguous because of the opposing labour time effect and protection effect. The upper and lower panels of Figure 1 represent the two possibilities.

We illustrate the working of our model by showing the effects of an increase in the materialism preference parameter (μ), which is a key determinant in our analysis. More materialistic attitudes make the C-line shift to the left. The point of equilibrium moves along the T-line. In the upper panel, the slope of T is negative since the labour time crowding out effect dominates; then consumption rises and bridging social capital falls. In the lower panel, T slopes upward since the protection effect dominates; then both consumption and social capital fall. Hence, materialism affects the economy (as measured by a change in c) through a change in voluntary organizations (a movement along the T-curve), but whether it boosts or hurt the economy depends on the relative strength of the crowding-out effect and protection-against-rent-seeking effect.

Figure 5.1 Semi-reduced form of the model (broken lines reflect increase in materialism).



a. Labour time crowding out dominates ($\epsilon_{Tv} < 0 < \epsilon_{Cv}$)



b. Protection against rent seeking dominates ($0 < \epsilon_{Tv} < \epsilon_{Cv}$)

Analysing changes in the other parameters in a similar way (and resorting to the mathematics in Appendix A to make results more precise), we find the comparative statics displayed in Table 1. For example, a rise in the family ties preference parameter (ϕ) reduces bridging social capital (as measured by v , see the minus signs in the fourth column), and is likely to reduce economic activity (see fourth column).

Table 5.1 Comparative statics, model without investment*

	Materialism (μ)		Family ties (ϕ)***		Labour productivity (w) $\sigma_{cs} < 1$ [$\sigma_{cs} = 1$] ($\sigma_{cs} > 1$)	
	c	v	c	v	c	v
Labour time crowding out dominates ($\epsilon_{Tv} < 0 < \epsilon_{Cv}$)**	+	-	?	-	?+	+ [0](-)
Protection against rent seeking dominates ($0 < \epsilon_{Tv} < \epsilon_{Cv}$)	-	-	-	-	+ [+] (?)	+ [0] (-)

* We assume $\epsilon_{Cv} - \epsilon_{Tv} > 0$, which implies that (10) has a steeper slope than (9) in the v, c plane. See appendix A for exact solutions.

** ϵ_{ji} denotes the elasticity of function J with respect to variable i . See appendix A.

*** The signs in this column are derived for the assumption: $\sigma_{vf} > \sigma_{cs}, \sigma_{vf} > 1$.

5.3.3 A dynamic version of the model

So far we have not directly studied economic growth. We have considered only the decision problem at a given moment in time. This section gives a simple extension of the model that allows us to study economic growth. First, we model firm behavior so that we can explain wages and national production levels. In particular, both variables depend on skills (or human capital) per worker and the technology level (or total factor productivity). Second, we model investment and technical change, so that we can explain the growth of production over time. In particular, we allow for investment in human capital and physical capital. Technological change arises from development of new technologies and absorption of foreign technologies.

The key finding is that the returns to investment are related to the level of social capital (network participation) in a way that is comparable to the relationship between the level of consumption and social capital that was found above in the static version of the model. Through the labor time crowding out effect more network participation reduces the returns to investment. In contrast, the protection against rent seeking effect creates a positive relationship between social capital and investment returns. Since higher returns to investment stimulate investment and growth in equilibrium, we infer from this that the relationship between growth and social capital is ambiguous: it is positive if the protection effect dominates.

Although our model relies on a specific way of modeling growth through technical change and human capital accumulation (Bils and Klenow, 2000, who build on Nelson and Phelps, 1966; and Mincer, 1974), the results carry over to other standard growth frameworks (e.g. Lucas, 1988; Rebelo, 1991). The time crowding out effect implies lower utilization of any kind of capital (or input) in the economic production process (for example physical capital, human capital). This reduces the incentives to invest in these capital goods (or inputs). Protection against rent seeking implies that the returns from investment can be better appropriated and thus stimulates investment and growth.

Human capital investment

We extend the individual's choice problem for investment in human capital through learning, as well as investment in financial wealth through saving part of wage earnings. The productivity of an individual depends on its human capital, which can be considered as its productive skills, to be denoted by h . Earnings are proportional to this human capital skill level: doubling h implies doubling earnings. Let w_h be the wage of a person with skill level $h=1$, n_w the time devoted to working. Then earnings of an individual with human capital h are $n_w h w_h$. [Note that the wage per unit of time thus equals $w_h h = w$, where w was used in the notation above].

By devoting l units of time to learning and training activities, the agent acquires a skill level $h = e^{\psi l}$ (cf. Mincer 1974, Bils and Klenow 2000). Learning time is chosen endogenously to maximize utility. From the complete decision problem (see appendix), the following decision rule for learning can be derived:

$$\psi h w_h [(1-\nu)(1-D(\bar{z})) - f - z - l] = w. \quad (11)$$

The left-hand side of this first-order condition represents the marginal benefits of learning: it raises human capital by ψh units, which increases earnings at wage rate w_h for each unit of time that human capital is employed (the term in brackets represents this working time). The right-hand side represents the marginal costs of learning, which consist of wages forgone because learning time comes at the cost of working time. The equation can be solved for the time spent on learning:

$$l = [(1-\nu)(1-D(\bar{z})) - f - z] - 1/\psi.$$

Substituting (5)-(8), we find that in a symmetric equilibrium investment in human capital can be written as a function of ν and exogenous variables:

$$l = L(\nu; \phi, \psi), \quad L_\phi < 0, L_\psi > 0. \quad (12)$$

Similar as in equation (9), five channels can be distinguished through which ν -networks affect learning. Also similarly, the elasticity of learning time with respect to ν -networks cannot be unambiguously signed. The labor time crowding out effect implies that more time spent on social interaction reduces labor time and therefore reduces the incentives to invest in productive skills through learning. The protection against rent-seeking effect implies that more (bridging) social capital reduces rent-seeking, reduces time spent on rent-seeking and reduces the loss of income through rent-seeking, which raise the returns to investment in skills. These two effects are of opposite sign.

As in the static model, a budget constraint and the demand for produced consumption goods complete the model. The model can thus be summarized by three equations in three variables (c , ν and l), and all endogenous variables can be solved in terms of the exogenous parameters. We restrict the analysis to the special case in which $\sigma_{cs} = 1$. Then, for example, the solution for bonding social capital can be written as:

$$v = V(\phi, \mu, \psi), \quad V_\phi, V_\mu, V_\psi < 0. \quad (13)$$

The assumption $\sigma_{cs} = 1$ makes the solutions for f , v , and l independent of w_h (cf. Table 1, bracketed entries). The reason is that income effects (higher wages raise income and raise demand for social interaction) offset the substitution effects (higher wages raise the opportunity costs of time spend not working).

Table 2 summarizes the comparative statics, which are formally derived in the appendix. The key result is that investment is either positively or negatively affected by materialism, depending on whether the crowding out or the protection against rentseeking effect dominates. As anticipated before, the results for l in the model with human capital are very similar to the results for c in the model above.

Table 5.2 Comparative statics, model with human capital*

	Materialism (μ)		Family ties (ϕ)		Investment productivity (ψ)	
	l	v	l	v	l	v
Labor time crowding out dominates ($\epsilon_{Lv} < 0$)	+	-	?	-	+	-
Protection against rent seeking dominates ($0 < \epsilon_{Lv}$)	-	-	-	-	+	-

* We assume $\sigma_{cs} = 1$, $\epsilon_{Cv} > \epsilon_{Tv}$. See appendix B for exact solutions.

Firms and regional output growth

Regional production (Y) is a function of physical capital (K), effective labor input (H), and technology (A):

$$Y = AK^\beta H^{1-\beta}. \quad (14)$$

Firms produce their output according to this production function. They hire labor and capital up to the point where the marginal products equal the wage (w_h) and interest rate (r), respectively.

$$A\beta K^{\beta-1} H^{1-\beta} = r, \quad (15)$$

$$A(1-\beta)K^\beta H^{-\beta} = w_h. \quad (16)$$

We assume that physical capital is regionally mobile so that the supply of capital is perfectly elastic at the exogenously given international interest rate. Solving for K in (15), and substituting into (14) and (16), we find that output and wages can be expressed as:

$$Y = (\beta/r)^{\beta/(1-\beta)} A^{1/(1-\beta)} H, \quad (17)$$

$$w_h = (\beta/r)^{\beta/(1-\beta)}(1-\beta)A^{1/(1-\beta)}. \quad (18)$$

Hence, increases in the technology level (A) and effective labor input (H) drive growth in output and wages.

The effective labor supply equals the labor time corrected for their skill level (or human capital) h . As above, we assume symmetry among agents (all have the same level h). Each agent supplies $(1-v-f-z)h$ units of (effective) labor at the wage w_h , but $(1-\zeta B)h$ units ultimately do not result in regional output, because they get lost in the process of rent seeking.⁶ Aggregate effective labor input is therefore (where N is the number of agents, or population size):

$$H = N \cdot [(1-v)(1-\zeta B) - f - z] \cdot h. \quad (19)$$

The level of technology a country can exploit is the result of technological innovation and absorption of foreign technologies. As in Nelson and Phelps (1966, cf. Bils and Klenow, 2000), a larger level of human capital per worker facilitates the absorption of foreign technologies. We choose the following specification for the growth rate of technology:

$$g_A = \alpha \ln(\bar{A}/A) + \lambda \ln h, \quad (20)$$

where \bar{A} is the world technology set a region can learn from. Note that this equation captures convergence through catching-up. As long as the technology gap with other regions, \bar{A}/A , is relatively large, the region has a large pool of technologies to absorb from other regions. As a result it realizes relatively fast technical change. That in itself, however, implies that the technology gap \bar{A}/A falls over time and technological change slows down. The other way around, countries with large technology levels relative to other regions experience relatively slow technical change (for similar levels of human capital). Hence, over time, the rates of technical change in the regions tend to converge.

Growth of per capita output can now be calculated as:

$$g_y = \alpha \ln(\bar{Y}/H) - \alpha \ln y + \left[\alpha \ln(1-v-f-z) + \left(\alpha + \frac{\lambda}{1-\beta} \right) \psi l \right] + \psi \frac{dl}{dt} + \frac{d[(1-v)(1-\zeta B) - f - z]/dt}{[(1-v)(1-\zeta B) - f - z]}, \quad (21)$$

where per capita output is denoted by $y \equiv Y/N$, where we have used (17) to eliminate \bar{A}/A and \bar{Y}/H is the average income per unit of human capital in rest of the world. In our model we can ignore the last two terms if (due to the assumption $\sigma_{cs} = 1$) l , v , f , and z are constant over time. In terms of testing the model, these terms are expected to be relatively small. Moreover, no time series data is available for these variables.

⁶ We do not subtract learning time. Thus we integrate the learning sector (education, training and consultancy) in our measure of output Y .

We are then left with three relevant terms that explain growth: the foreign income level, own income level, and the term in brackets, which can be written in terms of v and the parameters ϕ and ψ only (see (12), (8), (7), (6)).

- The first term at the right-hand side of (21) captures spillover effect: rich neighboring regions provide a region with the opportunities to learn from and grow faster.
- The second term at the right-hand side of (21) captures beta-convergence. Poor countries grow faster than rich countries, *ceteris paribus*, due to the technological catch-up effect just described.
- The third term at the right-hand side of (21) captures the effect of social capital on growth. Note that the sign is ambiguous because the labor time allocation effect may or may not be dominated by the protection against rent-seeking effect. Also the effect of ψ is ambiguous: on the one hand a higher productivity of learning enhances human capital, on the other hand it reduces hours worked.

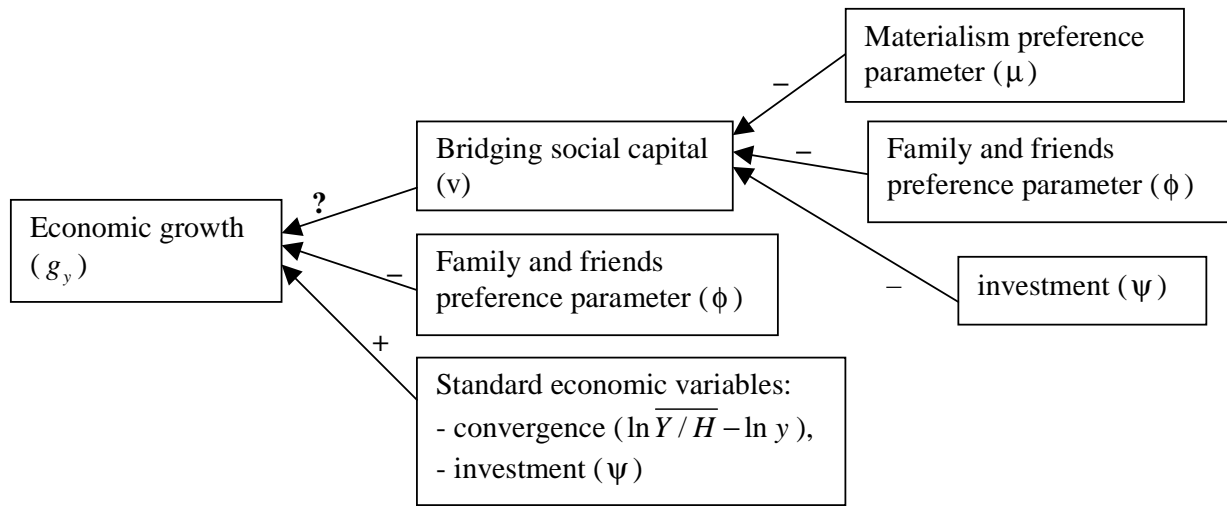
Of course, v is an endogenous variable, but its solution is already given in (13): materialistic attitudes, investment opportunities and family ties preferences affect the level of bridging social capital. Interesting to note is that materialism may be good or bad for growth. In particular, if the protection against rent-seeking effect dominates, more materialism leads to lower bridging capital and thus to lower growth.

5.4 The hypotheses

In the theoretical model, the following results have been derived about the relationship between growth and social interaction.

- Growth and bridging social capital are endogenous variables, which are simultaneously determined by attitudes towards spending time with friends and family, materialism, and the productivity of investment.
- Controlling for family ties, initial income, and productivity of investment, an exogenous increase in bridging capital may affect growth negatively or positively. In the former case, the time cost of networking dominates the productive benefits. The latter case arises if the protection of bridging capital against rent-seeking is strong enough (see equations (21) and (12)).
- Materialism affects growth only through bridging social capital.
- Family ties, investment and materialism negatively affect bridging capital. Initial income does not affect bridging capital (see (13)).

Figure 2 summarizes the model predictions. Arrows with plus (minus) sign denote positive (negative) relationships between two variables. In the next section we explain the background of the data and test the above hypotheses.

Figure 5.2 Graphical representation of the theoretical model

5.5 Measurement

In order to test the above hypotheses we investigate 54 European regions. By taking regions, we are able to test if Putnam's thesis on social capital based on Italian regions can be generalized (Putnam, 1993). Moreover, a European regional approach allows us to incorporate Temple's critical comment (1999) that countries differing widely in social, political and institutional characteristics are unlikely to fall on a common surface. Most important, however, is the fact that by comparing *national* cultures, 'we risk losing track of the enormous diversity found within many of the major nations of the world' (Smith and Bond 1998, 41). By studying regions and regional differences this risk is limited.

Data on social capital are taken from the European Value Studies (EVS), which is a survey on norms and values. The European Values Study is a large-scale, cross-national survey research program on basic human values, initiated by the European Value Systems Study Group (EVSSG) in the late 1970s. The EVS aimed at designing and conducting a major empirical study of the moral and social values underlying European social and political institutions and governing conduct. Its coordination centre is located at Tilburg University, The Netherlands⁷. Our data refer to 1990. The set comprises 7 countries, i.e. France, Italy, Germany, Spain, The Netherlands, Belgium, and the United Kingdom. In order to compare the data on norms and values with regional economic data we used the Eurostat definition of regions. The regional level in our analyses is the NUTS1 level. This implies that France consists of 8 regions, Italy 11, Germany 11 (former eastern regions excluded), Spain 7, The Netherlands 4, Belgium 3, and the UK 10 (including Scotland, excluding Northern Ireland). The total number of regions equals 54. Table 3 and figure 3 provide an overview of the regions included in our analysis.

⁷ Details regarding the sample size, response rate, the survey questions and the procedures followed to obtain non-culturally biased estimates (e.g. backward translation procedures), are extensively discussed at the website <http://uvt.nl/evs>. We use the 1990 wave for reasons explained in chapter 4.

Figure 5.3 Map of European regions

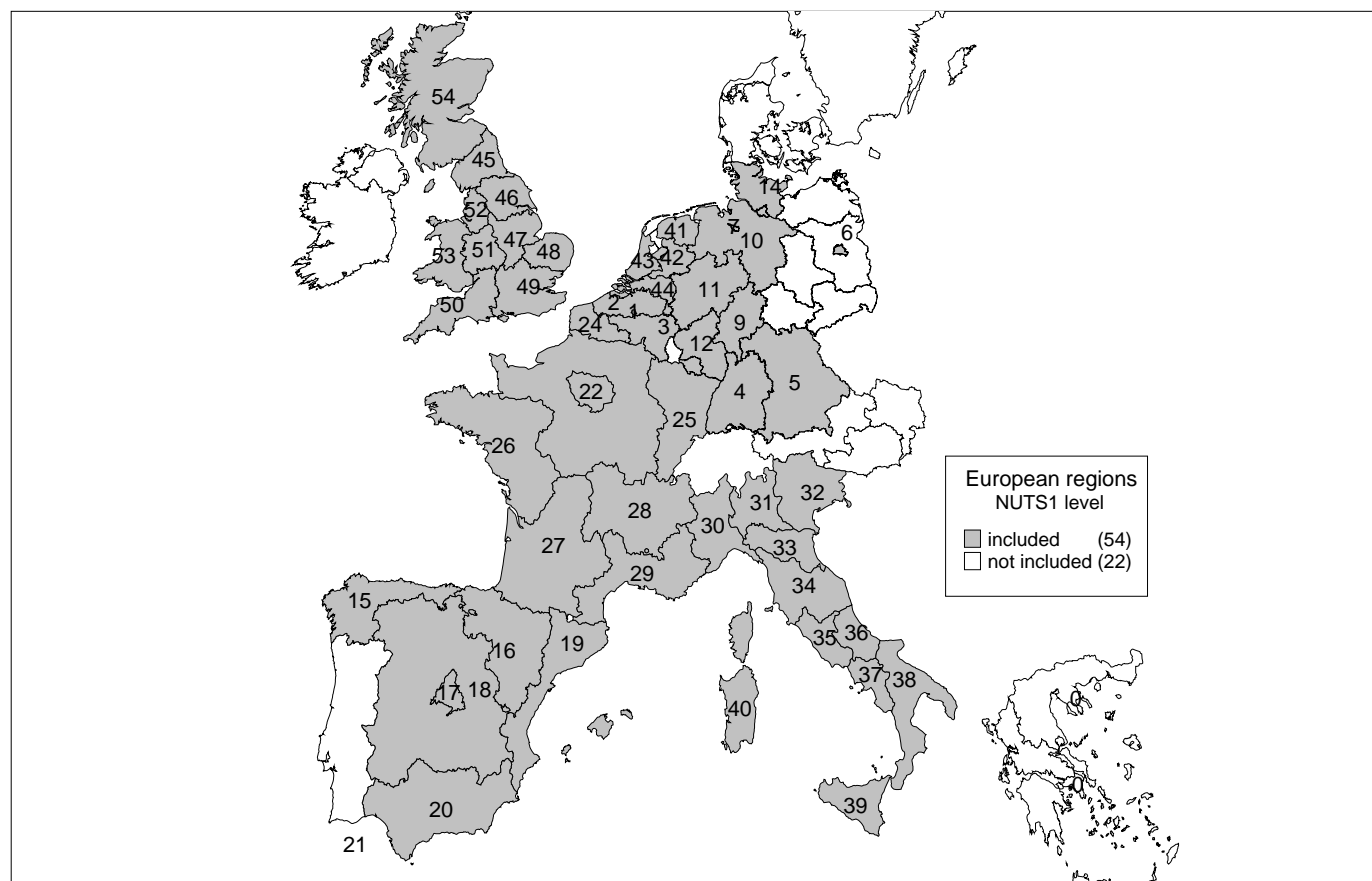


Table 5.3 Data for European regions

	<i>Region</i>	NUTS1 code		<i>Region</i>	NUTS 1 code
1	Reg. Bruxelles-Cap.	BE1	28	Centre-Est	FR7
2	Vlaanderen	BE2	29	Méditerranée	FR8
3	Wallonie	BE3	30	Nord Ovest	IT1
4	Baden-Württemberg	DE1	31	Lombardia	IT2
5	Bayern	DE2	32	Nord Est	IT3
6	Berlin	DE3	33	Emilia-Romagna	IT4
7	Bremen	DE5	34	Centro	IT5
8	Hamburg	DE6	35	Lazio	IT6
9	Hessen	DE7	36	Ambruzzo-Molise	IT7
10	Niedersachsen	DE9	37	Campania	IT8
11	Nordrhein-Westfalen	DEA	38	Sud	IT9
12	Rheinland-Pfalz	DEB	39	Sicilia	ITA
13	Saarland	DEC	40	Sardegna	ITB
14	Schleswig-Holstein	DEF	41	Noord-Nederland	NL1
15	Noroeste	ES1	42	Oost-Nederland	NL2
16	Noreste	ES2	43	West-Nederland	NL3
17	Madrid	ES3	44	Zuid-Nederland	NL4
18	Centro	ES4	45	North	UK1
19	Este	ES5	46	Yorkshire and Humberside	UK2
20	Sur	ES6	47	East Midlands	UK3
21	Canarias	ES7	48	East Anglia	UK4
22	Île de France	FR1	49	South East	UK5
23	Bassin Parisien	FR2	50	South West	UK6
24	Nord-Pas-de-Calais	FR3	51	West Midlands	UK7
25	Est	FR4	52	North West	UK8
26	Ouest	FR5	53	Wales	UK9
27	Sud-Ouest	FR6	54	Scotland	UKA

Our theoretical model and its implications summarized above closely guide our empirical model. We can distinguish two main features of the empirical model, the modeling of growth and the modeling of social attitudes and interaction. In this section we first discuss how we measure economic growth and then how we measure social variables.

5.5.1 Economic growth

We follow Barro and Sala-i-Martin (1995) who explain regional growth differentials in Europe between 1950 and 1990. As we have more recent economic data, we analyze the period 1950-1998⁸. To test the growth part of our theoretical model, we use the standard growth framework, in which economic growth is explained by a number of key economic variables (Baumol, 1986; Barro, 1991; Mankiw et. al., 1992; Barro and Sala-i-Martin, 1995). The basic growth model is similar to the one used in chapter 4.

Similar to Barro and Sala-I-Martin (1995), we have computed the regional growth figures by relating the regional GDP per capita information to the country mean.⁹ There are at least two reasons to use the country mean as a correction factor. First of all we do not have regional price data. Second, the figures on regional GDP are provided in an index form that is not comparable across countries. In addition one could argue that by measuring regional growth this way we directly control for national growth rates that may bias the regional growth rates. Hence, we have used Gross Regional Product (GRP) figures that are expressed as deviations from the means from the respective countries. The 1950 data are based on Molle, Van Holst and Smits (1980), whereas the data for Spain refer to 1955 and are based on Barro and Sala-i-Martin's (1995) calculations. Just as the other economic data, the 1998 data on GRP are drawn from Eurostat information.

Following standard empirical growth models as developed by Barro (1991) we include initial per capita income of the region (INITIAL INCOME), measured relative to the income of the other regions in the country (cf. Barro and Sala-i-Martin 1995). In addition we include a measure to control for the level of welfare of neighboring regions, as is common in regional growth analyses. Low initial income and large spillovers from other regions may stimulate growth by the convergence measure. Ideally one should use interregional input-output tables to calculate regional multipliers and construct a variable that controls for spatial correlation¹⁰. However, this information was not available. In order to control for spatial correlation, we applied Quah's (1996) approach and calculated the so-called neighbor relative income. This method implies that we use average per capita income of the surrounding, physically contiguous regions to control for spatial auto-correlation.. Hence, spillovers (SPILLOVERS) are measured as the average income of the regions adjacent to the region.

Next to initial income, 'Barro' regressions typically include measures for human and physical capital. Our proxies for the productivity of investment are educational attainment, national investment rates, and in addition we use a measure for the concentration of human

⁸ We also observed shorter periods of analyses for our dependent variable, e.g. the period 1970-1998.

⁹ Gross Regional Product of a region in 1950 is divided by the mean of the Gross Regional Products of all regions belonging to a certain country. A similar formula is applied to calculate the 1998 relative regional product. Regional growth over the period 1950-1998 is then based on these two indices.

¹⁰ There exist other ways to have a more refined control variable that can be taken into consideration, for example the physical length of abutting boundaries or the physical characteristics of the border terrain. However, these kinds of extensions go beyond the scope of the current chapter.

capital in agglomerations (created by the interaction of a dummy variable indicating the major agglomerations in a country and the school enrolment ratio).¹¹ Regions in which large agglomerations are present may benefit from scale economics, concentration of human capital, the presence of a cluster of specialized suppliers, and a market with a critical mass of consumers (network externalities). Further, the idea is that years of schooling (SCHOOLING) facilitate learning on the job (which was theoretically modeled by variables *l* and *h*). Schooling is measured by the total number of pupils at first and second level in 1977, divided by total number of people in the corresponding age group. The basic growth period we analyze is 1950-1998. The school enrolment rate in 1977 falls in between these dates and given the fact that school enrolment rates have increased since 1950, the 1977 information is a reasonable proxy for the average over the entire period. Data come from Eurostat. Data on school enrolment rates in Spanish regions refer to 1985.

Since regional investment rates are not available, we take the national rates (INVESTMENT). Apart from availability of reliable regional investment data¹², another reason to take the *country* level investment data, is the underlying assumption of a closed economy. Because of spatial interaction, regional investment figures would only provide a limited understanding of regional economic growth (Nijkamp and Poot 1998). Therefore we have taken the country level data. Data are taken from the Penn World Tables 5.6. The period for which we have calculated the average of the investment ratio is 1950-1992¹³.

5.5.2 Bridging social capital

To operationalise bridging social capital we follow Knack and Keefer (1997) by exploiting data on membership of certain voluntary associations. We measure bridging social capital by the density of associational activity, or in other words the average per capita membership of an association. Of the associations mentioned in EVS we have used membership of the following groups:

- a. Religious or church organizations
- b. Education, arts, music, cultural activities
- c. Youth work (e.g. scouts, guides, youth clubs)
- d. Sports or recreation
- e. Women's groups

The groups mentioned under a, b and c were also used by Knack and Keefer (1997) in their analysis of the Putnam groups and the relation with economic growth. We have chosen to add d and e as they also proxy associational activity that is *not* focused on rent seeking activities that can be expected from groups such as political parties and professional associations¹⁴. We expect the selected groups to involve social interaction that builds trust and cooperative habits, which is the reason why we label it bridging social capital. The average score of the

¹¹ We selected the Western part of the Netherlands, Greater Paris, Greater Berlin, Greater London, Barcelona area, Brussels, and the Italian region Lazio (Rome) as major agglomerations.

¹² Eurostat and Cambridge Econometrics do provide data on Gross Fixed Capital Formation. However, data are incomplete for some countries or in time.

¹³ Penn World Tables 5.6 provides data up to 1992.

¹⁴ Olson (1982) observed that associational activity may hurt growth because of rent-seeking activities.

According to Olson, many of these associations may act as special interest groups lobbying for preferential policies that impose disproportionate costs on society. In this respect, Knack and Keefer (1997) distinguish between Putnam and Olson groups. See also chapter 4.

density of group membership in 54 European regions equals .34 with a standard deviation of .18. The highest score (.80) is obtained in the eastern part of the Netherlands (Oost-Nederland), and the lowest score (.08) in the North-Eastern part of Spain (Noroeste). All data are based on 1990 information.

5.5.3 Bonding social capital and family ties

We measure preferences for family ties (preference parameter ϕ in the model) by EVS data on the relative importance of the closed social circle.¹⁵ On a scale of 1-4 (very important – not at all important) respondents are asked to indicate the importance in their life of family, and friends and acquaintances. By using factor analysis we re-scaled the two items in one dimension reflecting bonding social capital. Both on the individual and the regional level the chosen items converge into one dimension. The average value of bonding social capital in European regions is -.077. The regions where people attach the highest value to the close social circle can be found in the southern part of Europe. The region with the highest score on bonding social capital is the French Mediterranean (.23) and the region where people attach least importance to family and friends is the German region Bremen (-.46).

5.5.4 Materialism

To operationalise the degree of materialistic attitude towards society we use two proxies. First we use the well-known materialism-postmaterialism that Inglehart (1997, 2000) introduced. It is based on the relative importance respondents attach to the following items:

- a. Maintaining order in the nation
- b. Giving people more say in important government decisions
- c. Fighting rising prices
- d. Protecting freedom of speech

Of each of these four statements respondents are asked to indicate the most important and the next most important statement. The materialist/postmaterialist value is created as follows. If the respondent's first and second choices are both materialist items (i.e. maintaining order and fighting rising prices), the score is '1'. If the respondent's first and second choices are both postmaterialist items (i.e. giving people more say and protecting free speech), the score is '3'. If the two choices are any mixture of materialist and postmaterialist items, the score is '2'. In sum, a high score on this variable reflects a postmaterialistic attitude and a *low score reflects a materialistic attitude*. The mean score equals 2.04 with a maximum value of 2.29 in the region Berlin (Germany). The most materialistic according to Inglehart's materialism index are the people in the Italian region Campania (1.68).

In addition to the operationalisation of materialism based on Inglehart, we used a second proxy. EVS contains several questions on the importance people attach to various aspects of a job. Based on the question 'which of the following aspects of a job you personally think are important?' respondents are asked to indicate a number of aspects.¹⁶

¹⁵ We have no measures of time spent in closed networks (bonding social capital). This means that we cannot test equation (8) of the model. In other words, we look at purely stated preference instead of revealed preference with respect to bonding social capital. Instead, for bridging capital we use a measure closer to a revealed preference indicator (actual network participation).

¹⁶ The total list of aspects respondents are asked to choose from is: good pay, pleasant people to work with, not too much pressure, good job security, good chances for promotion, a job respected by people in general, good

Among these aspects some refer to materialistic values (e.g. good pay) and others to immaterialistic values (e.g. useful job for society). We selected the following items that reflect an immaterialistic attitude towards a job:

- a. pleasant people to work with;
- b. a useful job for society; and
- c. meeting people.

Using factor analysis we re-scaled these items into one dimension and aggregated the individual scores to mean scores for each of our 54 regions. The variable is scaled from immaterialistic to materialistic. We choose to label this variable job-related materialism. Hence, high scores on the variable *job related materialism* reflect a materialistic attitude. The highest score (most materialistic) is obtained in the French region Sud-Ouest (.56). The lowest score can be found in the eastern part of the Netherlands (-.58). Table 4 presents descriptive statistics of the variables defined above and used in the empirical tests

Table 5.4 Descriptive Statistics

	Mean	Std. Dev.
Bonding social capital	-.077	.17
Bridging social capital	.34	.18
Materialism-Postmaterialism (Inglehart)	2.04	.13
Job-related Materialism	.059	.28
Investment	24.25	3.74
Schooling	.51	.067
Growth 1950-1998	.029	.33
Initial income	-.003	.25

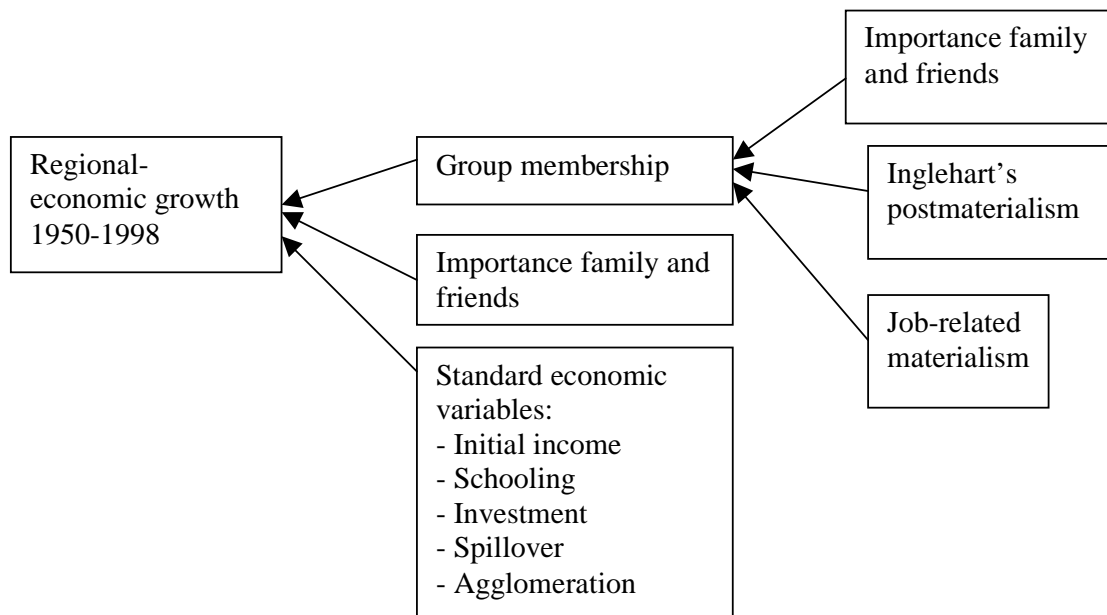
N=54. Note that 'Growth 1950-1998' and 'Initial income' are measured relative to the national average for reasons described in the text. The relative high standard deviation for both variables therefore does not have the usual interpretation. Growth is measured in percentage points. Initial income, as well as schooling, investment and bridging social capital are measured in logarithms (see main text for details).

hours, an opportunity to use initiative, a useful job for society, generous holidays, meeting people, a job in which you feel you can achieve something, a responsible job, a job that is interesting, a job that meets one's abilities.

5.6 Testing the model

Figure 4 depicts our testing strategy. The boxes correspond to the theoretical model in Figure 2, but the labels now refer to our data. For example, our measure of growth is regional economic growth 1950-1998 and one of our measures for materialism is Inglehart's index for materialism/postmaterialism.

Figure 5.4 Graphical representation of the empirical model (c.f. model 1 in table 2)



Our aim is to test the model in figure 4. In particular, we are interested in the sign of the relationship between growth and bridging capital. Here we have to take into account that bridging social capital and growth are simultaneously determined. To avoid a simultaneity bias, we need to instrument for bridging social capital. Hence we use a two-stage least squares (2SLS) testing strategy.¹⁷ In the first stage, we instrument social capital, by regressing our measure of bridging capital on our measures of materialism, family ties and investment productivity. Doing so, we test for the signs of the arrows in the North-East part of the figure (and of equation (13)). In the second stage, we use instrumented bridging capital, together with investment and convergence measures, as regressors for growth. Doing so we test for the signs of the left-hand side of the figure (and of equation (21) with (12) substituted). Needless to say, we are most interested in finding the empirically relevant sign of the relation between growth and bridging social capital which could not be determined a priori and was accordingly denoted by a question mark in figure 2.

¹⁷ We have checked for a possible endogeneity bias by using a Hausman test. It is common to test whether it is necessary to use an instrumental variable and estimate a 2SLS regression, i.e., whether a set of estimates obtained by least squares is consistent or not. We performed an augmented regression and concluded that estimating an OLS would not yield consistent estimates.

The results are summarized in table 5. We estimate different models. The first is our basic model in which our dependent variable is the average regional-economic growth of per capita income between 1950 and 1998. In addition to the basic model we estimate a number of other model specifications.

Table 5.5 IV-regression

2nd Stage Dependent variable: regional economic growth

	(1)	(2)	(3)	(4)	(5)	(6)
	Basic	'84-'98	Job-related Materialism excluded	Inglehart's Materialism excluded	Trust included as instrument	Regions excluded
Initial income	-.92 (.16)**	-.42 (.51)	-.92 (.16)**	-.92 (.16)**	-.92 (.16)**	-.84 (.18)**
Schooling	.49 (.34)	1.71 (.76)**	.49 (.35)	.50 (.35)	.49 (.34)	.43 (.35)
Investment	.33 (.23)	1.28 (.53)**	.34 (.23)	.33 (.24)	.33 (.24)	.35 (.24)
Spillover	.28 (.12)**	.64 (.29)**	.27 (.12)**	.28 (.12)**	.28 (.12)**	.27 (.13)**
Agglomeration	.43 (.24)*	.30 (.57)	.42 (.24)*	.44 (.24)*	.43 (.24)*	.37 (.24)
Bonding social capital	-.37 (.23)	-1.07 (.51)**	-.36 (.23)	-.39 (.22)*	-.37 (.22)	-.35 (.23)
Bridging social capital	.17 (.08)**	.46 (.18)**	.19 (.08)**	.14 (.09)	.17 (.08)**	.15 (.08)*
R-squared	.53	.44	.53	.53	.53	.45
N	54	54	54	54	54	52

1st Stage Dependent variable: bridging social capital

Bonding social capital	-.81 (.37)**	-.80 (.36)**	-.63 (.38)*	-1.02 (.43)**	-.82 (.37)**	-.81 (.38)**
Job-related materialism	-.63 (.27)**	-.60 (.27)**	-	-1.35 (.24)**	-.57 (.29)**	-.63 (.28)**
Inglehart's Postmaterialism	2.53 (.60)**	2.6 (.61)**	3.42 (.49)**	-	2.46 (.61)**	2.56 (.62)**
Trust	-	-	-	-	.43 (.63)	-
R-squared	.58	.58	.54	.43	.59	.58
N	54	54	54	54	54	52

Standard errors between parentheses. * indicates 10% significance, ** indicates 5% significance. The basic equation refers to the growth period 1950-1998. We only reported the variables of interest in the first stage and excluded the other exogenous variables. In model 6 we excluded the regions that have the maximum and minimum residual in the second stage of the regression. The regions we excluded are Schleswig-Holstein (Germany) and Nord Ovest (Italy). The regression in model 6 is based on the basic regression as shown in model 1.

The basic model in column (1) shows that bridging social capital has a positive and significant effect on regional growth. Bonding social capital has the negative sign predicted by our model, but is insignificant in the second stage. However, in the first stage, bonding social capital (or better, the preference for family ties) negatively affects bridging capital, in accordance with the model. Also materialism determines bridging capital with the correct sign and significant coefficient. The results on the effects of bridging capital on growth are worth being highlighted. Note that from the model we could not sign this effect

unambiguously because of two opposing forces. Empirically, we find a positive effect, which means that bridging capital is good for growth. This positive effect is statistically significant, but quite small in economic terms. A one percent standard deviation in bridging capital raises growth by only $0.17 \cdot 0.18 = 0.03$ percentage points. A assessment of the economic significance of the result that is more consistent with our estimation procedure yields a bigger number: a one standard deviation change in our three instruments (family ties and two types of materialism) raises growth through bridging capital by 0.11 percentage points. Over our 48 years sample period this amounts to the non-negligible increase of 5.4% in (last year's) regional income¹⁸.

The social capital variables in the basic model perform even better than the traditional variables like schooling and investment, of which the coefficient is insignificant. While schooling is often a problematic variable in growth regressions (Krueger and Lindahl, 2001), investment usually is a robust variable (Levine and Renelt, 1991). Note however, that we included national rather than regional investment rates.

In model (2) we change our period of observation 1950-1998 into 1984-1998. In this case results of course only change in the second stage, as the dependent variable changes. For our study, the most important change occurs with respect to the direct effect of bonding social capital on growth. In model (2) this effect is significantly negative in accordance with the model. This is an improvement relative to our basic model (1), which does not yield a significant direct relationship between growth and bonding social capital. Also remarkable is that the effect of bridging social capital becomes more than twice as large as in the basic model.

At the same time initial income becomes insignificant and schooling and investment become significant. The economic interpretation is that in the more recent period, the process of catching-up is completed and regional (and national) differences play a larger role in explaining growth differentials. The overall fit of this model is worse given the R-squared of .53 in model (1) and .44 in model (2). This is mainly caused by the poor fit of the standard economic variables, especially initial income. Whereas in the longer period of 1950-1998 convergence effects can be observed, our results indicate that for a shorter period 1984-1998 this effect cannot be empirically confirmed. This result is not remarkable and fits the general thought. Other authors have shown that on the European regional level especially in the 80s there was no convergence, some even suggest relative divergence (e.g. Fagerberg and Verspagen, 1995; Maurseth, 2001). In the third, fourth and fifth model specifications we reduced the number of instruments or added one.

Model (3) shows the results when the variable job related materialism is left out. Compared with the basic model this does not yield different results. Leaving out Inglehart's materialism index does however yield differences. As model (4) shows, bridging social capital is not significantly positive related to growth as it is in all the other models. The overall fit of the 1st stage model goes considerably down from .58 in model (1) to .43, suggesting it is important to include Inglehart's materialism index in the 1st stage.

Adding trust as an instrument to the 1st stage regression does not yield differences with the basic model. As analyzed and discussed in the previous chapter, trust is not

¹⁸ Note that this calculation is based on point estimates. As described in chapter 3, these type of predictions may be surrounded with considerable uncertainty.

significantly related to regional economic growth in Europe. The results in table 2 suggest that trust is not *indirectly* related to growth either. The relation between trust and bridging social capital is not significant when we use trust as an instrument for bridging social capital. In case we add trust as an instrument and exclude the other instruments the above conclusion does not change.

In our last model we tested if the reduction of observations influences our results. We have left out the regions that had the highest and lowest residual in the 2nd stage of our basic regression model (1). The regions left are Schleswig-Holstein (Germany) and Nord Ovest (Italy). The analysis for the reduced sample of 52 regions does not differ greatly of the results obtained in the basic regression on 54 regions. The main difference can be found in the fact that bridging social capital is not related to growth at the 5% significance level, but at 10% (though the reduction in significance is marginal, namely 6% versus 4%).¹⁹

5.7 Conclusion and discussion

We have developed a model to formalize the link between social capital, defined as participation in social networks, and economic growth. We identified two channels through which social capital and economic growth can be interrelated. First, network participation is a time-consuming process, which crowds out working and learning time and therefore tends to be negatively correlated with growth. Second, participation in networks that span different communities may create *bridging capital*. Trust is generated in these networks, which protects members against rent-seeking activities. The reason is that participants that know each other from the same network restrain their opportunistic behaviour towards each other, to maintain reputation within the group and to avoid ostracism or lighter forms of punishment. By this second channel, the relationship between growth and social capital tends to be positive. Such a positive relationship does not exist for *bonding social capital* and economic growth. Bonding social capital arises from networking within own communities of close friends and family. Within the own closed circle opportunistic behaviour is checked anyway, so an increase in time spent with your own close circle does not reduce opportunistic behaviour in the economy. Higher levels of bonding social capital are therefore likely to go together with lower rates of economic growth, since spending more time with family and close friends comes at the cost of working and learning time. Our empirical analysis of growth in 54 European regions confirms the importance of the distinction between these two kinds of social capital. Bridging social capital is empirically good for growth, while a large importance attached to family ties is negatively related to growth.

We have also stressed the fact that social capital is a choice variable that has to be explained from deeper economic and cultural variables. We think of cultural values as relatively stable over time and differing markedly across regions (cf. Baker et. al., 1981, Inglehart, 1977, 1997, Rokeach, 1973). The stability of ‘cultural’ variables over time answers the question if it is allowed to explain regional growth differentials in Europe between 1950-

¹⁹ We also excluded the observations with maximum and minimum value of growth (Bayern in Germany, resp. Nord Ovest in Northern Italy) and the maximum and minimum value for initial income (Hamburg, resp. South Italy). Thirdly, we used a so-called recursive method to check of the composition of the sample influenced our results. All these checks suggest that our results are robust with respect to the potential influence of outliers.

1998 and 1984-1998. Moreover, using a shorter period of analysis, e.g. 1991-1998 implies the use of short run growth rates, which are likely to be biased. One of the main contributions of the chapter is to provide empirical evidence for the link between differences in culture and social attitudes, on the one hand, and economic performance, on the other hand. A central variable in our analysis is materialism. For our European regional data, more importance attached to material possession is correlated with lower participation in voluntary organizations, which results through reduced bridging social capital in lower growth. Apart from generating explicit results on social values and economic performance, our two-stage approach also allowed us to address the simultaneity problems of which other studies have been criticized (Durlauf, 2002b).

In future research, more explicit attention could be paid to the distinction between bridging and bonding social capital. Note that bonding social capital was latent in our analysis. When data are available on actual time spend with family and friends, a more explicit analysis is possible.

Future empirical research is also needed to make the connection between the model and the empirics more precise with respect to one of the central mechanisms in our model. Measures of rent-seeking and corruption should be negatively correlated with measures of bridging social capital if our protection against rent-seeking effect is truly relevant. Unfortunately, this type of data on the regional level in Europe is hard to find. Also the theoretical modeling can be refined. In particular, in future work we plan to integrate into our growth framework the microeconomics of reputation, opportunistic behaviour and efficiency losses from cheating. We are convinced that general equilibrium modeling with micro-economic foundation can further our insights in the link between social values and economic performance and can fruitfully guide the empirics of social capital and cultural values.

Chapter 6

Entrepreneurial attitude and economic growth; A cross-section of 54 regions

This chapter is a joint work with N.G. Noorderhaven.

6.1 Introduction

Entrepreneurship is 'at the heart of national advantage' (Porter, 1990, 125). Especially in the field of economic geography and regional economics there has been a recent upswing in the interest in the influence of regional culture on regional economic development. The literature on regional clusters increasingly stresses the role of entrepreneurship and an entrepreneurial culture in explaining the economic success of regions.

In an analysis of U.S. biotechnology clusters Audretsch (2001) argues that the existence of an entrepreneurial culture is an important factor in fostering the start-up and growth processes of biotech firms. But also in related literature stemming from theoretical concepts like 'industrial districts' (Marshall, 1920; Markusen, 1996; Ottati, 1994; Rabellotti, 1998; Storper, 1992), 'regional innovation systems' (Cooke et al., 1997; Malecki, 1997) and 'the learning region' (Florida, 1995; Morgan, 1997) terms like 'regional innovative capacity' (Lawson and Lorenz, 1999), 'enterprise culture' (Amin and Tomaney, 1991), 'entrepreneurial ability' (Kangasharju, 2000), 'entrepreneurial human capital' (Georgellis and Wall, 2000) and 'regional cultures of innovation' (Thomas, 2000) are frequently used. It is argued that local social conditions play an important role in the genesis and assimilation of innovation and its transformation into economic growth. More specific, entrepreneurial attitude is seen as an important element of a regional culture facilitating the success of regional clusters and regional economies in general. Still, empirical research on the link between entrepreneurship as a driving force of economic development is not well developed (Wennekers and Thurik, 1999).

The measurement of entrepreneurial attitude is difficult and especially on the regional level it is hard to obtain data. The scarce empirical studies that explicitly take regional culture into account only measure it in an indirect way, either by allowing for region-specific effects (e.g. Georgellis and Wall, 2000) or using a proxy for regional culture (e.g. Kangasharju, 2000).

This chapter is an attempt to empirically test if certain societal characteristics are related to regional economic growth. In specific, we test if regions, the culture of which can be characterised as 'entrepreneurial', grow faster than regions that score lower on entrepreneurial characteristics. Despite the growing literature in the field of economic geography and regional economics in which the role of an entrepreneurial culture is stressed, to our knowledge nobody has explicated the values that make up this entrepreneurial attitude at the regional level. It is in most cases a black box, which is commonly referred to, but never demystified.

The contribution of the chapter is twofold. Firstly, we show that entrepreneurs differ from the rest of the population in several ways. Our analysis shows that entrepreneurs are more individually oriented. Individual responsibility and effort are distinguishing characteristics.

Secondly, based on these entrepreneurial characteristics, we construct a regional aggregate of 'entrepreneurial attitude'. We study 54 regions in Europe and show that regions that score higher on these entrepreneurial characteristics grow faster. By unravelling the soft factors influencing economic growth we open the black box of regional entrepreneurial

culture. Doing so, we shed empirical light on the relationship between entrepreneurship and growth.

In this chapter we start with a discussion why regional culture matters. Then, we study self-employed and compare their personality characteristics with the general working population. Based on a sample of 8,332 individuals we find 5 distinguishing characteristics of entrepreneurs. Building on these characteristics, the next step consists of constructing a score on entrepreneurial attitude for 54 regions in Europe. By using principal components analysis, we construct a measure of entrepreneurial attitude for each region. Based on standard growth analyses we test if regions that have more entrepreneurial attitude grow faster. We conclude with suggestions for further research and discuss the policy implications of our findings.

6.2 Why would entrepreneurial culture matter?

Wennekers and Thurik (1999) investigate the relationship between entrepreneurship and economic growth extensively. Building on various perspectives like macro-economic growth theory, historical views on entrepreneurship, industrial economics (mainly Porter's view), and evolutionary economics they try to synthesize these insights to provide a broad picture of how economic growth is linked to entrepreneurship. In their view, entrepreneurship is a behavioural characteristic of persons. Therefore, 'linking entrepreneurship to economic growth means linking the individual level to the aggregate level' (Wennekers and Thurik, 1999, 46). When describing the function of entrepreneurship in relation to economic growth, Wennekers and Thurik (1999) single out two major roles. The first has to do with the start-up rate of new firms. The second has to do with, what they call 'newness' in general. In the first role, the entrepreneur is seen as the founder of a new business. In the second case we think of enterprising individuals (intrapreneurs or corporate entrepreneurs) in large existing firms, who undertake entrepreneurial action.

Nations and regions that are characterised by a culture that is conducive to entrepreneurship may have higher start-up rates. This may, in turn influence economic growth in a way that is in the eyes of many researchers what entrepreneurship is all about. In an analysis of the effects of regional characteristics on gross firm formation in Finland, Kangasharju (2000) argues there are a number of local characteristics. Besides local market growth, agglomeration and urbanisation effects, and government policies, he argues that entrepreneurial ability is an important factor in explaining the profitability of firm formation. According to Kangasharju (2000) this entrepreneurial ability in a region depends on both the stochastic distribution of entrepreneurial talent among the inhabitants of a region and on region specific factors that enhance this ability. Georgellis and Wall (2000) study levels of entrepreneurship in terms of rates of self-employed across regions in Britain for the period 1983-1995. Besides labour market conditions, labour force characteristics and industry composition they find that the 'entrepreneurial human capital' of a region is an important explanatory factor.

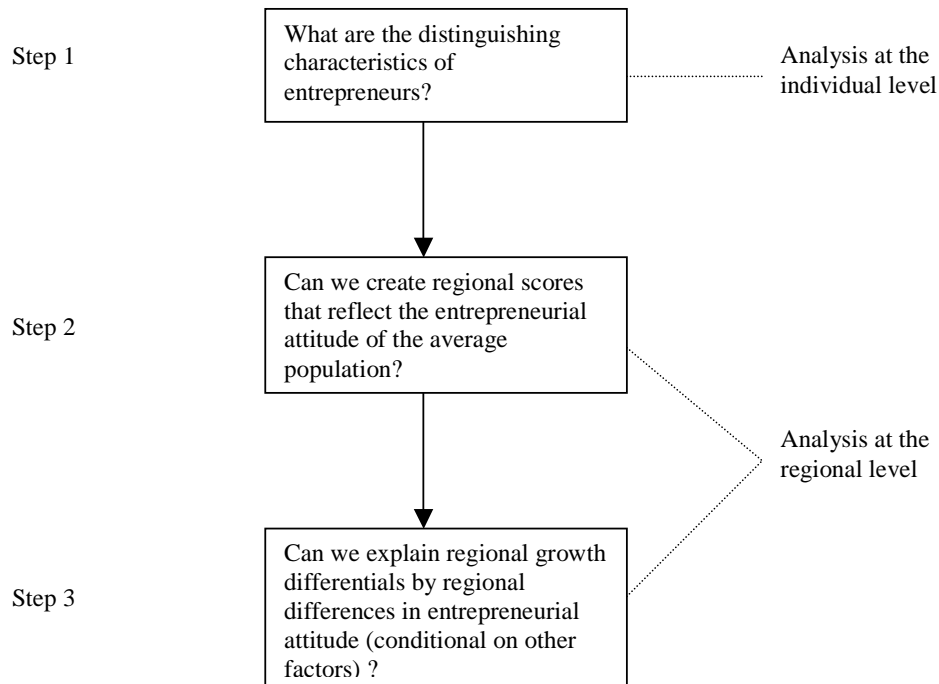
However, entrepreneurship not only occurs through the formation of new small firms but also in the form of corporate entrepreneurship. Stopford and Baden-Fuller (1994) identify three types of corporate entrepreneurship. The first type is what they call corporate venturing. This implies the creation of new business units of businesses within the existing organisation.

The second type relates to the transformation of strategic renewal of existing organisations. The third type is where the firm changes the ‘rules of competition’ for its industry. We can for example think of an innovation that fundamentally changes the industry. Intrapreneurship plays an important role in the process of strategic renewal of existing firms. It can be associated with alertness, finding new product-market combinations and innovation (Wennekers and Thurik, 1999). In the long run, it is expected to positively affect firms’ competitiveness. According to Penrose (1959), entrepreneurs are important for the growth of firms since they provide the vision and imagination necessary to carry out opportunistic expansion. In sum, this *intra*-preneurial activity may yield efficiency advantages within firms, which on the aggregate level results in higher growth rates.

But besides intrapreneurial activity or corporate entrepreneurship, other authors have focused on technological development in relation to the role of social conditions. In a historical overview of growth differentials between countries Abramowitz (1986) has emphasised the role of social capability. Although he does not provide us with a clear definition, he argues that ‘tenacious societal characteristics normally account for a portion, perhaps a substantial portion, of a country’s past failure to achieve as high a level of productivity as economically more advanced countries. The same deficiencies, perhaps in attenuated form, normally remain to keep a backward country from making the full technological leap, envisaged by the simple hypothesis [of catching up]’ (1986, 387). Abramowitz argues that a country’s potential for rapid economic growth partly depends on societal characteristics, which he refers to as ‘social capability’. A crucial element of Abramowitz’s concept of social capability is adaptability. Some countries may be more fitted to adapt to the requirements of changing circumstances. He assumes that there is a link between technological advancement and social capability and that that link is established through the capacity to adapt to change, i.e. adaptability. Together, social capability and technological gap define a country’s potential for productivity advance by way of catching-up. Or, as he puts it very clearly himself (1986, 390): Countries that are technologically backward have a potential for generating growth more rapid than that of more advanced countries, provided their social capabilities are sufficiently developed to permit successful exploitation of technologies already employed by the technological leaders. In an analysis of European regions Pose (1999) uses a similar argument to explain the regional variance in innovativeness. He introduces so-called “innovation-prone” and “innovation-averse” societies. Innovation-prone regions are those featured by a weak social filter, which facilitates the transformation of innovation into growth. Though it can be questioned whether the term *weak* or *strong* social filter captures the issue correctly, it is clear what Pose (1999) means. The social structure may hamper or promote the regional economic growth process through its impact on technological development. Pose focuses on innovative capacity and social filters. Besides other factors like the amount of local resources devoted to R&D, the nature of the type of R&D, the local economic structure and the nature of local production factors, the capacity of a region to assimilate and transform its own or foreign R&D into economic activity depends on social factors. The social settings in which economic activity takes place play a crucial role in determining the passage from R&D to innovation and growth. Local social conditions act as a social filter.

In sum, entrepreneurial culture influences (regional) economic growth in several ways. First, value patterns conducive to entrepreneurship may increase the start-up rate of new firms. Second, intrapreneurial activities may yield efficiency advantages within firms. Finally, social structures may influence the absorptive capacity and promote the degree to which countries or regions are able to adopt and adapt to new technologies. Social conditions may serve as a social filter, making societies innovation-prone or innovation-averse. Hence, ‘wherever entrepreneurial employees reap the benefits of their abilities, within the firm or in a spin-off, their activities are likely to enhance growth at a macro-level’ (Wennekers and Thurik, 1999, 45). We proceed as follows. First we study entrepreneurs and compare them with non-entrepreneurs. The analysis is at the individual level. After finding the distinguishing personality characteristics of entrepreneurs we aggregate these characteristics at the regional level. Finally, we test if entrepreneurial attitude is related to economic growth. The three steps in our analysis are depicted in figure 1.

Figure 6.1 Structure of the chapter



6.3 Entrepreneurial characteristics

Reviewing the literature on entrepreneurial trait research, Brockhaus (1982) identified three attributes consistently associated with entrepreneurial behaviour: need for achievement, internal locus of control, and a risk-taking propensity. More recent research on entrepreneurial trait research comes to similar personality characteristics (Thomas and Mueller, 2000). The first attribute, 'need for achievement', can be traced back to McClelland's study (1961), whereas the second attribute, 'locus of control', dates back to Rotter (1966). The concept of locus of control refers to the perceived control over events. Internal locus of control implies the individual's believe that he or she has influence over outcomes through ability, effort or skills. On the other side of the spectrum, external locus of control means the individual believes that forces outside the control of him or herself determine the outcome. It is clear that individuals with an internal locus of control are more likely to be entrepreneurs. The third attribute, risk-taking propensity refers to the acceptance of risk and failure. Moreover, as extensively described by Mueller and Thomas (2000), there appears to be strong evidence that entrepreneurs have a more innovative attitude than non-entrepreneurs. In sum, achievement motivation, locus of control, risk-taking propensity and preference for innovation are seen as the classic themes in the entrepreneurial trait research (Stewart et. al. 1998)¹.

6.3.1 Data

In order to operationalise the theoretical constructs that were discussed in the previous section, we now turn to the data we have used. The data-set we use to find distinguishing characteristics of entrepreneurs is the European Values Survey (EVS). The European Values Study is a large-scale, cross-national, and longitudinal survey research program on basic human values, initiated by the European Value Systems Study Group (EVSSG) in the late 1970s. The EVS aimed at designing and conducting a major empirical study of the moral and social values underlying European social and political institutions and governing conduct. Its coordination centre is located at Tilburg University, The Netherlands. By now, the survey comprises three waves (1981/1990/1999), of which we use the second one. In order to obtain regional scores on our indicators of entrepreneurial attitude in the second step of our analysis (see figure 1), we had to regroup the original individual data. In the following section, we discuss the details and operationalisation of our dependent and independent variables, as well as the control variables we included in our analysis for the first step of our analysis, i.e. the empirical distinction between entrepreneurs and non-entrepreneurs.

Dependent variables

Entrepreneurship is an ill-defined concept (OECD, 1998). Measurement of entrepreneurship is therefore difficult. Nevertheless, there are at least two basic ways in which

¹ It goes beyond the scope of this chapter to extensively review the existing studies on entrepreneurial trait research. Our only aim is to provide theoretical ground for the choice of our questions by means we measure entrepreneurial attitude. Our goal in this chapter is not to add insights to the literature on entrepreneurial trait research, but to open the black-box of regional culture. For an extensive overview of the entrepreneurial trait research we refer to Stewart et. al. (1998) and Mueller and Thomas (2000).

entrepreneurship can be measured. Firstly, it can be operationalised as ‘self-employment’ or ‘business ownership’. By measuring it this way, it serves as a *static* indicator. However, self-employment is a broader concept than the strict definition of entrepreneurs. Especially in the agricultural sector a large fraction of the total working population is self-employed, but it can be questioned if these are entrepreneurs in the true Schumpeterian sense, i.e. fit the idea of a process of creative destruction. The same holds for small retail shops or the category of firms that are known as ‘mom-and-dad’-shops. It is important to control for these factors in empirical research (Gartner and Shane, 1995). Secondly, to capture the *dynamic* aspect of entrepreneurship, it is often measured as nascent and start-up activity, also referred to as turbulence rate (total of entry and exit).

In the EVS entrepreneurship was measured by first asking whether the respondent was employed, and if the answer was positive, if he or she was self-employed. Thus our dependent variable is self-employment as indicated by the respondent him- or herself. This corresponds to what is common in entrepreneurship studies of a cross-sectional nature. We estimate two different regression equations. In the first analysis we compare self-employed with the rest of the population, including unemployed, retired people, students, and housewives. The number of observations equals 14,846 of which 888 are self-employed (6 percent). In our second analysis the reference category in the self-employment equation is the wage- and salary earners. Here the number of observations is 8332 of which again 888 are self-employed (10.6 percent).

Independent variables

In order to test for personality characteristics of entrepreneurs, we selected a number of questions from the EVS, based on existing literature on entrepreneurial trait research. These questions pertained to ascribed reasons for personal success or failure, values instilled in children, attitudes towards future developments, preference for equality versus freedom, and the attitude towards a number of social issues.

In the EVS respondents are asked to rate the importance of a number of explanations of why people are living in need, which is related to the earlier discussed concept of locus of control. Four possible answers are given, of which the respondents are asked to rate the importance: “because they are unlucky”; “because of laziness and lack of willpower”; “because of injustice in our society”; and “because it’s an inevitable part of modern progress”. We re-coded the four answer categories as dummies, with 1 if this reason was indicated to be important, and 0 if not. We think the second reason, referring to the individual responsibility, may be assumed to correlate positively with entrepreneurship, and the other reasons, referring to external factors, negatively.

Respondents were also asked to indicate which values they considered important qualities to teach children. Related to the characteristic of innovative, frame-breaking behaviour we selected qualities like “independence”, “imagination” and “obedience”. Other qualities selected were “thrift”, “hard work”, and “determination, perseverance”, of which the latter two can be seen as indicators of achievement motivation. Thrift can be seen as an indicator of internal locus of control, assuming that savings can be used for later investments to better one’s condition. All these questions were also re-coded as dummies. We expect all values, except “obedience”, to correlate positively with entrepreneurship.

Another question in the EVS asked respondents whether they evaluated positively or negatively various future changes in the way of life. We selected two possible changes as potentially positively related to entrepreneurship. As an indicator for innovativeness we selected “more emphasis on the development of technology”. Locus of control was proxied by the evaluation “greater emphasis on the development of the individual”.

We also selected a question in which the importance of freedom and equality was rated. A preference for freedom can be seen as an indication of an innovative attitude. Choosing freedom above equality suggests an interest in frame-breaking behaviour. We constructed a dummy variable, coded as 1 if freedom was considered more important than equality, and as 0 otherwise.

Then we chose a number of questions pertaining to the attitude of the respondent towards a number of social issues. In these questions respondents were asked to place their views on ten-point Likert-type scales with as anchors, respectively:

- | | | |
|--|--------|---|
| * <i>Incomes should be made more equal</i> | Versus | <i>There should be greater incentives for individual effort</i> |
| * <i>Private ownership of business and industry should be increased</i> | Versus | <i>Government ownership of business and industry should be increased</i> |
| * <i>Individuals should take more responsibility for providing for themselves</i> | Versus | <i>The state should take more responsibility to ensure that everyone is provided for</i> |
| * <i>People who are unemployed should have to take any job available or lose their unemployment benefits</i> | Versus | <i>People who are unemployed should have the right to refuse a job they do not want</i> |
| * <i>Competition is good. It stimulates people to work hard and develop new ideas</i> | Versus | <i>Competition is harmful. It brings out the worst in people</i> |
| * <i>In the long run, hard work usually brings a better life</i> | Versus | <i>Hard work doesn't generally bring success – it's more a matter of luck and connections</i> |

In the scales, low values are associated with the statement on the left hand, and high values with that on the right hand. All statements refer to risk-taking, except for the first statement that refers to achievement motivation and the last that reflects locus of control. We expect a negative correlation with entrepreneurship of all these variables, except for the first, where we expect a positive relationship.

Control variables

We included the GDP per capita (in 1990) to control for level of welfare (taken from Penn World Tables). Countries with a higher level of GDP and a corresponding lower share of the agricultural sector (Chenery, 1960) have lower levels of self-employed, as the number of self-

employed in the agricultural sector is relatively high and the number of small-scale retail and craft establishments ('mom-and-dad' shops) decreases with the rise of the GDP.

Furthermore we included a number of controls in the self-employment equation. Both self-employment and personality characteristics are most probably related to factors such as age, wealth, sex, labour market experience and human capital. The dataset allows us to control for sex, age, income and socio-economic status.

With respect to sex, we take females as the reference group. Female self-employment rates are generally lower than those of men (OECD, 1998). These lower self-employment rates of women are caused by different factors (see Verheul et al, 2001). An important factor limiting female entrepreneurship is the combination of household and family responsibilities. Though there are arguments favouring female self-employment, for example flexible time schemes (Cowling and Taylor, 2001), we expect more male respondents to be self-employed.

Income is only measured in an indirect way. For reasons of privacy, income is not measured in a direct way by asking the gross or net monthly income in the EVS. Instead, income is measured on a 10-point scale, which leaves room for perception and thus results in a rather subjective measure of income. Nevertheless, we decided to include it as a control variable.

Age is measured in years. For age we expect a curvilinear relationship, as young and old people are less likely to be self-employed. Other studies have also suggested this curvilinear effect (Evans and Leighton, 1989, Storey, 1994; Cowling and Taylor, 2001). Entrepreneurs tend to start a business when they are between 30 and 40 years old (Colombo and Delmastro, 2001). On the one hand, risk aversion and the costs of leaving an employment position are positively related to age, which decreases the age to be self-employed. On the other hand, young people may lack professional experience and relations and experience liquidity constraints, which have an upward effect on the age to start a business. As our data do not allow us to test when people have started their own business, we are not able to estimate the average age of a starting entrepreneur. Nevertheless, we still expect this curvilinear effect, as older people might have sold their business.

We also control for level of education or human capital. Lack of data does not allow us to use a direct measure of educational background. However, EVS contains information on socio-economic status. Interviewees are categorised in four groups. If the individual interviewed belongs to upper or upper-middle class it is coded 1. People belonging to middle class (non-manual workers) form the second group and the third class consists of manual workers (skilled or semi-skilled). The last group, coded 4, consists of unskilled manual workers.

Finally, we included country dummies to control for country-specific effects other than GDP. All kind of country specific effects may lead to national differences in the probability to become self-employed. For instance, Colombo and Delmastro (2001) find that the educational system in Italy lowers the percentage of self-employed. The institutional setting may also influence the decision to become self-employed. The national bankruptcy and antitrust law are important factors in this respect (Golodner, 2001).

6.3.2 Method

To empirically test for personal characteristics associated with entrepreneurship we used a logit equation. We estimate two models. In the first model we estimate the probability of self-employed versus the general population. The second model uses wage and salary-earners as a reference group. When a variable is statistically significant, it implies that entrepreneurs are different from non-entrepreneurs. In case a value is significantly positive (negative), it means that entrepreneurs score higher (lower) on this variable. The results can be found in table 1 on the next page.

6.3.3 Findings

Results are well interpretable. The self-employed distinguish themselves both from the general population as well as from wage- and salary earners in their stronger preference for greater incentives for *individual effort* and their opinion that the *state* should not take more *responsibility*. Moreover, they feel that *private ownership* should be increased, that unemployed should not have the *right to refuse a job* and that *success* is not a matter of luck and having connections but of hard work. All these findings fit in a picture of self-employed attaching more value to individual freedom and responsibility, and by nurturing values consistent with the frame-breaking creative destruction associated with Schumpeterian entrepreneurs. We also find that self-employed differ from the general population with respect to values that the self-employed think are important in raising children. Self-employed attach significantly more importance to *hard work* than the rest of the population. The non-significant finding in model 2 suggests that this characteristic is not a distinguishing factor between wage and salary earners and self-employed. In other words, our results suggest that *hard work* as a quality to teach children does not have to do with being self-employed, but with having a job, either as wage or salary earner, or as an entrepreneur.

As expected, the coefficient for GDP per capita is significantly negative. The predicted curvy-linear relationship between age and self-employment holds for the comparison of self-employed and the general population (model 1), but does not yield significant differences between self-employed and wage and salary earners. The reasons for the inverted-U shape in model 1 is that individuals tend to become self-employed at the end of their twenties or in their thirties and probably sell their firm or retire when they reach their sixties. If we compare self-employed with wage and salary earners we use a reference group that also retires at a certain age.

Table 6.1 Probability of being self-employed

People live in need	Model 1	Model 2
	Self-employed versus general population	Self-employed versus wage- and salary earners
Because they are <i>unlucky</i>	-0.23 (-1.22)	-0.22 (1.10)
Because of <i>laziness</i> and lack of willpower	0.13 (0.73)	0.12 (0.69)
Because of <i>injustice</i> in our society	-0.12 (-0.70)	-0.11 (0.59)
Because it's an <i>inevitable</i> part of modern progress	-0.15 (-0.82)	-0.16 (0.84)
Important qualities to teach children		
<i>Independence</i>	-0.03 (-0.37)	-0.05 (0.63)
<i>Hard work</i>	0.17 (2.03)**	0.10 (1.18)
<i>Imagination</i>	0.85 (1.01)	0.11 (1.24)
<i>Thrift</i>	-0.006 (-0.07)	0.04 (0.45)
<i>Determination, perseverance</i>	-0.05 (-0.63)	-0.025 (0.30)
<i>Obedience</i>	-0.12 (-1.46)	-0.11 (1.24)
Evaluation of future developments		
More emphasis on the development of <i>technology</i>	0.05 (0.63)	0.05 (0.60)
Greater emphasis on the development of the <i>individual</i>	-0.073 (-0.69)	-0.16 (1.53)
<i>Freedom</i> is more important than equality	0.12 (1.58)	0.089 (1.16)
Attitude towards social issues		
There should be greater incentives for <i>individual effort</i>	0.02 (3.34)***	0.02 (3.05)**
<i>Government ownership</i> of business should be increased	-0.02 (1.88)*	-0.027 (2.22)**
The <i>state</i> should take more <i>responsibility</i>	-0.03 (2.36)**	-0.029 (2.03)**
<i>Unemployed</i> should have the right to refuse a job	-0.03 (2.50)**	-0.027 (1.91)*
<i>Competition</i> is harmful. It brings out the worst in people	0.007 (1.07)	0.005 (0.75)
<i>Success</i> is a matter of luck and connections	-0.04 (2.85)***	-0.04 (3.02)***
Control variables		
GDP per capita 1990	-0.1 (8.79)***	-0.1 (8.84)***
Age	0.18 (11.28)***	0.027 (1.55)
Age squared	-0.002 (11.25)***	0.00005 (0.25)
Sex	0.71 (9.30)***	0.25 (3.15)***
Income	0.03 (1.74)*	-0.03 (1.79)*
Socio-economic status	-0.096 (2.73)***	-0.028 (0.81)
N	14846	8332
Chi ²	658.02	512.28
Log Likelihood	-3032.95	-2570.89
The dependent variable is 1 if self-employed. The reference group in model 1 is the general population, whereas the reference group in model 2 are the wage- and salary earners. Key-words in variable names in italics. T-statistics are in parentheses. *** = significant at 1% , ** = significant at 5% , * = significant at 10%.. GDP per capita in 1000 USD. Country dummies not reported. Estimation is logit in STATA. For the exact formulation of the questions see http://evs.uvt.nl		

As predicted, both models show that men are more frequently self-employed than women. The income effect is significant in both models (though only at 10%), with one crucial difference. In model 1 it is positively related to self-employment, whereas in model 2 it is negatively related. If we compare self-employed with the general population including retired people, students, and housewives, as we do in model 1, it can be expected that there is positive relationship between income and self-employed. The negative effect in model 2 is more surprising in this respect. It suggests that given our subjective measure of income, self-employed perceive their income as being lower than wage-and salary earners. This does not imply their actual income is lower, but means that given the risk entrepreneurs take - compared to wage and salary-earners – they feel their income is *relatively* low.

Socio-economic status is a significantly distinguishing factor between self-employed and the general population. Self-employed have a higher socio-economic status. Recall that socio-economic status indirectly reflects the educational profile of an individual (skilled-unskilled). The positive relationship between socio-economic status and being self-employed is logical if we compare this group with the general population. If we compare self-employed with wage and salary earners socio-economic status is not significant. The reason for this is that the variation in socio-economic status among the general population (including for example unemployed) is higher than among wage – and salary earners².

The next step in our analysis consists of constructing a regional aggregate that captures the characteristics we distinguished. In order to construct one measure for entrepreneurial attitude that is internally consistent and stable, we applied principal components analysis on the items included in this measure. The items we used in our analysis are the five items that were significant in both model 1 and model 2, i.e. the general population as well as the wage and salary-earners. We estimated the principal components by making use of the interval-scaled items ‘individual effort’, ‘government ownership’, ‘state responsibility’, ‘unemployed’ and ‘success’ (0-10). We obtain the following component matrix. The output shows that the 5 items can be grouped in 1 component (groups of items).

Table 6.2 Component matrix

1 component extracted	
Individual effort	.384
Government ownership	-.679
State responsibility	-.720
Unemployed	-.577
Success	-.628

For the analyses in the following sections we have calculated regional scores on entrepreneurial attitude on the basis of this five-item-based factor score. Following Porter (2001) our regional aggregate reflects the entrepreneurial ‘spirit’ at the regional level. We think of entrepreneurial attitude as ‘taking initiative, being innovative, shaping the environment according to one’s ideas and goals, etc’ (Brandstätter, 1997, 160).

² In the first model the standard deviation of socio-economic status equals 1.32, whereas this standard deviation is 1.20 in the second model, which confirms our reasoning.

6.4 Empirical test

In order to test if entrepreneurial attitude is related to economic growth, we have taken a standard growth framework, in which economic growth is explained by a number of key economic variables (Baumol, 1986, Barro, 1991, Mankiw et. al., 1992)³. These type of empirical growth regressions typically include initial level of welfare, and proxies for human and physical capital (mostly the school enrolment ratio and the investment ratio). These empirical growth models are also referred to as Barro-regression (after Barro, 1991).

We analyse the period 1950-1998. The number of regions equals 54. The set contains 7 European countries: France, Belgium, Italy, Germany, Spain, The Netherlands and the United Kingdom. The regional level is the NUTS1 level, which means that France is divided in 8 regions, Belgium 3, Italy 11, Germany 11 (former German Democratic Republic excluded), Spain 7, The Netherlands 4 and the UK 10.

We closely follow Barro and Sala-i-Martin (1995) who explain regional growth differentials in Europe between 1950 and 1990. As we have more recent economic data, we analyze the period 1950-1998. Similar to Barro and Sala-I-Martin (1995), we have computed the regional growth figures by relating the regional GDP per capita information to the country mean⁴. There are two reasons to use the country mean as a correction factor. First of all we do not have regional price data. Secondly, the figures on regional GDP are provided in an index form that is not comparable across countries. Hence, we have used Gross Regional Product (GRP) figures that are expressed as deviations from the means from the respective countries. An additional advantage of using relative data versus non-relative data is the direct control for national growth rates that might bias regional growth rates. The 1950 data are based on Molle, Van Holst and Smits (1980), except for the data for Spain which refer to 1955 and are based on Barro and Sala-I-Martin's (1995) calculations. The 1998 data on GRP are based on Eurostat information.

The basis for our regression analyses is the standard "Barro-type" of a growth regression, including the investment in physical capital, human capital and the initial level of economic development.

Investment ratio is measured at the country level. Data are taken from the Penn World Tables 5.6 as developed by Heston and Summers (1991). We have calculated the average of the investment ratio for the period 1950-1992. The latter year is chosen as 1992 is the latest year reported in the PWT 5.6. Apart from availability of (reliable) data, another reason to take the country level investment data and not the regional scores, is that regions form no closed economies⁵. Because of spatial interaction, regional investment figures would only provide a limited understanding of regional economic growth (Nijkamp and Poot 1998). Though we would need input-output tables to calculate the exact regional spread of investments, spatial

³ This basic model is similar to the ones used in chapter 4 and 5.

⁴ Gross Regional Product of a region in 1950 is divided by the mean of the Gross Regional Products of all regions belonging to a certain country. A similar formula is applied to calculate the 1998 relative regional product. Regional growth over the period 1950-1998 is subsequently based on these two indices.

⁵ Eurostat does provide data on Gross Fixed Capital Formation (GFCF), but data are incomplete for some countries and years.

interaction within countries suggests that regional investments may have considerable spillover effects to other regions. For the above reasons, we have taken the country level data.

School enrolment ratio measures the total number of pupils at the first and second level in 1977, divided by total number of people in the corresponding age group. The growth period we analyze is 1950-1998. The school enrolment rate in 1977 falls in between these dates and given the fact that school enrolment rates have increased since 1950, the 1977 information is a reasonable proxy for the average. Data come from Eurostat. Data on school enrolment rates in Spanish regions refer to 1985. We have taken uncorrected regional figures because it has been shown that migration plays only a minor role in European regions and the relation with per capita GDP is weak (Barro and Sala-I-Martin 1995; Begg 1995).

In order to control for concentration of human capital in agglomerations, we included a variable that consists of a dummy variable for the region in which an agglomeration is located multiplied by the score on the school enrolment rate⁶. Furthermore we controlled for spatial correlation. Ideally one should use interregional input-output tables to calculate regional multipliers and construct a variable that controls for spatial correlation⁷. However, this information was not available. In order to control for spatial correlation, we applied Quah's (1996) approach and calculated the so-called neighbour relative income. This method implies that we use average per capita income of the surrounding, physically contiguous regions to control for spatial auto-correlation. In our sample however, the 1950 data are related to national average and therefore reflect regional welfare relative to country mean. By using these data we implicitly assume that scores for neighbouring regions in foreign countries influence regional growth if the welfare in this neighbouring region is relatively high compared to the national average in their own country. Of the 54 regions in the sample, 19 have neighbouring regions in countries other than the region's own host itself. 4 had no neighbouring regions at all.

Hence, our basic regression analysis includes initial level of welfare, school enrolment rate, investment ratio, spatial auto-correlation and a variable that captures the concentration of human capital in major agglomerations. We have taken log-specifications for the first three variables. Table 3a provides an overview of the descriptive statistics. Table 3b plots the correlation coefficients between the variables used.

Table 6.3a Descriptive Statistics

	Mean	Std. Dev.
Investment	24.3	3.74
Schooling	0.51	.067
Entrepreneurial Attitude	0.15	0.27
Spatial spillover	0.92	0.30
Agglomeration	0.06	0.16

N=54; investment data are national.

⁶ Major agglomerations are the Western parts of the Netherlands, Greater Paris, Berlin, London, the Barcelona area, Brussels, and the Italian region Lazio (Rome).

⁷ There exist other ways to have a more refined control variable that can be taken into consideration, for example the physical length of abutting boundaries or the physical characteristics of the border terrain. However, these kinds of extensions go beyond the scope of the current chapter.

Table 6.3b Correlation table

	1	2	3	4	5	6	7
1. Growth 1950-1998	1	-0.149	0.13	0.051	-0.072	0.43*	-0.55*
2. Schooling		1	-0.31*	-0.049	-0.098	-0.28*	0.29*
3. Investment			1	-0.189	-0.028	0.39*	-0.0058
4. Spatial spillover				1	-0.189	0.19	0.169
5. Agglomeration					1	0.02	0.35*
6. Entrepreneurial attitude						1	-0.02
7. Initial level of welfare							1

* denotes 10% significance

The first model we estimated is the standard model, only including basic economic variables. As the results show, all variables except for the school enrolment rate are significant at the 5% level. Schooling is significant at the 10% level. Initial level of welfare is strongly negatively related to economic growth, which corresponds with the convergence hypothesis.

Table 6.4 Regression results

Entrepreneurial attitude and Regional Economic Performance, 1950-1998

Model	1	2
Dependent Variable	Regional Economic Growth	
Method	OLS	
Constant	-1.44 (.62)	-.11 (.62)
Initial level of welfare	-.97 (.20)***	-.93 (.169)***
Investment	.48 (.20)**	.14 (.18)
Schooling	.53 (.32)*	.65 (.30)**
Agglomeration	.53 (.20)**	.44 (.18)**
Spatial spillover	.31 (.09)***	.18 (.10)*
Entrepreneurial attitude		.49 (.13)***
R-square	.41	.53
VIF factor (maximum)	1.49	1.49
CW test	.69	.95

*Standard errors (White corrected) between parentheses. $N = 54$. *** 1% significance, ** 5% significance, * 10% significance. We have tested for heteroskedasticity (residual plots and Cook-Weisburg (CW test) and multi-collinearity (Variance Inflation Factors) and found no indications of a possible bias. If we observe the period 1970-1998 or 1984-1998, the conclusion on entrepreneurial attitude does not change.

In the second step we included our construct of entrepreneurial attitude. The result is shown in table 4. Initial level of welfare remains strongly negatively related to economic growth. Schooling becomes significant at 5% level. The investment ratio is insignificant and the spillover variable is only significant at 10% level. Our variable that measures entrepreneurial attitude is positively significant at 1%. This means that a value system reflecting an entrepreneurial attitude is positively related to economic success, measured as regional economic growth. The question is if our finding on entrepreneurial attitude is robust.

We applied several robustness tests. Firstly we tested for heteroskedasticity and multi-collinearity. As shown in table 4, the tests for heteroskedasticity show that this is not a problem. The Variance Inflation Factor (VIF) should not exceed values of 10 (Neter et al., 1996), and given the maximum value of 1.49 this indicates multi-collinearity is not a problem. In the next step we have tested for country-specific effects.

We have tested for country-specific effects in two ways. First we included country dummies. Second we have used cluster-based corrected standard errors where the clusters are defined on the basis of countries. When controlling for country specific effects, investment ratio is no longer significant. This is according to expectation, as the investment ratio is measured at the national level. In case country specific effects are included, the country effects pick up the variance in the investment ratio. More important is that entrepreneurial attitude remains significant at the 5% level.

In the next step we have applied Extreme Bounds Analysis (EBA) as developed by Leamer (1985). A relationship between a dependent variable and an explanatory variable X_i is considered robust if the relationship is of the same sign and statistically significant for any possible model specification. However, subsequent analysis relaxed this requirement. Sala-i-Martin (1997) introduced the criterion that the relationship should be significant in at least 95% of the cases, which has become known as the weak EBA test. For each variable, we calculate the fraction of significant results. The strong EBA test is fulfilled when a value of 1 is achieved. This means that a variable has the same sign and is statistically significant in all possible model specifications. If we regress on all possible combinations of the explanatory variables, we estimate 32 regression models in which entrepreneurial attitude is included.

Table 6.5 Extreme Bounds Analysis

Variable	Number of models	Mean value of estimated coefficient	Left side of confidence interval	Right side of confidence interval	Fraction of significant positive values	Fraction of significant negative values
Initial level of welfare (GRP1950)	32	-0.794	-0.853	-0.736	0	1
Schooling	32	0.055	-0.254	0.364	0	0
Investment	32	0.113	-0.046	0.272	0	0
Spatial spillover	32	0.086	-0.0041	0.175	0.0313	0
Agglomeration	32	0.094	-0.133	0.321	0.0313	0
Entrepreneurial Attitude	32	0.519	0.540	0.498	1	0

The results indicate that entrepreneurial attitude is significant and positive for all possible regression specifications. Hence, entrepreneurial attitude fulfils the strong EBA test and can be considered robust. Besides statistical significance it is also interesting to look at effect

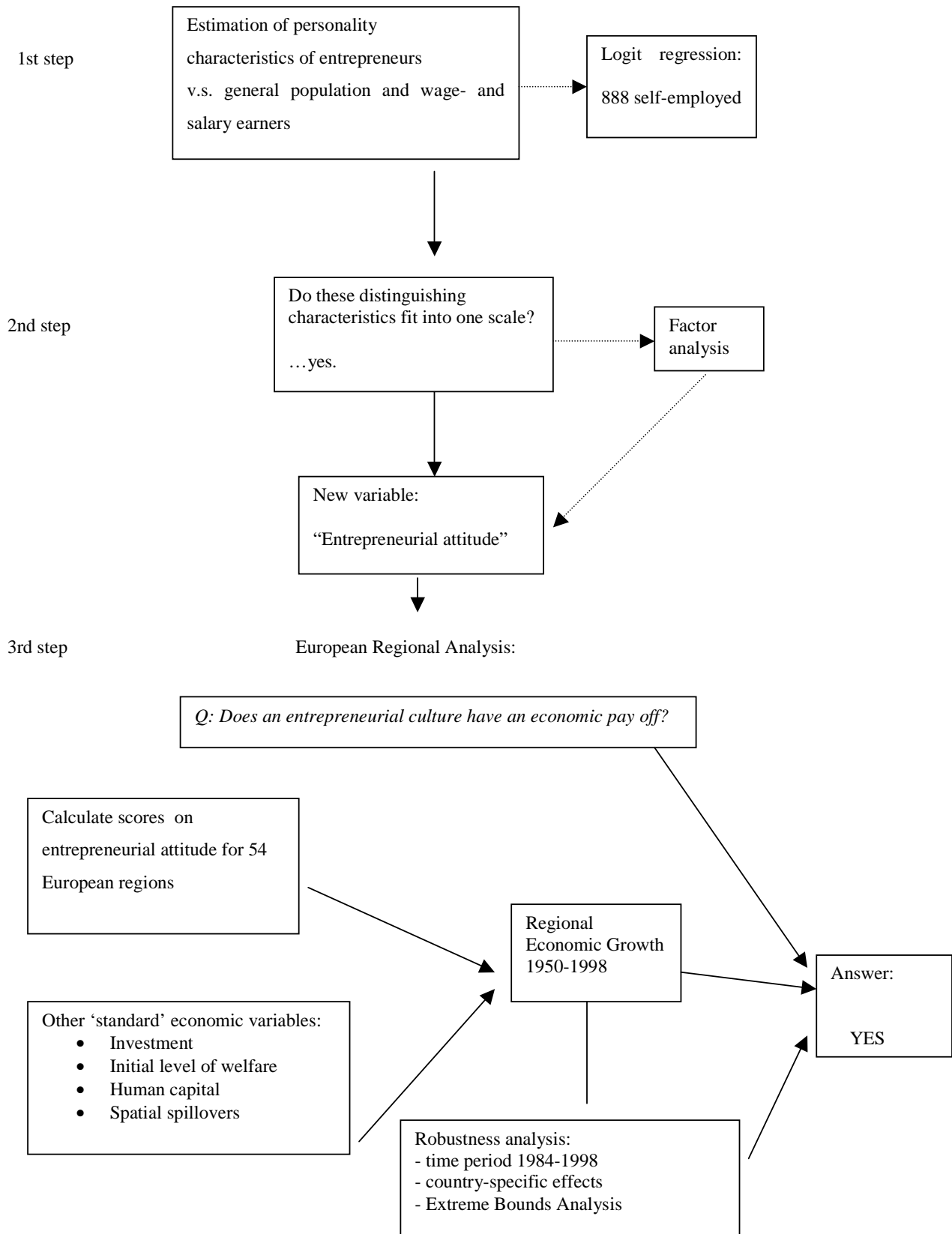
sizes. As table 5 shows the average value of the estimated coefficient of entrepreneurial attitude is .519. More important is the fact that the confidence interval for this variable lies between .540 and .498, which indicates that the effect of entrepreneurial attitude in terms of effects size can be considered relatively stable. We conclude that our robustness tests all indicate the persistent significance of entrepreneurial attitude on economic growth in the European regions. Figure 2 on the next page summarises the main steps we have taken in our empirical analysis.

6.5 Implications and Limitations

We have shown that local social conditions contribute to regional economic growth. The main theoretical implication of our analysis thus is that regional cultural differences can be linked in a meaningful way to regional economic outcomes. Even controlling for national characteristics, regional variations are important enough to have a significant impact on economic growth. As the delimitation of regions is based on an administrative criterion (NUTS), rather than on substantive social or economic criteria, the regional effects we found are likely to be underestimations of the real effects. Our findings raise the question what factors within regions lead to the formation and persistence of cultural characteristics conducive to economic growth.

An important question that remains is, through what mechanisms entrepreneurial attitude influences regional economic growth. On the one hand, it can be argued that regions with a higher score on entrepreneurial attitude may be expected to have higher start-up rates, which results in a relatively high share of self-employed. This may influence economic growth in a traditional Schumpeterian way. On the other hand, higher scores on entrepreneurial attitude do not necessarily imply a higher start-up rate, but may also be expressed in *intra*-preneurial activity. This *intra*-preneurial activity may increase the innovative capabilities of firms, which on the aggregate level results in higher growth rates. Future research might focus on the intermediating mechanisms between entrepreneurial attitude and regional economic growth. A logical next step would be to test if high scores on entrepreneurial attitude go together with a high level of entrepreneurship (number of self-employed). It is interesting to test if for example rate and level of technological development of firms in regions is related to entrepreneurial attitude. Another question is if the success or failure of regional development programs is related to entrepreneurial attitude in a certain region. It might be that regions in the process of structural change are better able to cope with the necessary re-structuring of the regional economy, if they have a higher 'amount' of entrepreneurial attitude. However, lack of regional data on European regions will probably be a problem.

Figure 6.2 Structure of the empirical part of the chapter



Our findings also have consequences for the current trend among policymakers to create regional innovation systems. The capacity of each region to build a successful regional innovation infrastructure is related to social conditions. It has been argued that especially the cultural uniqueness of successful examples like Silicon Valley and Third Italy makes copying of these successful regions difficult if not impossible (Hospers and Beugelsdijk, 2002). Our results suggest that lack of entrepreneurial attitude may be an important reason for the failure to create regional innovation systems in certain regions. Policy makers should be aware that entrepreneurial attitude differs from place to place and initiatives in the field of regional cluster policy may end up unsuccessfully for lack of entrepreneurial attitude. Hence, in promoting high-tech regions, governments may not only develop R&D programs but also initiatives that aim at increasing the entrepreneurial attitude. In line with the findings of Kangasharju (2000), the results of our study call for the encouragement of culture and tradition favourable to self-employment. This is a long term project, as it takes time for such a regional culture to be developed and take root.

One of the limitations of our study is the fact that we used data on entrepreneurial attitude based on a 1990 survey and estimated regional economic growth for the period 1950-1998. Lack of data concerning regional origin of respondents prevents us from using the 1981 wave of the EVS surveys. However, as cultural characteristics are persistent in time (Hofstede, 2001), the possible lack of internal validity is probably limited. Moreover, we minimized the possible effect of endogeneity by testing the effect of entrepreneurial attitude on the regional-economic growth between respectively 1970-1998 and 1984-1998. As described under table 4 the conclusion on entrepreneurial attitude does not change. A logical next step is to identify intermediating mechanisms through which entrepreneurial attitude influences regional economic growth. The existing case studies on regional systems of innovations and clusters provide sufficient conceptual ideas.

6.6 Conclusion

In this chapter we have established an empirical link between entrepreneurial attitude and economic growth. Entrepreneurial attitude as a behavioural characteristic has been determined by means of an empirical test in which we compare self-employed with respectively the general population and wage-and salary earners. Based on these distinguishing characteristics we calculated a regional aggregate that reflects the average score of this entrepreneurial attitude of a population in a region. We have estimated post-war economic growth for 54 European regions and we have shown that entrepreneurial attitude is an important explanatory factor for the explanation of growth differentials. We have opened the black box of entrepreneurial culture, which in this literature often is designated to be important, but rarely empirically analysed. Using a unique dataset on norms and values in 54 European regions, we have shown that regions do indeed differ in entrepreneurial attitude, and that a relatively high score on entrepreneurial characteristics is correlated with a relatively high rate of regional economic growth.

Chapter 7

Towards a unified Europe? Explaining cultural differences by economic development, cultural heritage and historical shocks

This chapter is a joint work with A.B.T.M. van Schaik.

7.1 Introduction and background

In March 1957 six nations signed the historic Treaty of Rome, setting in motion the economic and political integration of Western Europe. The infant European Community had from the start an overriding priority to unite countries previously at war and in doing so lay the basis of a European union. But, besides this 'ultimate' political goal, the actual agenda was essentially concerned with more routine policy issues like trade, agriculture, and the coal and steel industries (Albrechts, 1995). The Treaty of Rome envisaged an integrated market for the free movements of goods, capital, labour and services, also known as the 'four freedoms'. The process of economic integration resulted in the adoption of the Single European Act, implying that the Heads of Governments of the - by then - twelve member states committed themselves to complete the internal market by the end of 1992.

The increased European integration is altering the architecture of the Western European state. Regions are no longer confined to national borders but increasingly have become an element in European politics. Keating (1998) argues that this erosion of the boundary between domestic and international politics is due to the increased interdependencies among policy spheres. This transforms the state-centered politics in the increasingly unified Europe. But also Ohmae in his 'End of the Nation State' claimed that functional imperatives at the global level are breaking down nation states in favour of regional entities (Ohmae, 1995). All in all, the process of European integration has resulted in blurred boundaries of nation states. And the completion of the internal market has further triggered this increased European regionalism. In fact, the European Commission even formulated a vision of a so-called 'Europe of the Regions' in which there would be a reasonable homogeneous regional social-economic structure across Europe. This vision of a 'Europe of the regions' is attractive, because it (admittedly vaguely) refers to a Europe that is 'geographically decentralised, economically competitive, politically pluralist, with a refreshed democratic life that draws upon diverse provincial and national identities' (Garside and Hebbert, 1989, in: Newlands, 1995).

But this regionalism in Europe is not new. Regions and regionalism have a long history in Europe. Many regions predated the rise of the nation state and shaped the emergence of the state system. In some countries more than in others, regions constituted an obstacle to centralized state and nation building, and remained as an element in the politics of states. Before the rise of modern nation-state Europe was a highly differentiated political order. Power was fragmented territorially, among empires, kingdoms, principalities, cities as well as functionally among the political, religious and economic spheres. Germany, for example only unified into a single state in 1871. As a result of global processes and European integration in specific, regions are again gaining prominence in political, social and economic life. Hence, the recent enthusiasm in regions and regionalism that had its peak in the middle of the 1990s is not new. Arguing so would ignore the historical role of regions in Europe.

Regional identity is a key element in the construction of regions as social and political spaces and systems of action. One measure of regional specificity is provided by the existence of different values, norms and behaviour among regions within the same nation state. The most

common sources of such values and patterns of social communication are religion and language (Keating, 1998). 'In general these follow state boundaries, since following the Reformation states determined the religious affiliation of their citizens, while state-imposed language policies were a force for national integration from the nineteenth-century, and in some cases earlier. Yet in some cases, notably Germany, the state was formed after the Reformation, and religious divisions became identified with regions within it' (Keating, 1998, 85).

Nevertheless, one of the driving forces behind the 'new' regionalism is provided by the economic restructuring and rapid changes in modes of production from the Fordist mode of production (large scale, standardized units for national markets) to post-Fordism (flexible production, small units). Though there are differences between territories and sectors, it can be argued that the geography of production has changed (Piore and Sabel, 1984). Some territorially based factors are becoming less important, enhancing the freedom of firms to choose locations, but many of the new critical factors are themselves territorial. Hence, at the time of globalisation, there is a resurgence of regional economies.

In this chapter we study the cultural aspects of the 'Europe of the regions'. We try to explain value differences in European regions. In explaining value differences between regions we build on Inglehart, who has described and empirically analysed the relationship between cultural values and economic development (1990, 1997, 2000). Inglehart and Baker (2000) have shown that economic development is linked with systematic changes in basic values. Their main argument is that economic development has a number of systematic and predictable cultural and political consequences (*ibid.*). However, Inglehart and Baker show that cultural change does not follow a linear path, but in fact has two dimensions. The first relates to early industrialization and the rise of the working class. The second dimension reflects the value changes that are linked to the affluent conditions of advanced industrial society and the rise of the service sector. In addition to these findings, Inglehart and Baker find evidence for the persistence of distinctive traditional values and conclude that cultural change may be path-dependent.

The explanation of value differences is particularly interesting against the background of a unifying Europe and the idea of a 'Europe of the regions'. The question we try to answer in this chapter is if we can speak of cultural unification in Europe. And in case of cultural differences across European regions, the question arises if we can explain these value differences? And can we say something on the possible convergence of values across Europe?

The outline of the chapter is as follows. In the next section we describe Inglehart's thesis, which is central to our further analyses. Then we describe the measurement of the two basic cultural dimensions as developed by Inglehart. After that we show that regions in Europe differ considerably on these two basic dimensions and we shed some light on the general direction of value change in time. Then we use regression analysis in order to try to explain value differences across European regions. We build on our regression results and perform an experiment by means we aim to shed light on the question if there is value convergence across European regions.

7.2 Inglehart's thesis: economic development and path-dependency

Before describing Inglehart's thesis on the relation between culture and economic development, we need to define culture. The term culture has a multiplicity of meanings. Narrowly understood it refers to the arts and entertainment, whether upscale or popular (cf. Van de Ploeg, 2002). More generally, it can be understood as the perceptual frames, values and norms used in social life: as a way society looks at itself and as a filter of what it sees. The two are connected, in that arts and entertainment provide symbols of identity and representations of social norms as providing a more or less distorting mirror to society. But even generally understood, numerous definitions of culture exist, and most include elements like meanings, values and religion or ideology. One of the most accepted and extensive definitions is the one proposed by Clifford Geertz. He defines culture as 'an historically transmitted pattern of meanings embodied in symbols, a system of inherited conceptions expressed in symbolic forms by means of which men communicate, perpetuate, and develop their own knowledge about and attitudes toward life' (1973, 89). Hofstede's more succinct definition of culture as the 'collective programming of the mind' comes close to the one by Geertz (Hofstede, 2001, 1). Hofstede adds that culture does not only manifests itself in values but also in more superficial ways, in symbols, heroes and rituals (ibid.). A central element in most definitions of culture is the concept of values¹. Similar to culture, numerous definitions exist but here we follow Hofstede (2001). Building on a large body of literature he defines a value as a 'broad tendency to prefer certain states of affairs over others' (Hofstede, 2001, 5).

In numerous publications Inglehart has described and empirically analysed the relationship between cultural values and economic development (1990, 1997, 2000). He writes that 'in marked contrast to the growing materialism linked with the industrial revolution, the unprecedented existential security of advanced industrial society gave rise to an intergenerational shift towards postmaterialist and postmodernist values' (Inglehart and Baker, 2000, 21). Industrialisation is linked with an emphasis on economic growth at almost any price, whereas in affluent societies elements like the quality of life, environmental protection and self-expression are emphasized. As Bell (1973) writes, industrialisation brought less dependence on nature and the world became mechanical, bureaucratic and rationalized. The rise of the service economy coincides with the reduced emphasis on material objects and a growing emphasis on self-expression (Inglehart, 1997). In sum, the shift from industrial to service economies goes together with a shift in value priorities from an emphasis on economic and physical security toward an increasing emphasis on subjective well-being and quality of life.

Inglehart's central thesis is that economic development has systematic, and to some extent, predictable cultural and political consequences. According to Inglehart these consequences are not iron laws of history, but probabilistic trends. In other words, the probability is high that certain changes will occur as societies economically develop, but it also depends on the specific cultural and historical context of the society in question.

¹ For an excellent overview of definitions of 'culture' and 'values' we refer to Chapter 1 'Values and Culture' of Hofstede's 2001 revised second edition of *Culture's Consequences*.

Inglehart's thesis differs from traditional modernization theorists, who argue that the decline of 'traditional' values and their replacement with 'modern' values occurs as a result of economic and political forces. Modernization theory heavily borrowed from Marxism as it essentially has an economic view of the underlying forces of historical change. The dialectical process of historical evolution should be reasonably similar for different human societies and cultures. As Marx has stated in the preface of the English edition of *Das Kapital* 'the country that is more developed industrially only shows, to the less developed, the image of its own future'. In other words, this modernization school predicts the convergence of values in the long run. But as Fukuyama (1992) writes, modernization theory is somehow not satisfying. It is a theory that works to the extent that man is an economic creature, to the extent that he is driven by the imperatives of economic growth and industrial rationality. Its undeniable power derives from the fact that human beings, particularly in the aggregate, do in fact act out of such motives for much of their lives. But there are other aspects of human motivation that have nothing to do with economics, and it is here that discontinuities in history find their origin (Fukuyama, 1992, 133-134). Nevertheless, modernization theory looks much more persuasive after 1990 than it did in the 1960s or 1970s when it came under heavy attack in academic circles (Fukuyama, 1992). Especially after the collapse of the Soviet Union modernization theorists would argue that almost all countries that have succeeded in achieving a high level of economic development have come to look increasingly similar to each other. Modernization theory eventually fell victim to the accusation that it was ethnocentric, i.e. it elevated the western European and North-American development experience to the level of universal truth, without recognizing its culture boundedness. The critique focused on the idea in modernization theory that the western model was supposedly the only valid one.

However, Inglehart's thesis also differs from the competing school, which emphasizes the persistence of values despite economic and political changes. More precisely, this second school 'predicts that convergence around some set of 'modern' values is unlikely and that 'traditional' values will continue to exert an independent influence on the cultural changes caused by economic development' (Inglehart and Baker, 2000, 20). Though this second school of thought has been criticized for its cultural determinism, it has become quite popular to take cultural differences as independent and stable entities in explaining the process and speed of (economic) development. The extensive discussion on social capital clearly shows the current popularity of this type of thinking in sociology and especially economics (Fukuyama, 1995; Putnam, 1993, Knack and Keefer, 1997, Zak and Knack, 2001).

Inglehart and Baker (2000) show that it is in fact the combination of these two schools that does most justice to the complex reality of value changes around different societies. Modernization theorists are therefore partly right. The rise of industrial society is linked with coherent cultural shifts away from traditional value systems, and the rise of a postindustrial society is linked with a shift away from absolute norms and values towards a syndrome of increasingly rational, tolerant, trusting postindustrial societies. But values are path-dependent, which fits the second school. Inglehart and Baker show that a history of Protestant or Orthodox or Islamic traditions gives rise to cultural zones that persist after controlling for the effects of

economic development. This leads Inglehart and Baker to conclude that ‘economic development tends to push societies in a common direction, but rather than converging, they seem to move on parallel trajectories shaped by their cultural heritages’ (Inglehart and Baker, 2000, 49). In their view, culture should not be seen in an essentialist or reductionist manner, as something which is inherent to a society or which condemns it to path dependency, but as something which is continuously created and recreated (c.f. Keating, 1998). Therefore, economic development brings cultural changes, but the fact that a society was shaped by for example Protestantism leaves a permanent imprint and has enduring effects on subsequent value development.

In their path-breaking analysis Inglehart and Baker use two basic dimensions to measure cultural differences around the globe. Evidently there are several ways to measure the character of societies (e.g. Hofstede, 2001). But having studied dozens of items and variables, Inglehart argues that two dimensions tap the basic cultural orientations of societies when comparing the worldviews of the peoples of rich societies with those of low-income societies across a wide range of political, social, and religious norms and beliefs. Inglehart labels these dimensions the *Traditional/rational* dimension and the *Survival/self-expression* dimension. The first *Traditional/rational* dimension reflects a value system in which people at the traditional pole of this dimension reject divorce, emphasize the importance of God, support deference to authority, seldom discuss politics and have high levels of national pride (Inglehart and Baker, 2000). At the rational pole of this dimension opposite values are emphasized.

The second dimension *Survival/self-expression* taps values that emerge in a post-industrial society with high levels of security. According to Inglehart, a central component of this dimension involves the difference between materialist and post-materialist values. This component measures the relative priority that is given to economic and physical security over self-expression and quality of life.

7.2.1 Measuring values

As described in the previous section, Inglehart measures culture along two basic dimensions. Our measurement of the cultural dimensions in European regions follows Inglehart and Baker. Data are taken from the European Value Studies (EVS), which is a unique dataset on norms and values. This survey was developed in the 1970s against the background of changing values and an increased interest in the cultural consequences of the unification process of the European Union. The survey comprises three waves (1981/1990/1999), of which we use the second and third. In order to obtain regional scores we had to regroup the original individual data. We did not use the first wave that was carried out in 1981, because we could not trace the individual scores in terms of regions.

The dataset comprises 8 countries, i.e. France, Italy, Germany, Spain, Portugal, The Netherlands, Belgium, and the United Kingdom. In order to compare the data on norms and values with regional economic data we used the Eurostat definition of regions. The regional level in our analyses is the NUTS1 level. This implies that France consists of 8 regions, Italy 11 (including Sicily and Sardinia), Germany 11 (former eastern regions excluded), Spain 7, Portugal

1 (excluding Acoren and Madeira), The Netherlands 4, Belgium 3, and the UK 10 (including Scotland, excluding Northern Ireland). The total number of regions equals 55. We have calculated the two dimensions for these 55 regions in 1990 and 1999.

In table 1 we summarise the items that are included in our two dimensions. Inglehart and Baker (2000) extensively discuss the correlation of other items that are included in the European Values Study but not included in the dimensions in table 1². Their conclusion is that the dimensions as defined tap a broad dimension of cross-cultural variation involving dozens of additional variables. The two dimensions therefore reflect basic cultural characteristics of a society.

Table 7.1 Two dimensions of culture

<i>Traditional/Rational dimension</i>
<p>Traditional values emphasize the following:</p> <ul style="list-style-type: none"> • God is very important in respondent's life • Respondent has a strong sense of national pride • Respondent favours more respect for authority • Divorce is never justifiable • Respondent almost never discusses political matters <p>(Rational values emphasize the opposite)</p>
<i>Survival/Self-expression dimension</i>
<p>Survival values emphasize the following:</p> <ul style="list-style-type: none"> • Respondent gives priority to economic and physical security over self-expression and quality of life • Respondent describes him/her self as not very happy • Respondent describes him/her self as not very satisfied with life • Homosexuality is never justifiable • Respondent's feel one has to be very careful in trusting people <p>(Self-expression values emphasize the opposite)</p>

Source: Inglehart and Baker (2000). Calculation of the dimensions is based on Inglehart and Baker (2000). More details can be found in the appendix.

² It is important to note that there is a difference between the World Values Survey (WVS), used by Inglehart and the European Values Studies (EVS) used by us. The European Values Study is a large-scale, cross-national, and longitudinal survey research program on basic human values, initiated by the European Value Systems Study Group (EVSSG) in the late 1970s. Now, it is carried on in the setting of a foundation, using the (abbreviated) name of the group European Values Study (EVS). In 1995-1997 the World Values Survey carried out a wave of research in a large number of Western and non-Western countries. They aim at a better coverage of non-Western societies and analysing the development of a democratic political culture in the emerging Third Wave democracies. It should be mentioned that the majority of the survey questions in WVS and EVS are similar. Currently there are initiatives to merge the two datasets, allowing researchers to study more countries in a longer period of time.

Based on the above items we calculated the two dimensions for each region in each year for which we have data, i.e. 1990 and 1999. The results for each region are shown in table 2. The first column depicts the *Traditional/rational* dimension for the 55 European regions in 1990. The second column measures the second *Survival/self-expression* dimension in the same year. The third column measures the *Traditional/rational* dimension in 1999, and the fourth column measures the *Survival/self-expression* dimension in the last year for which we have observations. It should be noted that the values for the UK on this second dimension in 1999 cannot be measured properly. The reason for this is that in the UK an additional item was included in the question that aims to measure the opinion of the respondent regarding his or her priority to economic and physical security over self-expression and quality of life. This inclusion of an additional item in the UK-survey makes it impossible to calculate the right score on this dimension.

As table 2 shows, the values differ considerably across regions. Calculations on country level show that the northern European countries tend to score higher on both dimensions, i.e. more rational and more oriented towards self-expression (see also Inglehart and Baker, 2000). The only northern European countries in this sample are Germany and The Netherlands. Though both countries score relatively high on both dimensions, Germany scores higher on the *Traditional/rational* dimension, and the Netherlands score relatively high on the *Survival/self-expression* dimension. A graphical representation of the scores of the European regions is presented below, as well for the 1990 scores and the 1999 scores.

Figure 7.1 Scores of European regions on two cultural dimensions in 1990

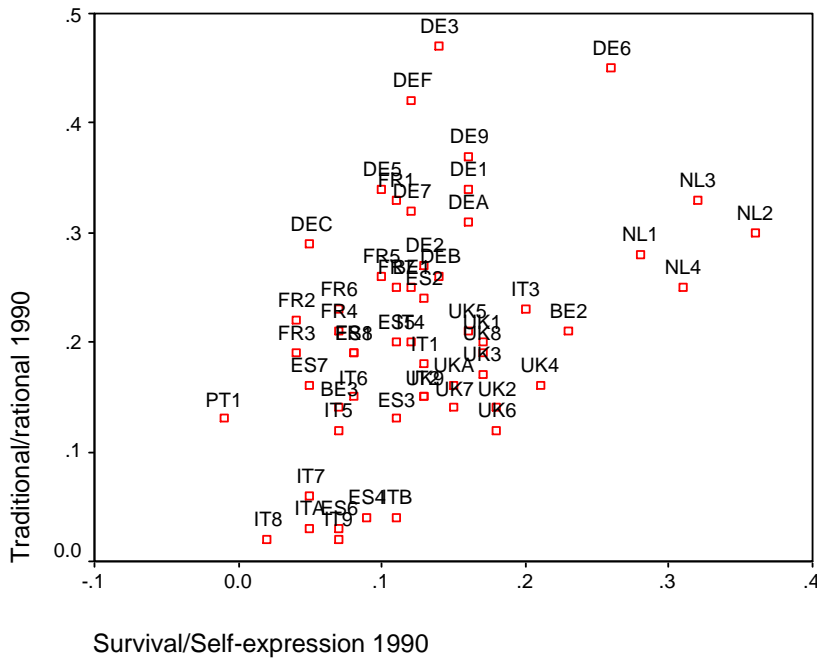
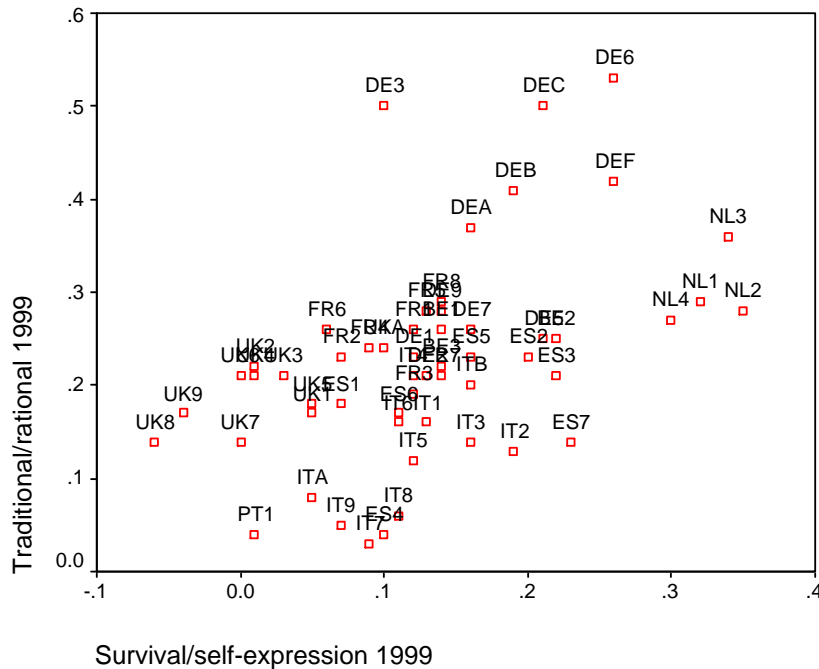


Table 7.2 Inglehart's two basic cultural dimensions in European regions in 1990 and 1999

Number	Region (NUTS-code)	Name	Trad/Rat 1990	Surv/Self-expr. 1990	Trad/Rat 1999	Surv/Self-expr. 1999	Direction
1	BE1	Reg. Bruxelles	.25	.12	.26	.14	NE
2	BE2	Vlaanderen	.21	.23	.25	.22	N
3	BE3	Wallonie	.14	.07	.22	.14	NE
4	DE1	Baden-Württemberg	.34	.16	.23	.12	SW
5	DE2	Bayern	.27	.13	.21	.13	S
6	DE3	Berlin	.47	.14	.50	.10	NW
7	DE5	Bremen	.34	.10	.25	.21	SE
8	DE6	Hamburg	.45	.26	.53	.26	N
9	DE7	Hessen	.32	.12	.26	.16	SE
10	DE9	Niedersachsen	.37	.16	.28	.14	SW
11	DEA	Nordrhein-Westphalen	.31	.16	.37	.16	N
12	DEB	Rheinland-Pfalz	.26	.14	.41	.19	NE
13	DEC	Saarland	.29	.05	.50	.21	NE
14	DEF	Schleswig-Holstein	.42	.12	.42	.26	E
15	ES1	Noroeste	.19	.08	.18	.07	-
16	ES2	Noreste	.24	.13	.23	.20	E
17	ES3	Madrid	.13	.11	.21	.22	NE
18	ES4	Centro	.04	.09	.04	.10	-
19	ES5	Este	.20	.11	.23	.16	NE
20	ES6	Sur	.03	.07	.17	.11	NE
21	ES7	Canarias	.16	.05	.14	.23	E
22	FR1	Île de France	.33	.11	.26	.12	S
23	FR2	Bassin Parisien	.22	.04	.23	.07	NE
24	FR3	Nord-Pas-de-Calais	.19	.04	.19	.12	E
25	FR4	Est	.21	.07	.24	.09	NE
26	FR5	Ouest	.26	.10	.28	.13	NE
27	FR6	Sud-Ouest	.23	.07	.26	.06	N
28	FR7	Centre-Est	.25	.11	.21	.14	SE
29	FR8	Méditerranée	.19	.08	.29	.14	NE
30	IT1	Nord Ovest	.18	.13	.16	.13	N
31	IT2	Lombardia	.15	.13	.13	.19	SE
32	IT3	Nord Est	.23	.20	.14	.16	SW
33	IT4	Emilia-Romagna	.20	.12	.21	.12	-
34	IT5	Centro	.12	.07	.12	.12	E
35	IT6	Lazio	.15	.08	.16	.11	NE
36	IT7	Ambruzzo-Molise	.06	.05	.03	.09	SE
37	IT8	Campania	.02	.02	.06	.11	NE
38	IT9	Sud	.02	.07	.05	.07	N
39	ITA	Sicilia	.03	.05	.08	.05	N
40	ITB	Sardegna	.04	.11	.20	.16	NE
41	NL1	Noord-Nederland	.28	.28	.29	.32	NE
42	NL2	Oost-Nederland	.30	.36	.28	.35	NE
43	NL3	West-Nederland	.33	.32	.36	.34	NE
44	NL4	Zuid-Nederland	.25	.31	.27	.30	NW
45	PT1	Portugal Continente	.13	-.01	.04	.01	SE
46	UK1	North	.20	.17	.17	-	
47	UK2	Yorkshire and Humberside	.14	.18	.22	-	
48	UK3	East Midlands	.17	.17	.21	-	
49	UK4	East Anglia	.16	.21	.21	-	
50	UK5	South East	.21	.16	.18	-	
51	UK6	South West	.12	.18	.21	-	
52	UK7	West Midlands	.14	.15	.14	-	
53	UK8	North West	.19	.17	.14	-	
54	UK9	Wales	.15	.13	.17	-	
55	UKA	Scotland	.16	.15	.24	-	
		Average value	.20	.13	.22	.13	

Source: Based on Inglehart and Baker (2000). For the exact calculation of the dimensions and the weights the different components have, one can contact the authors.

Figure 7.2 Scores of European regions on two cultural dimensions in 1999

As becomes clear from the graphical representation in figures 1 and 2 and the data in table 2, the southern European regions score lower on both dimensions compared to the northern European regions. As modernization theory predicts this probably is due to welfare differences.

7.2.2 The general direction of value change

In order to answer the question if there exists a general direction of value change over time, we follow Inglehart and Baker and compare the two scores for each region in time. Inglehart and Baker describe the time span for 38 societies between 1981 and 1998. Our data on European regions can only be compared in time between an even shorter period 1990-1999, i.e. ten years. In table 2 we have described the direction of value change in the fifth column. As Inglehart and Baker made clear the expected general pattern is not random but one of value change in northeastern direction, implying that countries (or in our case regions) experience increasingly rational and well-being values. As extensively described in their article, the majority of the countries shifted to the upper right-hand corner in the Figures, and those countries that did not (e.g. the countries belonging to the former Soviet Union) experienced economic decline. This fits the general thesis of Inglehart and Baker that economic development promotes rational and self-expression values, while economic collapse will push in the opposite direction. Their findings suggest that 'rising security tends to produce a shift towards secular rational values and tolerance, trust, subjective well-being, and a post-modernist outlook, while social and economic collapse propel a society in the opposite direction' (Inglehart and Baker, 2000, 42). As we do not have regions that have experienced economic decline in this period we might expect that all, or at least

the majority of the regions have experienced a shift from the south-west into the north-eastern direction. In the fifth column of table 2 we have described the direction of change by wind-direction. It shows that the majority of the regions have experienced a shift upwards in their score on both the *Traditional/rational* dimension as well as the *Survival/self-expression* dimension. In sum, about 17 of the 45 regions experience a value change in north-eastern (NE) direction which fits the Inglehart-Baker (2000) thesis and is according to our expectations; 7 regions shift in northern (N) direction, 5 in eastern (E) direction, 2 in southern (S), 3 in south western (SW), 2 in north western (NW), 6 in south eastern (SE) and 3 do not go in any direction. As mentioned earlier, data problems for the UK result in unobserved values for the second dimension in 1999, which makes it impossible to describe the value change in UK-regions. Though we have a different sample and observe a relatively short period of analysis (only ten years) we find confirmation of the Inglehart and Baker thesis on value change. In the next section we build on this thesis and focus on the explanation of value differences between European regions.

7.3 Explaining value differences in Europe

As described above, Inglehart's thesis is that value differences can be explained both by differences in welfare levels as well as cultural heritage. In order to test simultaneously for the influence of economic development and specific cultural heritage we follow their analysis and perform a regression analysis. The unit of analysis are European regions. Table 3 summarises our regression results of cross-regional differences in *Traditional/rational* values and *Survival/self-expression* values as measured in 55 European regions. We have calculated the dimensions in two periods, 1990 and 1999. The number of panel observations is therefore 110. The level of economic development has been measured by Gross Regional Products (GRP) and is based on Eurostat information. Following Inglehart and Baker (2000) we use data on economic development preceding the years for which we want to explain cultural differences. The years we use for the two time periods are 1977, respectively 1990. In order to test if these years are possible biases in terms of GRP, we also tested the correlation with the 5-year average in which the two chosen years fall in between. As the correlation was over .99 we feel safe to claim that a bias in measurement of level of economic development is not to be expected.

Next to GDP per capita Inglehart and Baker include the percentage employed in the industrial or the service sector as measures of economic development. However, we choose explicitly not to do so as we think that the combination of these variables in the same regression analysis is not correct from an economic as well as a statistical point of view. The reason is the following. Economic theory and empirical studies have shown that there is a fundamental relationship between the development of GDP per capita and sectoral development of a country. Feinstein (1999) and Rowthorn and Ramaswamy (1997, 1999) show that all advanced countries, irrespective of their initial level of development, have experienced the process in which labour moved out of agriculture and into industry, and was followed by a second phase in which the dominant trend was the growth of the services at the expense of both industry and agriculture. There is a basic pattern among the process of structural change in many countries. Economic

growth induces structural change. Chenery (1960) has studied these ‘stylized facts of development’ in a more quantitative way³. Using regression analysis he explains the sectoral share by the level of GDP per capita. Chenery introduces the term normal pattern or development path to describe the relationship between sectoral share and level of welfare (Chenery, 1960). Inglehart and Baker link the *Traditional/rational* dimension with the process of industrialization. The rise of the service economy is linked to the *Survival/self-expression* dimension. But if economic growth is fundamentally connected with the change in sectoral structure, i.e. as a country becomes richer, it experiences a sectoral shift from the agrarian sector to the industrial sector and the service sector, then Inglehart and Baker’s regression analysis in which both GDP per capita and sectoral shares are included might suffer from endogeneity. Therefore we only include GRP per capita as our measure of economic development.

With respect to cultural heritage we follow Inglehart and Baker (2000) and measure cultural heritage by including a dummy for religious past. In the European case this choice is binomial, namely protestant or catholic⁴. We labelled the UK and the northern German and Dutch regions as protestant. The dummy takes the value 1 if a region has a protestant heritage.

In addition to Inglehart and Baker we also included a period-specific effect. The panel allows us to test if there is perhaps a period-specific effect that has influenced the development of values. The period-specific dummy takes the value 1 in the second period ($t=2$). Hence, a negative coefficient of the period-specific effect would imply that a downward correction on the dependent variable is needed in the second period, which is the 1990s.

We test two basic models for each of the two dimensions. In the second model we control for country-specific effects. We do so to test if the results with respect to economic development, cultural heritage and the period-specific effect are robust to the inclusion of country-specific characteristics. We have taken a large European country Germany as the country of reference. This means that a significant positive country-specific effect of for example Spain would imply that an upward correction is needed for Spain compared to Germany for the specific dependent variable. The results of the regression are shown in table 3.

³ The discussion on the causes of structural change is extensive. Especially in the fifties and sixties of the 20th century researchers have been involved in this field of study. Authors like Fourastié (1949), Clark (1957), Chenery (1960), Rostow (1960) and Kuznets (1971) have made influential contributions.

⁴ Though we admit that for example the southern regions of Spain have been under Islamic influence before the 14th century. Nevertheless it is clear that Catholicism shaped Spain in the subsequent centuries.

Table 7.3 Regression results of two cultural dimensions on independent variables measuring economic development, cultural heritage, period-specific effects and country-specific effects.

Dependent variable:	Dimension 1: <i>Traditional-secular/rational</i>	Dimension 1: <i>Traditional-secular/rational</i>	Dimension 2: <i>Survival/-self-expression</i>	Dimension 2: <i>Survival/-self-expression</i>
Explanatory variables:		Including country-specific effects		Including country-specific effects
Gross Regional Product (/1000)	.015 (.0022)**	.008 (.001)**	.003 (.001)*	.0056 (.001)**
Historically protestant (=1)	.035 (.017)*	.018 (.033)	.084 (.018)**	-.002 (.016)
Period-specific effect (2nd period (90s)= 1)	-.011 (-.015)	0.002 (.011)	.032 (.014)*	.024 (.009)**
Netherlands	-	-.03 (.025)	-	.18 (.015)**
Spain	-	-.13 (.031)**	-	.002 (.019)
Portugal	-	-.18 (.048)**	-	-.11 (.018)**
UK	-	-.15 (.030)**	-	.048 (.016)**
Belgium	-	-.12 (.027)**	-	-.0009 (.029)
France	-	-.08 (.027)**	-	-.053 (.015)**
Italy	-	-.19 (.027)**	-	-.03 (.016)
N	110	110	100	100
R-square	.37	.72	.31	.76

Note: White corrected standard errors between parentheses; * indicates 5% significance, ** indicates 1% significance.

Modernization theory holds that the process of economic development is conducive to a rational worldview. Our results show that the economic modernization indicator, GRP is positive and significant in all models. As explained earlier we explicitly choose not to include the size of the industrial and service sector. In this respect our analysis differs from the one of Inglehart and Baker (2000). Still, as expected the level of economic development is an important explanatory variable when explaining differences in value systems. Both on the *Traditional/rational* dimension and the *Survival/self-expression* dimension GRP per capita has a significant and positive effect.

Our measure of cultural heritage, the religious past of a region, is significantly related to the differences in values across European regions. In line with the results of Inglehart and Baker (2000), a protestant heritage is positively related to both cultural dimensions. In fact, the effect size of .035 in the regression with the first dimension and especially the effect size of .084 in the second dimension indicate that the effect of cultural heritage is relatively large compared to the average value of the two dimensions (.20/.22 respectively .13) as depicted in table 2. Nevertheless, the protestant dummy is not significant once we control for country-specific effects. This suggest that Inglehart and Baker are right when arguing that ‘given religious traditions have historically shaped the national culture of given societies, but that today their impact is transmitted through nationwide institutions, to the population of that society as a whole – even to those who have little or no contact with religious institutions’ (Inglehart and Baker, 2000, 36). Indeed, our results suggest that the regional differences within Germany and The

Netherlands in terms of protestant or catholic tradition are not so strong to significantly differ from national characteristics once we control for the latter. In other words, although historically catholic or protestant regions show distinctive values, the differences within given societies (countries) are relatively small. Catholics tend to score lower on the two dimensions than protestants, but they do not fall into a distinct catholic cultural zone when controlling for country-specific characteristics. To put it rather bluntly, Catholics in ‘mixed’ countries are ‘less catholic’ than Catholics from countries that only have a single religion that is present.

Without discussing each country-specific effect individually, the results correspond with the structure of the data as presented in the figures 1 and 2. Remember that the country of reference is Germany. As can be seen in figures 1 and 2, German regions score relatively high on the first dimension *Traditional/rational*. Using Germany as a country of reference, this implies that for most countries a downward correction is needed. The results in the third column of the regression analysis confirm this hypothesis; all countries except for The Netherlands have a significant and negative estimated country-specific effect. This downward correction is relatively large for the *Traditional/rational* dimension if we compare the effect size of the country-specific dummies (between -.08 for France and -.19 for Italy) with the average value of the *Traditional/rational* dimension (.20 in 1990 and .22 in 1999). A similar reasoning holds for the regression analysis on the second dimension measuring *Survival/self-expression*. Figure 1 and 2 clearly show that The Netherlands score relatively high on this second dimension. Using Germany as a country of reference, a strong positive country-specific effect for The Netherlands can be expected. The estimated coefficient of .18 for The Netherlands is in line with the above.

The period-specific effect taking the value 1 on $t=2$ is significant in the models explaining cross-regional differences on the second dimension, i.e. *Survival/self-expression*. The significant result implies that a correction is needed in the 1990s compared to the period before when explaining the variation in the *Survival/self-expression* dimension. The positive coefficient suggests an upward correction is needed for the period 1990s. This period-specific effect is .032 in the model without country-specific effects and .024 in the model with the country-specific effects. In terms of effect size this is relatively large compared to the average score of 0.13 on the *Survival/self-expression* dimension (see table 2). The question arises how we can explain this 1990s effect? Our results indicate that apparently Europeans have experienced some kind of a shock in the 1990s, which changed their value pattern in the direction of more post-modern values. One of the most important historical shocks has been the collapse of the Soviet Union in 1991.

As Fukuyama clearly described in *The End of History* (1992) a remarkable consensus emerged concerning the legitimacy of liberal democracy, as a system of government had emerged throughout the world in the late 1980s and beginning 1990s. Liberal democracy conquered rival ideologies like hereditary monarchy, fascism and more important and most recent communism. Fukuyama argued that liberal democracy may constitute the ‘end point of mankind’s ideological evolution’ and ‘the final form of human government’ and as such constituted ‘the end of history’. According to Fukuyama, liberal democracy has come out as the ‘winner’ as it does not contain

internal contradictions⁵. This confirmation of the – implicitly - western European model has influenced the general opinion of people living in these and former communist countries as well. As Fukuyama writes, ‘the collapse of Marxist ideology in the late 1980s reflected, in a sense, the achievement of a higher level of rationality on the part of those who lived in such societies, and their realization that rational universal recognition could be had only in a liberal social order’ (Fukuyama, 1992, 205). In other words, the collapse of the Soviet Union, and the corresponding ‘triumph’ of the capitalist system have resulted in an increase in liberal market thinking in the 1990s. This is not only analysed in Fukuyama’s book, but also anecdotal evidence like the deregulation and privatisation wave that took place in many western European countries can be seen as illustrations of this upsurge in liberal market thinking. However, this economic thinking has gone hand in hand with a change in value patterns of Europeans in the direction of post-modernism, i.e. our second dimension of culture.

In addition to the collapse of the Soviet Union and the subsequent ‘confirmation’ of the capitalist liberal democratic model, two other societal developments may have resulted in this period-specific (shock) effect in the explanation of value change. First, the 1990s have been a period in Europe where the unification process reached a peak with the (future prospect of the) introduction of the Euro. The 1990s, especially the second half of the 1990s, have been a period in which there was a broadly shared optimistic view on the future. The introduction of the single European currency was supposed to yield welfare advantages that caused this optimistic view of future developments. The other societal development is closely related to this. By the time the survey was held, 1999, the New Economy hype was on its peak. There was a broadly shared idea among many people living in western countries that the New Economy would yield endless welfare gains and periods of economic downturn were (mistakenly) assumed to be no longer existent and thus irrelevant. It can be expected that this has influenced the answers that respondents have given to the survey questions and might help explain the positive period-specific effect on the *Survival/self-expression* dimension⁶.

To conclude, our regression analysis shows that economic development is an important driver of value change, but there are persistent influences of cultural heritage measured by protestant or catholic historical tradition. This is a confirmation of Inglehart’s thesis. Moreover, we found that Europeans have experienced some shock in terms of the *Survival/self-expression* dimension in the 1990s. Most probably the collapse of the Soviet Union and - according to some - the ultimate proof of the success of the capitalist democratic model are causes for this upward shock effect on values of Europeans.

⁵ Though it should be noted that Fukuyama devotes considerable attention in his book to argue that there are several problems with liberal democracy too. It is not to say that stable democracies are not without injustice or serious social problems, but the *ideal* of liberal democracy could according to Fukuyama not be improved upon.

⁶ Hofstede (2001) uses the term ‘Zeitgeist’, by which he means drastic systemwide changes causing everyone’s values to shift.

7.4 Value convergence

Now that we have measured values of Europeans, shed light on the general direction of value change, and made an effort to explain cross-regional variation in values we turn to the implications of our study. Our results suggest that economic development is an important ‘driver’ of value change, but that there are persistent influences of cultural heritage. The question can be asked what the above means in terms of value convergence. In other words, the question is if - in a unifying Europe in the economic and political sense - we can say something about cultural homogeneity and value convergence in Europe?

In order to answer this question and illustrate our findings we do an experiment. As figures 1 and 2 show, the eastern Netherlands’ region (NL2) scores relatively high on the second dimension *Survival/self-expression* and the German region Rheinland-Pfalz (DEB) scores high on the *Traditional/rational* dimension. Both regions are - logically given our findings - also relatively prosperous. It can also be seen that continental Portugal (PT1) and the southern Italian region Campania (IT8) score low on both dimensions. These latter regions are also relatively poor. We undertake the following experiment: by allowing for economic growth differentials and catch-up growth of the two poorer regions we calculate the scores on both dimensions for the 4 regions mentioned above in 2020. By catch-up growth we mean that we follow traditional convergence theory and allow poorer regions to grow faster than richer regions. We do so by assuming that the richer German and Dutch regions grow by 1 %. The poorer regions in Southern Italy and Portugal are assumed to have completely converged within 20 years to the welfare level of the Netherlands’ region (NL2)⁷. Hence, we do not allow for a rather unrealistic leapfrogging process in which the poorer regions outgrow the richer regions in level of welfare. Given the end year of 2020, we consider a 20-year growth period. We then impute this new GDP per capita value in the regression equation we estimated in table 4. Using our estimated coefficients we calculate the estimated value of the *Traditional/rational* and *Survival/self-expression* dimensions in 2020. In the top part of table 4 we have calculated the scores based on the model excluding the country dummies. The bottom part summarizes the results when the country-specific effects are included.

⁷ Given the predicted level of welfare in the Dutch region based on the 1% growth and the initial levels of welfare in the southern European regions IT8 and PT1 straightforward calculation shows that the average GRP per capita growth in the Italian region is equal to 2.1 % and the Portugese region grows on average by 2.8% in the period of analysis.

Table 7.4 Estimated value patterns

Excluding country dummies		Estimated scores on basic values in 2020	
	Level of GRP per capita 1990	<i>Traditional/rational</i> dimension	<i>Survival/self-expression</i> dimension
Rheinland-Pfalz (Germany)	15254	.52 (.41)	.88 (.19)
Eastern Netherlands	12907	.48 (.28)	.84 (.35)
Campania, South-Italy	10437	.37 (.06)	.26 (.11)
Portugal (continent)	9053	.34 (.04)	.26 (.01)

Including country dummies		Estimated scores on basic values in 2020	
	Level of GRP per capita 1990	<i>Traditional/rational</i> dimension	<i>Survival/self-expression</i> dimension
Rheinland-Pfalz (Germany)	15254	0.68 (.41)	0.31 (.19)
Eastern Netherlands	12907	0.52 (.28)	0.64 (.35)
Campania, South-Italy	10437	0.21 (.06)	0.20 (.11)
Portugal (continent)	9053	0.22 (.04)	0.04 (.01)

Note: Calculation of dimensions in 2020 is based on regression results including residual values. True values in 1999 are shown in parentheses (see also table 2). The 1990 welfare level of each region (GRP per capita) is written in the second column. The twenty-year growth period implies the estimated GRP's of 2010 are used to calculate the cultural dimensions.

The experiment with the twenty-year period and the assumption on growth differentials is expected to imply that both Campania and Portugal converge to some extent to the values of people living in Rheinland-Pfalz and Eastern Netherlands. In line with our earlier findings, the scores for all regions on all dimensions are higher than those for 1999, which fits the idea of value-change in northeastern direction. Nevertheless, as well in the model with country-specific effects as the model without country-specific effects, there is a considerable gap between the Portuguese and Italian values on the one hand and the German and Dutch regions on the other hand. Given the higher explained variance in the model including country-specific effects we prefer the estimates of the lower part of table 4. These predicted scores clearly show that the Italian and Portuguese regions remain relatively ‘backward’ compared to the value development in the two northern European regions. In fact, even allowing for significant catch-up growth both southern regions do not even reach the score in 2020 that the eastern Netherlands obtained in 1999. The broad picture that emerges is one of the existence of value differences even when allowing for rather strong welfare development in the ‘backward’ regions.

Evidently, the calculation and the above conclusion are built on some important assumptions. In other words, these scores are *ceteris paribus*, i.e. independent of possible future shocks that may turn out to have important historical meaning, like the collapse of the Soviet Union. But more important, it assumes a 1.1 % respectively 1.8 % growth differential between

regions for 20 years (starting in 1990), which is a significant percentage. It can be questioned if this is realistic. Long-run regional economic data for European regions that are reliable and comparable are not available. However, on country level, Maddison provides long run data (Maddison, 2001). From his analysis it becomes clear that such a growth differential for such a long period of time is not realistic. For the European countries Maddison has calculated growth rates of GDP per capita between 1950-1973 and 1973-1998. Table 5 summarizes some of his findings for the countries in our sample. This gives some intuition for the unrealistic assumption we made regarding the growth differentials⁸.

Table 7.5 Growth rate of per capita GDP 1950-1973 and 1973-1998

	1950-1973	1973-1998
Belgium	3.55	1.89
France	4.05	1.61
Germany	5.02	1.60
Italy	4.95	2.07
Netherlands	3.45	1.76
Portugal	5.66	2.29
Spain	5.79	1.97
UK	2.44	1.79

Source: taken from Maddison (2001)

Finally, we do not assume that there are ‘decreasing marginal returns to value development’, i.e. the linear connection between economic development and value systems does not flatten⁹. In sum, our experiment shows that it takes a long period (and perhaps even unrealistic assumptions) to allow for limited value convergence in Europe.

The preceding discussion illustrates that the vision of the European Commission of a broadly shared European value system is not built on realistic accounts of the actual cultural differences that exist in Europe. It can be expected that this ‘European value landscape’ becomes even more diverse when the current plans for EU enlargement take place. In order to shed some light on the the potential consequences of the future enlargement of the European Union with Middle and Eastern European countries we calculated the scores for the two cultural dimensions in 1999. The countries that are on the list of EU enlargement by January 2004 and for which we have data in the 1999 wave are shown in table 6.

⁸ Note that the relatively high growth rates in these countries in the period 1950-1973 are mainly due to post-war catch up growth. This process is generally considered to have come to an end in 1973 (Van Schaik, 1995).

⁹ As the measurement of the dimensions is based on survey questions with limited choice possibilities (e.g. between 1-10) it is not even possible in practice that the dimensions can take unlimited values. Most probably the practical limit is even lower than the theoretical limit as respondents most probably do not choose for the ultimate anchors when answering questions. Therefore, a certain ‘decreasing marginal return-effect’ can be expected.

Table 7.6 Scores on the cultural dimension for eastern and middle European countries in 1999

Country	<i>Traditional/rational dimension</i>	<i>Survival/self-expression dimension</i>
Malta	-.145	.098
Estonia	.299	-.099
Latvia	.21	-.174
Lithuania	.21	-.136
Poland	.032	-.046
Czech R.	.331	.08
Slovakia	.20	-.065
Hungary	.118	-.137
Romania	.01	-.229
Bulgaria	.21	-.179
Slovenia	.259	.0767

Filling in these value points in the figures 1 and 2 leads to the conclusion that the majority of these countries (perhaps excluding the Czech Republic and Slovenia) falls in the south-west corner of the two axes representing the two cultural dimensions. This implies that the majority of the countries that are on the list for potential membership of the European Union differ considerably with the current members of the Union in terms of basic cultural values. The earlier experiment on value convergence in 4 European regions clearly showed that even within the current EU the probability that true value convergence will take place is rather limited, let alone if the new member countries are included. On the other hand, it can also be argued that the exact goal of the EU was to unite countries that differ considerably in terms of values and in this way prevent (cultural) clashes (cf. Huntington, 1996). The latter argument would be in favor of EU enlargement.

7.5 Conclusion

Economic development is linked with systematic changes in basic values, a thesis also known as modernization theory. But cultural change is path dependent. The broad cultural heritage of a society leaves an imprint on values despite the process of economic development. Inglehart has described and empirically analysed the relationship between cultural values and economic development (1990, 1997, 2000). Inglehart has shown that economic development is linked with systematic changes in basic values. He concludes that 'in marked contrast to the growing materialism linked with the industrial revolution, the unprecedented existential security of advanced industrial society gave rise to an intergenerational shift towards postmaterialist and postmodernist values' (Inglehart and Baker, 2000, 21). Inglehart's main argument is that economic development has a number of systematic and predictable cultural and political consequences (ibid.). We followed Inglehart and argued that cultural change does not follow a linear path, but in fact has two dimensions. The first relates to early industrialization and the rise of the working class. The second dimension reflects the value changes that are linked to the affluent conditions of advanced industrial society and the rise of the service sector. In addition to

these findings, Inglehart and Baker found evidence for the persistence of distinctive traditional values and concluded that cultural change may be path-dependent.

This former thesis is also known as Inglehart's thesis. In this chapter we have built on his thesis and we focused on the explanation of value patterns and differences in values between European regions. We concentrated on European regions as global processes and European integration in specific, have resulted in a revival of the concept of the region in Europe. Regions are again featuring political, social and economic life. The process of European integration has resulted in blurring boundaries of the state and increased regionalism which have resulted in a considerable body of work on the so-called 'Europe of the regions', meaning that the real development will take place on the regional and not the national level. The explanation of value differences is particularly interesting against the background of a unifying Europe and the utopian idea of a 'Europe of the regions'. The question we tried to answer in this chapter is if we can speak of cultural unification in Europe. After describing the cultural differences across European regions we made an effort to explain these value differences. And finally, we tried to say something on the possible convergence of values across Europe.

We have several important findings. First, Inglehart's thesis on economic development and cultural heritage holds true for European regions. This may not be surprising given the inclusion of European countries in Inglehart's research, but is nevertheless a confirmation of his thesis. Moreover, we found a specific regional effect of protestant heritage. We also found that this specific effect of cultural heritage disappeared when we controlled for country-specific effects. This implies that Inglehart and Baker are correct in classifying Germany and The Netherlands as historically protestant societies. Hence, despite the intra-national differences, our results suggest that the regional heritage of Protestantism is reflected in country-specific characteristics and embedded in national institutions.

Second, we have shown that on one of the dimensions that describe basic values – the *Survival/self-expression* dimension – there has been a period-specific effect in the 1990s. We suggested that broad societal developments like the New Economy hype, the adoption of the single currency in Europe and – perhaps most important - the collapse of the Soviet Union and 'the end of history' (Fukuyama, 1992) may have resulted in an optimistic view on the future and may have subsequently resulted in this period-specific effect when explaining value differences across European regions in the 1990s. This is an important contribution to the general thesis as developed by Inglehart, namely we have not only shown that economic development together with cultural heritage is linked with value changes, but also that unique historical shocks can have significant effects on value systems.

Third, we have illustrated that convergence of values – even if we allow for significant economic catch-up growth of poorer regions – takes a very long period, if it would occur anyway. The vision of the European Commission of a 'Europe of the Regions' in which there would be a reasonable homogeneous regional social-economic structure across Europe and a shared European value system is therefore not built on realistic accounts of the actual cultural differences that exist in Europe. Assuming that values are reflected in political arguments, it is difficult to come to a strong and broadly shared view on important political issues in Europe, let

alone if the (future) European enlargement implies that countries are made member that differ even more on basic values. Following our line of reasoning, we can expect that the inclusion of the middle and eastern European countries in a political institution like the EU will result in a weak organisation in which it is difficult to find consensus for political decisions.

Chapter 8

Discussion

8.1 Introduction

To conclude this thesis we discuss the issue of ‘trust’ more extensively in this chapter. We argue that it is important to apply a multi-level perspective to (generalized) trust in order to better understand the findings as discussed and presented in the preceding chapters. By including this multi-level perspective in the discussion on trust we hope to give new impetus to the discussion on the relation between culture and economic development.

8.2 The structure and findings of the thesis: 7 empirical regularities

The research question central to this thesis was formulated in chapter 1. The aim of this thesis has been to investigate the link between culture and economic development in Europe. The background of this interest can be traced back to several developments in economics, economic geography and the ongoing process of European unification (see chapter 1). As many economists have restricted their attention for culture to the concept of social capital, we have explicitly chosen to concentrate on this concept. In chapter 2 we described the heterogeneous nature of the social capital concept. We argued that it is important to make a distinction between the individual and the aggregate level of analysis. At the individual level, social capital refers to network resources of actors, be it firms or persons. At the aggregate level, social capital refers to norms of cooperative behaviour (generalised reciprocity). On this aggregate level, social capital has several dimensions, of which the two most accepted are trust and social network participation (associational activity). At both levels social capital yields advantages but there is also a dark side to social capital, as it may yield negative effects on individuals and nations as well.

In the subsequent chapters we turned to the data. In chapter 3 our focus has been on the question if the cross-country analyses of Knack and Keefer (1997) on 29 market economies and the follow-up analyses by Zak and Knack (2001) on a sample with 12 additional, less developed countries, yield robust results with respect to social capital, in specific trust. As the 1997 paper can be considered a seminal empirical study it makes sense to first analyse the results of this study in an in-depth way. Chapter 3 showed that the effect of trust, although considered significant and positively related to growth in Knack and Keefer (1997) according to our findings is not robust. In contrast with this, we found robust significant and positive effects with respect to trust in Zak and Knack’s study. This sample-specific effect might seem surprising at first sight, but as we will argue below, it is in fact not.

In chapter 4 we test if social capital measured by generalized trust and density of associational activity is related to economic growth in 54 western European regions. We find no relation between trust and regional economic growth. However, we do find a robust significant positive relation between the degree of associational activity (embeddedness in social networks) and growth.

Chapter 5 builds on these results and distinguishes two types of social capital, respectively bonding and bridging social capital. We argue that individuals have to balance their interests between these two types. Bonding social capital cements only homogenous groups whereas bridging social capital bridges different communities. Bonding social capital is operationalized as the degree to which people attach importance to friends and family, i.e. the closed social circle. Bridging social capital is measured by membership in social networks

outside the closed social circle. The results specify the insights of chapter 4. We show that bridging social capital is positively related to regional economic growth whereas bonding social capital is negatively related to bridging. Hence, it is not so much social capital in general that is positively related to growth, but a specific type of social capital.

In chapter 6 we leave the aggregate social capital discussion and address another highly topical issue in mainly economic geography, namely the question if regions with certain cultural characteristics which may be described as entrepreneurial perform better. To test this hypothesis we first distinguish between self-employed and people who are not, and try to find differences in attitude towards a number of constructs on which the literature suggests that entrepreneurs differ. Using these individual distinguishing characteristics of self-employed we calculate the average score for the population in a region and relate this average measure of entrepreneurial attitude to growth differentials in European regions. We find that regions that score relatively high on this measure of entrepreneurial attitude do indeed grow faster.

Chapter 7 studies the relation between culture and economic development from a sociological angle. Building on the seminal work of Inglehart and Baker (2000), we try to explain differences in values and norms. Inglehart and Baker show that economic development is linked to systematic changes in basic values, but cultural change is path dependent. We find confirmation of their thesis in the case of European regions. New however, is our additional finding that historical shocks influence this path dependent process. It appears that cultural differences in Europe can be explained by economic development, cultural heritage and historical shocks.

In sum, we found the following empirical regularities regarding the relation between culture and economic development:

1. There is no robust significant relationship between economic growth and trust in a cross section of 29 relatively advanced market economies (chapter 3).
2. There is a robust significant and positive relationship between economic growth and trust if we add 12 less developed countries to the sample of 29 market economies (chapter 3).
3. There is no robust significant relation between economic growth and trust in a cross section of 54 relatively advanced western-European regions (chapter 4).
4. There is a robust¹ significant relationship between economic growth and degree of associational activity in a cross section of 54 relatively advanced western-European regions (chapter 4).
5. Bridging social capital is positively related to regional economic growth in Europe, whereas bonding social capital is negatively related to bridging social capital and thus indirectly negatively influences growth (chapter 5).
6. Regions in which people score relatively high on entrepreneurial attitude experience higher growth rates (chapter 6).
7. In a cross section of 54 European regions cultural change can be explained by economic development, cultural heritage and historical shocks (chapter 7).

¹ Robust refers to the extreme bounds analysis and not to the range of tests applied in chapter 3.

8.3 Culture and economic development: the relation between our findings

In this section we link the results on social capital of the previous chapters. More in specific we concentrate on the degree of associational activity as a dimension of social capital. First we discuss the idea of social capital as a construct.

8.3.1 Social capital as a construct

Social capital is a construct. Constructs are hypothetical concepts that are not directly observable, and the existence of which remains in the world of conception. Constructs are simply abstractions used to explain some apparent phenomenon (Morgeson and Hofmann, 1999, 250). According to Putnam, the core idea of social capital theory is that social networks have economic value (Putnam, 2002, 18-19). As constructs serve as conceptual notes, they simply serve as shorthand for a variety of phenomena that can be posited at any level (Morgeson and Hofmann, 1999, 251). Constructs function as heuristic devices. And as chapter 2 shows, exactly this versatility has plagued the literature on social capital, preventing it from unequivocal development.

As social capital is a construct, both macro economists at country or regional level as well as business economists at firm and sector level use the concept but think of it and operationalize it in different ways. The strength of social capital as heuristic device is at the same time its weakness. The fact that social capital is a construct has implications for the interpretation of its effects, especially for policy makers. It has been suggested that Putnam's analysis and other studies on social capital and economic development imply that the major implication of the positive relation between growth and social capital is that more people should be embedded in social networks, preferably of the bridging type. This inevitably leads to the question if governments should promote membership of networks, and if the answer is yes, the issue arises how they can actually do so. However, the mistake made is that membership of social networks is a proxy for social capital. Promoting membership from this point of view would only take the manifest variables into account while ignoring the latent construct.

Our view is that the measurement of social capital is based on proxies, of which the density of social networks (associational activity) is one, and trust another dimension. Therefore the mere fact that social capital, measured by associational activity is positively related to economic growth in Europe does not imply that in order to enhance growth it is important for Europeans to become a member of a bowling league, soccer club or cultural reading group. No, what it does mean is that specific cultural features of societies not only have a social function but also an economic one. And as Putnam writes, frequent interaction among a diverse set of people tends to produce these norms of generalised reciprocity (Putnam, 2000, 21). This is why social networks have value. As described in chapter 2, 'the touchstone of social capital is the principle of generalized reciprocity – I'll do this for you now, without expecting anything immediately in return and perhaps without even knowing you, confident that down the road you or someone else will return the favour' (Putnam, 2000, 134). To measure these societal characteristics is difficult and according to some even impossible. Nevertheless, the density of social networks is a proxy to measure the degree to which people are willing to undertake communitarian action that is not necessarily focused

on pure (material) and immediate self-interest². Another proxy frequently used to measure social capital is trust. However, as we will explain in the next section, trust as such is not a good proxy for social capital. Before going into detail on this topic, the two basic types of social capital, bonding and bridging are discussed.

8.3.2 Bonding versus bridging

As described in chapter 2 both at the aggregate and the individual level social capital may create positive and negative (external) effects. Therefore it is important to ask how the positive consequences of social capital can be maximized and the negative manifestations minimized. Of all the dimensions along which forms of social capital vary, perhaps the most crucial distinction is the one between bridging and bonding (Putnam, 2000).

In chapter 5 we simplified reality and modeled the choice that individuals face between spending time with their friends in their closed social circle (bonding social capital) and social interaction in external networks (bridging social capital). However, as Putnam clearly describes bonding and bridging are not ‘either-or’ categories into which social networks can be neatly divided, but ‘more-or-less’ dimensions along which we can compare different forms of social capital (Putnam, 2000, 23). Many groups or individuals simultaneously bond along some social dimensions and bridge across others. Furthermore, in the same chapter we argued and empirically showed that the choice between bridging and bonding is dependent on the degree of materialism. We argued that agents have a preference for socialising, which they trade off against material well-being. Participation in social networks is time-consuming and comes at the cost of participation in the formal economic sphere, i.e. working time. Through this channel, higher levels of social capital may crowd out economic growth. In addition, participation in intercommunity networks reduces incentives for rent seeking and cheating. Through this channel, higher level of bridging social capital may enhance economic growth. Testing the model, we found that regions of which the inhabitants are more materialistic have significantly lower bridging social capital (and more bonding social capital), which in turn reduces output growth in these regions. The question arises if materialism is the true driver of the choice between bridging and bonding.

In order to answer this question we need to take the results of chapter 7 into account. In this chapter we followed Inglehart and Baker (2000) who argue that two dimensions tap the basic cultural orientations of societies when comparing the worldviews of the peoples of rich societies with those of low-income societies across a wide range of political, social, and religious norms and beliefs. The first *Traditional/rational* dimension reflects a value system in which people at the traditional pole of this dimension reject divorce, emphasize the importance of God, support deference to authority, seldom discuss politics and have high levels of national pride. At the rational pole of this dimension opposite values are emphasized. The second dimension *Survival/self-expression* taps values that emerge in a post-industrial society with high levels of security. According to Inglehart and Baker, a central component of this dimension involves the difference between materialist and post-

² Although it is necessary to note that adhering to supposedly generally shared moral norms and ‘do what is considered to be good’ does fulfil personal satisfaction and in part satisfies needs stemming from pure self-interest (cf. Bovenberg, 2000). Nooteboom (2002) discusses the intrinsic value of trust.

materialist values. This component measures the relative priority that is given to economic and physical security over self-expression and quality of life.

In our analysis of the two types of social capital in chapter 5 we used a 2 stage-least-squares procedure. In the first stage of our analysis we used the materialism/postmaterialism component of the *Survival/self-expression* dimension to measure the degree to which people are materialistic. It was shown that it was important for the overall fit of the model to include Inglehart and Baker's materialism index.

We now return to the question if materialism drives the choice between bonding and bridging. Given that Inglehart and Baker's materialism index is the most important component of the *Survival/self-expression* dimension we may also explain the relative regional differences in bonding and bridging social capital from a different angle. Bonding social capital was operationalized as the degree to which people attach importance to family, friends and acquaintances, i.e. the closed social circle. From chapter 5 it follows that there is a negative correlation between bridging social capital and the materialism index. Or to put it differently, in regions in which people are relatively postmaterialistic (and thus score high on the *Survival/self-expression* dimension) there is more bridging social capital. We also showed that the degree to which people attach importance to family life (bonding social capital) is negatively related to bridging social capital (see table 5 in chapter 5).

The above raises the question if the distinction (or choice as we modeled it) between bonding and bridging is not so much driven by the degree of materialism, but by the overall culture, in specific the *Survival/self-expression* dimension. Hence, the relative amount of bridging versus bonding may not depend on the degree of materialism, but may be a reflection of broader cultural values. And as we showed in chapter 7, in a cross section of 54 European regions these broader cultural values are driven by three elements, economic development, cultural heritage and historical shocks. It is known (Inglehart, 1997; Inglehart and Baker, 2000) that as countries grow richer, family life loses its significance. And this may imply that the preference for socialising in the closed social circle is not driven by materialism, but by general 'backwardness' reflected in traditional values focused on survival. On the other hand, especially in case of backwardness (like known from LDCs), the family and close friends are necessary for survival and the importance of the closed social circle is indeed enhanced by materialistic needs. The "amoral familism" in the Italian Mezzogiorno as described by Banfield 'is not irrational, but the only rational survival strategy in this social context' (Putnam, 1993, 177). The question however rises if this is also the case in relatively advanced other European regions.

Nevertheless, the above discussion leads to the conclusion that whereas we initially argued that materialism is the 'driver' of the choice between bonding and bridging social capital, this need not necessarily be so. The relative amount of bridging and bonding social capital may be a reflection of the broader cultural values. But if this is true, this brings us to the question what the consequences of the general direction of cultural change are for social capital. Given the results in chapter 4 (and 5) where we showed that (bridging) social capital is positively related to economic growth, this issue is not only of importance to sociologists, but also to economists.

8.3.3 Cultural change and social capital

What is the relationship between the general direction of cultural change (chapter 7) and the ‘amount’ of social capital, measured by network membership? In chapter 7 we put on the sociologist’s hat and tried to explain cultural differences in Europe. We have shown that mainly due to economic development cultures tend to change in the direction of more postmodern and rational. One of the most important elements encompassing these changes concerns the decline of traditional groups and the increased individualism. This would logically lead us to the conclusion that social capital, measured by embeddedness of individuals in social networks, is on its way back. One of the most extensive (and criticized) studies describing the breakdown of social capital is Putnam’s analysis (2000). As described at other places in this thesis, this author makes a case that there is general decline of both informal social connectedness as well as formal community involvement in the United States since the 1960s. Acknowledging that the US may differ from the Western-European situation, Putnam’s analysis is intuitively appealing and seems plausible to generalize to Europe³. Careful analysis leads Putnam to four factors that have contributed to the decline in social capital in the United States (Putnam, 2000, 277-284). First, he mentions pressures of time and money, including the special pressures on two-career families. Second, sub-urbanization, commuting, and sprawl also played an eroding role. Third, the effect of electronic entertainment, above all television, in privatizing our leisure time has been substantial. Finally, these three elements are reinforced by the process of generational change, by which he means the slow, steady and ineluctable replacement of the long civic generation by less involved children and grandchildren being raised and influenced by the above developments.

The question that arises given these results is ‘if the proxy (social networking) disappears, does this imply that the underlying construct (generalized reciprocity) disappears or should we look for a new and better proxy?’ According to Putnam (2000) it is the underlying general reciprocity that is disappearing. He writes that ‘we rely increasingly – we are forced to rely increasingly – on formal institutions, and above all on the law, to accomplish what we used to accomplish through informal networks reinforced by generalized reciprocity – that is through social capital’ (Putnam, 2000, 147). On the other hand, Paxton (1999) does not find consistent evidence of declining social capital in the United States. She finds that social capital, measured by a combination of trust and associational activity shows a decline over a 20-year period, but that this is mainly due to a strong and consistent decline in trust. The second component, the level of association remains unchanged. The fact that she does not find consistent evidence of a decline of this latter dimension of social capital leads Paxton to conclude that the relationship between this indicator of social capital and the theoretical concept of social capital has not changed over time. According to her analysis, this proxy we use is still valid. And moreover, it does not reflect Putnam’s conclusion that the underlying generalized reciprocity is disappearing.

The difference in outcome between these two authors is most probably caused by the fact that Paxton studies membership in general, whereas Putnam studies generational effects and types of associations. In other words, Putnam studies membership in more detail. As Paxton (1999) writes herself, ‘assessing differences in the amount of social capital held by

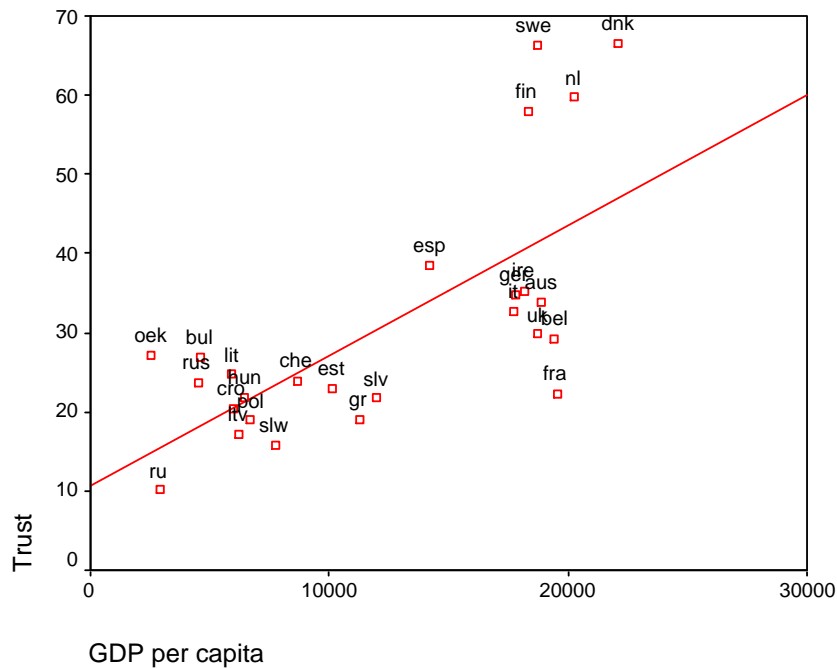
³ For an application and test of Putnam’s (1995, 2000) argument for the Netherlands, see De Hart and Dekker, 1998.

the different segments of the population and how that distribution may have changed over time is essential future research' (Paxton, 1999, 122).

In addition to the need for a more careful analysis of the development of social capital over time, it is important to take the context specificity of social capital, in specific trust, into account. Interestingly enough, Putnam's thesis on Italian regions is extensively embedded in the political science literature, in specific comparative institutional analysis. Nevertheless, many of the current scholars in the field of social capital ignore the role of institutions. In explaining performance differences between Italian regions, Putnam discusses the relationship between social capital and institutional well-functioning. 'Citizens in a civic community deal fairly with one another and expect fair dealing in return. They expect their government to follow high standards, and they *willingly obey the rules that they have imposed on themselves*. [...] In a less civic community, by contrast, life is riskier, citizens are warier, and *the laws, made by higher ups, are made to be broken*. [...] Collective life in the civic regions is eased by the expectation that others will probably *follow the rules*. Knowing that others will, you are more likely to go along, too, thus fulfilling their expectations. In the less civic regions everyone expects everyone else to *violate the rules*. It seems foolish to obey the traffic *laws* or the *tax code* or the *welfare rules*, if you expect everyone else to cheat' (Putnam, 1993, 111, emphasis added). These observations of Putnam clearly suggest that norms of generalized reciprocity (social capital) coincide with the well-functioning of institutions. In the remainder of this chapter we concentrate on the role of institutions, especially in relation to trust.

8.4 Trust and institutions

Whereas the current social capital debate goes in the direction of trust as an independent variable of a cultural or sometimes even moral nature, it may very well be true that trust is related to institutions and forms a component of a broader dimension. As we will theorize later, scholars may in fact be measuring institutional well-functioning with the generalized trust-question. If this is true, this may explain the at first sight counterintuitive insignificant result of trust in chapter 4. Using regions instead of countries, the 'disturbing' effect of (country specific) institutions is controlled for, which results in an insignificant relationship between growth and trust. The fact that we did not find a robust significant relationship between trust and growth in Knack and Keefer (1997), but a robust significant relationship in Zak and Knack (2001) is also better to understand in case trust is influenced by institutional well-functioning. This is caused by the different samples both studies are based on: Knack and Keefer (1997) limit themselves to 29 market economies, whereas Zak and Knack (2001) use 12 additional less developed countries, and thus use a sample of 41 countries. By adding these 12 countries, Zak and Knack (2001) add variance on the lower side, i.e., low trust countries, and the result is increased robustness. Our argument can be further illustrated by the following graph.

Figure 8.1 Trust and GDP per capita in European countries

In this graph we have depicted a number of countries included in EVS 1999 wave. We used information on GDP per capita (1998) from Maddison (2001). In contrast with previous analyses on the relation between trust and economic growth, this graph shows the link between trust (1999) and level of economic development (1998). The upward slope suggests a positive relationship between trust and GDP per capita. However, a closer look at the graph reveals that there are three ‘clouds’ of observations: one group of Scandinavian countries, including the Netherlands, one with the relatively advanced other European economies in the middle of figure 1 and one with the relatively less advanced eastern European countries in the lower left corner of the graph. It is well known that these former Soviet satellites have great difficulty in creating well-functioning institutions. If these countries were left out no relationship between trust and GDP per capita would be found. For similar levels of GDP per capita (appr. 20,000 US \$) the graph shows trust scores ranging between 20% (France) and just below 70% (Denmark). The graph illustrates our argument with respect to the differences in robustness between Zak and Knack (2001) and Knack and Keefer (1997).

But apart from the sample specific effect due to the inclusion of rich and poor countries, the graph shows together with our insights of the previous chapters the cultural diversity within Europe. Acknowledging the potential weaknesses of our measures of social capital, the above graph and figure 4.2, figure 4.4 till 4.6 and figures 7.1 and 7.2 all point at the relatively large differences in trust and associational activity in Europe. In chapter 1 we discussed the vision of the European Committee of a ‘Europe of the Regions’ in which there would be a reasonable homogenous social-economic structure across Europe. As far as the vision of a ‘*Europe of the Regions*’ is concerned, our results summarized by the earlier mentioned empirical regularities provide support for this. The *homogenous* character of it can however be questioned. There are considerable cultural differences between European

regions. This was explicitly addressed in chapter 7, where we also found evidence for the persistent character of these differences in culture, rooted in history.

In the remainder of this section we theoretically explore the relationship between generalized trust and institutions. But before starting this discussion it is important to add an 8th empirical finding that is not discussed and included in this thesis, but which is nevertheless relevant to the discussion in this section.

8. It has been argued and empirically shown that there is a significant positive relationship between micro trust and forming and maintaining embedded inter firm relationships yielding economic advantages for a firm that are impossible to obtain through spot market relations (see, e.g., Gulati, 1995; Nooteboom, 2002; Noorderhaven et al., 2003; Uzzi, 1996).

We started this section with arguing that overlooking the empirical regularities resulting from the previous chapters it may be difficult to come to grips with the results on trust and its economic function given the seemingly contradictory empirical findings 1, 2, 3 and 8. However, we argued that this may be explained by the fact that trust should be seen in the broader perspective of institutions. Simple correlations suggest that trust is closely related to institutions. In chapter 3 we selected 21 variables out of a pool of 88 potentially relevant variables for growth on the basis of a correlation with trust below .25 (absolute value). However, some of these 88 variables aim to measure the well-functioning of institutions. Building on the sample of Zak and Knack, relatively strong correlations of measures of institutional well-functioning with trust can be found, for example ‘contract enforceability’ (.76), ‘Transparency International corruption index’ (.73), ‘black market premium’ (-.43) and ‘rule of law’ (.64).

In this section we theorize on our findings on trust and we claim that the reason for these paradoxical findings is caused by multi-level problems when studying trust. As Nooteboom (2002, 8) remarks, ‘There is considerable confusion around this level of analysis issue’. While acknowledging there is a lively debate on multi-level data analysis, we do not consider multi-level statistical techniques in this chapter. Instead, we concentrate on theory.

The primary goal of the multi-level perspective is to identify principles that enable a more integrated understanding of phenomena that unfold across levels (Klein et al., 1999). The relation between the collective and the individual forms the core of multi-level thinking. Individual action does not occur in a vacuum but is embedded in and influenced by a broader context (Parsons, 1951). At the same time, collective entities have a structure that is based on the interaction between individual units. This is what Giddens (1993) calls the ‘duality of structure’. Social structure is both constituted by human agency and yet is at the same time the very medium within which human agency can take place (Giddens, 1993, 128-129). Multi-level theory aims to illuminate the context surrounding individual level processes (Klein et al., 1999). When discussing the level-of-analysis issue of trust, we follow Nooteboom (2002) who applies this ‘duality of structure’. As Nooteboom (2002) summarizes, objects of trust can be people, but also organizations, institutions and socio-economic systems. As we described in chapter 2, Luhmann (1979) makes an important

distinction between macro (generalized) trust and micro (personal) trust. We use this distinction in the remainder of our discussion of trust⁴.

The fundamental background of the multi-level perspective is the recognition that micro phenomena are embedded in a macro context and that macro phenomena often emerge through the interaction and dynamics of lower level phenomena (Kozlowski and Klein, 2000, 7). Several authors have attempted to describe rules, guidelines or principles to develop multi-level theory (Klein and Kozlowski, 2000; Morgeson and Hofmann, 1999; Klein, et. al., 1999). As Klein and Kozlowski (2000) most extensively discuss multi-level theory and data analysis, we build on their principles of multi-level theory to structure our discussion on (generalized) trust.

Both researchers studying macro and micro phenomena encounter problems in transferring their insights to other levels of analysis. Macro researchers dealing with global measures or data aggregates that are actually representations of lower level phenomena, cannot generalize their findings to those lower levels. Doing so would constitute an ‘ecological fallacy’. This makes it difficult to draw individual level inferences from aggregate data (Hofstede, 2001). On the other hand, micro researchers run the risk of committing ‘atomistic fallacies’, i.e., to suggest for example public policy interventions at the nation level based on firm-specific data. Hence, the goal of the multi-level perspective is to theorize while explicitly taking these problems into perspective. Kozlowski and Klein (2000) describe several principles or rules for multi-level theory building. Although their analysis is applied to the study of organizations, we use these general principles to study (generalized) trust⁵.

The first principle Kozlowski and Klein discuss is a general science-philosophical one but it is nevertheless worth mentioning. ‘Theory building should begin with the designation and definition of the theoretical phenomenon and the endogenous construct (s) of interest’. This principle refers to the question what phenomenon is the theory and the research aiming to understand?

After this more general principle, Kozlowski and Klein (2000) discuss the necessity of the multi-level perspective. The second principle is ‘multi-level models may be unnecessary if the central phenomena of interest (a) are uninfluenced by higher level units, (b) do not reflect the actions of cognitions of lower level units, and/or (c) have been little explored in the literature’. Applying this principle to the study of generalized trust, it may be observed that the literature on trust has expanded the last decade. This may justify the argument that regarding element (c) trust has been explored significantly and cannot be considered a ‘new’ field without established insights. Regarding (b) we know that generalized trust is influenced by lower level factors like the embeddedness in social networks (Putnam, 1993). And finally, with respect to (a) we know that the extent to which people maintain that in general people can be trusted (generalized trust) is influenced by

⁴ Strictly speaking we need to distinguish between the *level of aggregation* (individual versus generalized) and *types* of trust (generalized versus specific or personal). In our discussion of trust we concentrate on level issue. However, in order to discuss the multi level perspective on trust, it is necessary to discuss the different typologies of trust as we did in chapter 2.

⁵ Kozlowski and Klein (2000) discuss four principles. We have chosen to discuss only the first three. The fourth principle refers to the dynamic element of multi-level analysis, or what Kozlowski and Klein (2000, 24) call ‘entrainment’, referring to the rhythm, pacing, and synchronicity of processes that link different levels. To put it simply, the question is whether linkages between levels change over time.

higher level phenomena like institutions (Bachman, 2001, Nooteboom, 2002). In sum, all three elements suggest the need for a multi-level perspective on the background and function of (generalized) trust.

Accepting the need for a multi-level perspective, the third and probably the most important and challenging principle refers to the need to discuss and specify the link between phenomena at different levels. This implies taking into account the relevant contextual influences (top-down processes) as well as emergent properties at the micro level that manifest at higher levels (bottom-up processes). Related to this issue of linking micro and macro is the question of where these top-down and bottom-up processes originate and culminate. The answer to this question indicates the focal entities, i.e., to specify the levels, being either aggregate or individual, relevant to theory construction. Kozlowski and Klein's third principle corresponds to one of the guidelines for multi-level theory proposed by Morgeson and Hofmann (1999). These authors argue that the investigation of constructs at the collective level could begin with an understanding of the interaction of individual members (bottom-up), but in explicating the structure of a collective construct one should also include the context in which individuals operate (top-down). In addition they discuss the influence of differences in contextual factors. To analyse the context-specificity of trust we build on Bachmann (2001).

Bachmann describes the specific forms of trust in different institutional settings. He analyses the context-specificity of trust and argues that the process of trust creation and the function of trust should be seen in the broader social setting. By doing so, he implicitly studies trust from a multi-level perspective. The discussion of trust in chapter 2 already made clear that there is an important distinction between the two levels of analysis. We also discussed the different functions of trust. With respect to the role of institutions, we reasoned that in less-developed institutional systems trust may serve as a substitute for contracts, whereas in more developed countries, trust is grounded in the effective functioning of the institutional system, and mainly enables the organisation of complex transactions that cannot be 'arranged' in contracts (incomplete contracts). The lack of a proper institutional system makes relatively straightforward transactions complex and trust is needed to solve the problem of uncertainty associated with the transaction.

But, as Bachmann (2001) clearly describes, even in developed countries like the United Kingdom and Germany, institutional differences result in differences in the process of trust-building and types of trust. 'While in both countries, trust is highly valued as an efficient means of coping with uncertainty, in the British socio-economic system, which is a prime example of extensive de-regulation, trust is a much more scarce resource than in the German business environment, which is still characterised by tight regulation and a strong institutional order. If/when trust occurs in the British system, it is likely to be *personal trust* constituted on the basis of individual experiences, rather than *system [generalized] trust* produced by reference to the institutional framework' (Bachmann, 2001, 353).

In presence of a strong institutional framework the associated generally acknowledged and formalised guidelines of behaviour yield a relatively low risk of betrayal and a low level of uncertainty. Generalized trust is likely to be the prevailing social co-ordination mechanism. Contracts and trust are not contradictory. In case of less strict institutionally embedded rules and norms, it is personal trust instead of generalized trust that is an important

co-ordination mechanism. In this case, contracts may even be seen as a sign of distrust (Nooteboom, 2002).

In sum, 'it is vitally important to gain a deeper understanding of how the specific socio-economic system under review works and how the relevant mechanisms [...] of co-ordination of interactions between firms are constituted' (Bachmann, 2001, 361). Studies in which trust is contextualised are promising and rewarding. However, in most papers focussing at the aggregate level, trust is thought of in a rather limited way, compared to the existing insights on the functions and types of trust at the micro level. At the aggregate level, almost no attention is paid to the variety of meanings of trust, types of trust, and contextual influences. Trust is mostly seen as a matter of predicting behaviour of others on the basis of imperfect information. As Nooteboom writes 'Economics has begun to recognize the importance of trust but tends to underestimate its complexity and to misconstrue it' (Nooteboom, 2002, 2).

This latter remark can be illustrated by Knack and Keefer's seminal article in the *Quarterly Journal of Economics* (1997). In this article Knack and Keefer start with a section titled 'how can trust affect economic performance?'. While acknowledging that they discuss trust more broadly, their core reasoning is summarized in the first paragraph of this section. 'Economic activities that require some agents to rely on the future actions of others are accomplished at lower cost in higher trust environments' (Knack and Keefer, 1997, 1252). Then they continue quoting Arrow (1972, 357), 'virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time. It can be plausibly argued that much of the economic backwardness in the world can be explained by the lack of mutual confidence'.

Two remarks concerning Knack and Keefer's reasoning can be made. First, by quoting Arrow this way they explicitly use *trust* and *confidence* as if these two concepts are perfect substitutes. But as Luhmann (1979) argues these two concepts are not substitutes. Confidence relates to bigger or wider systems or entities that we can hardly influence and that are more or less inevitable, such as the law, police, government, and so on. 'We can talk of institutional trust, but mostly that will be a matter of confidence rather than trust, so that it would be better to speak of *institutional confidence*' (Nooteboom, 2002, 55-56). By quoting Arrow, Knack and Keefer relate *confidence* to economic backwardness and in fact refer to the positive role of well-functioning institutions in explaining growth differentials. But we already knew this from development economics. Hence by referring to Arrow, Knack and Keefer do not propose a theoretical argument why trust (rather than confidence) may be related to economic performance. Second, in the first sentence, Knack and Keefer (1997) use the phrase *trust environment*. There are two problems with this phrase; (a) by linking the term trust to agents they suggest they think of micro trust. But their article is an analysis at the aggregate level; (b) by using the term *environment* they suggest that trust between agents (e.g., firms) comes from the outside as some kind of manna from heaven. However, the literature on micro trust shows that there are antecedents or sources of trust (Noorderhaven, et al., 2003, Nooteboom, 2002).

In other words, the theoretical reasoning of Knack and Keefer does not sufficiently take the multi-level problems of trust into consideration. In essence, their analysis is subject to the earlier mentioned problem of the 'atomistic fallacy'. This may have serious

consequences, because when levels of theory, measurement, and statistical analysis are not identical, the obtained results may reflect the level of measurement or statistical analysis rather than the level at which the theory is assumed to apply. In attributing the results of the analysis to the level of the theory, one may draw erroneous conclusions (Klein et. al., 1999).

The ‘trust’ that figures prominently in firm-level studies of relationships and embeddedness is not the generalised trust of the mainstream (macro-) economic literature. The reduction of transaction costs because of a trusting relationship cannot simply be translated to the statement that high trust reduces overall transaction costs in an economy, which positively affects GDP-growth. The leap from micro- to macro-functioning is illegitimate, because what may be true for individuals may not be true for the society as a whole (Fine, 2001). Measures of an individual-level construct cannot always simply be aggregated and assumed to be a reliable representation of its counterpart (Morgeson and Hofmann, 1999, 260). The micro-macro link between the institutional structure on the one hand and the way inter-personal and inter-organisational interaction is organised on the other hand is crucial for future theorising on trust and the function it has on the micro- and the macro level.

The question ‘Generally speaking, would you say most people can be trusted, or that you cannot be too careful in dealing with people?’ used in aggregate studies like those of Knack and Keefer (1997), Zak and Knack (2001), and also in this thesis, measures only a particular form of trust. Apart from the question what the responses actually mean⁶, the theoretical reasoning that lies behind the supposed effect of trust in these aggregate studies does not correspond with the way trust is operationalised in these studies. Measuring the (nation-) level of trust by means of this question implies that no distinction is made between types of trust and the institutional setting. Moreover, not only the mean value of trust is important, but also the spread. For example, is there strong within-group trust and low between-group trust? The fact that the ‘generally speaking’ question results in lower scores on trust in poorer countries than in richer countries does not imply that high levels of trust are important for economic development (see figure 1). It does not, simply because of the fact that it does not do justice to the important distinction between personal and generalized trust. Of these two types of trust, the question referred to above comes closest to the latter one, generalized trust. But this does not imply a lack of interpersonal trust in poor countries, but only shows a lack of generalized trust, which may be caused by a lack of well-functioning institutions. Controlling for the well-functioning of country-specific institutions yields an insignificant relationship between trust and economic success (see empirical finding 3). Therefore, to be complete aggregate studies on trust should take the context-specificities of trust into account. ‘If in some exchange situations actors profess, and honestly think, that they can be trusted, or that someone else can be trusted, very different things can be meant. Such differences are likely to occur between different cultures and languages’ (Nooteboom, 2002, 48). This also means that Putnam’s remark that ‘trust in other people is logically quite

⁶ Putnam (2000, 137-138) discusses this ‘generally speaking’ question and argues that the meaning of the responses remain murky in one respect. ‘If fewer respondents nowadays say, “most people can be trusted” that might mean any of three things: 1) the respondents are actually reporting that honesty is rarer these days; or 2) other people’s behaviour hasn’t really changed, but we have become more paranoid; or 3) neither our ethical demands nor other people’s behaviour have actually changed, but now we have more information about their treachery, perhaps because of more lurid media reports’.

different from trust in institutions and political authorities', is incomplete (Putnam, 2000, 137). It is incomplete, because generalized trust is related to institutional well-functioning.

8.5 How do we proceed?

The research question central in this thesis has been the study of culture in relation to economic development. In the previous section we described the problems with the measurement and understanding of culture, in specific trust. We also argued that for our understanding of trust it is necessary to include the role of institutions because of the context specificity of trust. This plea for the inclusion of the context-specificity is known in (cross-) culture research as a more so-called 'emic' approach. As Morris et al. (1999) write, there are two long-standing approaches to understanding the role of culture. First there is the *inside* perspective of ethnographers, who strive to describe a particular culture in its own terms, and second the *outside* perspective of comparativist researchers, who attempt to describe differences across cultures in terms of a general, external standard. Pike (1967, as quoted in Morris et. al., 1999) designates these two approaches the *emic* and the *etic* perspectives, by analogy to two approaches to language; phonemic analysis of the units of meaning, which reveals the unique structure of a particular language, and phonetic analysis of units of sound, which affords comparisons among languages. The emic and etic perspectives are often seen as being at odds –as incommensurable paradigms⁷.

Emic and etic researchers tend to have differing assumptions about culture. Emic researchers tend to assume that a culture is best understood as an interconnected whole or system, whereas etic researchers are more likely to isolate particular components of culture and state hypotheses about their distinct antecedents and consequences. Although the emic/etic contrast may be seen as a continuum, this 'dichotomy has played a central role in the meta-theory debates in many social sciences disciplines' (Morris et. al., 1999, 782). It is also closely related to the measurement - or according to others, the impossibility of the measurement of culture. Emic and etic approaches have traditionally been associated with differing research methods. Etic researchers are more likely to use brief, structured observations of several cultural groups. A key feature of etic methods is that observations are made in parallel manner across different settings, for example Hofstede's (2001) dimensions of national culture. But this is also exactly the critique that these etic scholars receive from more emic-oriented researchers. Etic accounts based on survey data are often dismissed because researchers remained at a distance from respondents, potentially insensitive to how respondents were affected by their questions and thus not taking into account the context specificity. On the other hand, emic accounts based on ethnographic observation are often discounted on the basis of incomparability across reports and for inheriting misconceptions from cultural insiders. Thus, both schools of thought tend to dismiss insights from the other perspective based on methodological weaknesses.

Although the discussion in the previous section could and should be interpreted as a plea for a more emic approach, we would clearly not go as far as Schein (1996) arguing that 'particular in relation to culture, when I see my colleagues inventing questionnaires to

⁷ To simplify matters, emic studies may be seen as case studies whereas etic studies come close to large scale statistical works.

“measure” culture, I feel that they are simply not seeing what is there, and this is particularly dangerous when one is dealing with as social force that is invisible yet very powerful’ (Schein, 1996, 239). The emic and etic approach are not ‘either-or’ categories of philosophies of science, because we think a richer account of culture can result when an integrative framework arises. Evidently, a fault line runs through the disciplines concerning culture. On one side there are disciplines like history or cultural anthropology stressing context-specificity. On the other side are disciplines like economics, driven by a universalistic logic of seeking a-historical generalizations. As emic scholars tap into the explanations held by cultural insiders, the emic perspective inherently leads to an emphasis on the causes of phenomena that are internal and local to the culture being studied. Because etic perspectives attune one to relationships between external structural variables and behaviors, a functionalist story is more likely to result (Morris et al., 1999, 790-791). We feel that an account of culture that acknowledges both particularistic and universalistic logics is important for our understanding. Traditionally it is assumed that an emic approach may serve best in exploratory research, whereas an etic approach serves best in testing hypotheses. However, the emic approach may also be productive when interpreting etic results. The previous chapters should clearly be seen in the etic perspective. The availability of data as mentioned in chapter 1 enabled us and other researchers mentioned throughout this thesis to perform statistical tests on relatively large samples. Building on emic descriptions of the role of culture in relation to economic development, this thesis can be seen as an etic attempt to corroborate these insights. However, being forced to think about the statistical results, its implications and the confrontation with existing theory, we think we need to go back to the more explorative emic descriptions before we start a (new) wave of statistical testing.

Given the theoretical and empirical problems of trust the question arises how we proceed in our study of trust and economic performance. In their theories and operationalizations, scholars must take the context-specific factors into account in order to fully understand the nature of collective constraints such as generalized trust. ‘Scholars should not simply assume that the measurement of collective phenomena is the same as the measurement of analogous individual level phenomena. There is a host of potentially important factors at the collective level’ (Morgeson and Hofmann, 1999, 261). With respect to the ‘generally speaking’ measure of trust, we are sceptical about the possibility of coming to a better understanding of the relation between trust and economic performance at country or regional level by means of another wave of large-scale survey research. Given the multi-level problems associated with trust, a systems approach in which different types of trust on different levels are measured and confronted with each other, may be a promising way forward. This does not imply that our results are useless. On the contrary, the results as presented in chapter 3, 4 and 5 have forced us to think about trust and its measurement. Instead of continuing the - what some have called ‘juggling with the survey question on trust’ (Dekker, 2002, 53) - our suggestion would be to complement the etic type of analyses with more emic approaches like the one discussed earlier, proposed by Bachmann (2001). But next to this emic route, there may be room for improvement in the etic alternative as well. As discussed in chapter 3, an important criticism raised to the Barro type of empirical analyses is its perceived lack of robustness. One of the reasons for this has been the use of a plethora of potentially relevant variables to explain growth differences between countries and regions. In

chapter 3 we also referred to Durlauf (2002b) who argued that an important problem is that usually authors do not properly establish that their choice of regressors is rich enough to avoid that findings result from omitted variables. Following the theoretical argument on multi-level theory above, it may be fruitful to empirically link existing measures for institutions with our ‘generally speaking’ measure for trust. This would be in line with the suggestion of Temple (1999) to breath new life into growth empirics by modelling social and political influences on growth as latent variables related to a set of observable indicators. Principal component analysis as performed in chapter 6 enables us to cluster variables into homogenous dimensions. This looks like an attractive alternative route that may yield productive results, as it limits the potential danger of using single item measures, like our ‘generally speaking’ question on trust.

In table 2.2 in chapter 2 we have tried to propose several directions for future research. Again, we made a distinction between the two levels. At the aggregate level, perhaps the most important direction of future research is related to a possible direct linkage between norms of cooperation and economic growth. Also, there is the question where international or regional differences in norms of cooperation come from. Why are some nations characterised by a high amount of aggregate social capital while others seem to lack norms that promote cooperation? Moreover, more light should be shed on the interplay between voluntary associations at the micro level and institutional and cultural features of democracy at the macro level. The often-heard criticism on the lack of a theoretical mechanism between associational activity and economic growth is less relevant once we see associational activity as a proxy for norms of cooperation. However, more insight in the causal relationship between these norms of cooperation, international differences in it and the economic outcomes in terms of welfare is needed. So far, the assumed causal mechanism between aggregate social capital and economic growth might be too (culturally) deterministic. It might very well be that the above relationship is endogenous.

At the individual level, there are also a number of areas to be explored. The ability to engage in new networks differs across firms⁸. Firms may vary in terms of their potential to discover and exploit competitive capabilities through their networks (Noorderhaven et. al., 2003). An important question concerns the alliance formation capabilities of firms. What are the factors that determine if a firm is capable of effectively handling external relationships? Are internal organisational elements related to the capacity to build and maintain external relations, as argued by Ritter (1999)? As we described in chapter 2, strong ties might generate all kinds of benefits. At the same time we argued that building and managing a relationship takes time and money. It would be interesting to examine if there is a trade-off in the costs of maintaining strong ties and the reduction of transaction costs.

Perhaps the most important research question in the field of social capital as a whole concerns the relationship between the two levels. The distinction between the two levels as we outlined above is not as strict as it might look after our discussion. Clearly the two levels are interrelated. This is exactly the reason why so far only few researchers in the field of social capital have been explicit with respect to the level at which they apply the concept. Norms of generalized reciprocity present in the society as a whole do affect the capability of

⁸ As we noted in chapter 2, the individual level includes actors like persons, firms and other organisational entities. We have chosen to concentrate on firms.

firms to build and maintain inter firm relations. How is the aggregate-level of social capital related to the individual-level? It can be argued that in societies in which norms of cooperation are more prevalent it is easier to build individual level social capital. Can international differences in the creation of social capital at the individual level be explained by cultural differences? We already know a great deal about cross-cultural differences in the field of international management (Hofstede, 2001), but to our knowledge so far no study explicitly dealt with cross-cultural differences and the capabilities of firms to engage in external partnerships and in this way build social capital.

As Uzzi (1996, 695) puts it, 'what modern institutions and cultural arrangements need to exist if embedded exchange systems are to arise and prosper in a society?'. Or in other words, what are the institutional and cultural characteristics of societies in which the willingness and ability of firms to engage in relationships and build social capital at the micro level is promoted?⁹ An institutional environment that encourages trust among trading partners may facilitate the creation of relational rents (North, 1990). Although Tsai and Ghoshal (1998) operationalise their cognitive dimension of social capital at the individual level by measuring the degree of overlap between different business units, their definition of the cognitive dimension leaves room for a much broader interpretation. They find that common values and a shared vision encourage the development of trusting relationships between business units. If we interpret their cognitive dimension in a broader way, i.e. common values in general, their argument can be extended to the aggregate level of social capital. The cultural setting in which firms engage in relationships influences the social capital at the individual level. Some authors have argued that Japanese firms have been successful in generating relational rents because of a country-specific culture that fosters trust and cooperation (e.g. Dyer and Singh, 1998). Cooperating firms in other countries may not be able to obtain the same relational rents and reduction in transaction costs because they lack the 'proper' culture. The institutional environment may be important in the potential to reduce transaction costs to achieve a certain level of cooperation. Social capital at the aggregate level may serve as a conditioning factor for social capital at the individual-level. In other words, norms of cooperation embedded in a (national) culture may influence the potential advantages of network relationships between firms.

8.6 Conclusion

Based on the insights generated in this thesis we suggest the following path to proceed in the field of culture and economic development. First, our suggestion would be to include the role of institutions. As this approach may require a multi-level analysis, our second suggestion would be to complement the existing statistical studies on culture and economic development, especially with respect to trust, with more case-based approaches (emic). Finally, within the (etic) type of analyses as performed in this thesis, the challenge is to come to better measures of trust, associational activity and other indicators of social capital.

⁹ Following Williamson's (1985) line of thinking, it may also be argued that it is exactly the lack or failure of these institutions that make these networks (or hybrids between markets and hierarchies) come into being.

Appendix

Appendix to chapter 1

A. Regional development program

In order to reinforce economic and social cohesion, the EC has defined priority areas by means of five development Objectives for the 1994-1999 period.

- Objective 1: regions lagging behind in development
- Objective 2: areas in industrial decline
- Objective 3: fight against long-term unemployment, youth employment and exclusion from the labour market
- Objective 4: preventive adaptation of the workforce to industrial and production system changes
- Objective 5a: adjustment of agricultural and modernization of fishing industry, within the framework of the Common Agricultural Policy)
- Objective 5b: vulnerable rural zones
- Objective 6: regions with a very low population density

In sum, of the total Structural Funds objective 1, 2, 5b and 6 form the regional components. The other Objectives do not have an explicit spatial association. In table 1 I have depicted an overview of these funds for the 1993-1999 period. This gives some intuition for the amount of funds involved in promoting regional development.

Table 1: Community resources 1993-1999 (ecu bn, 1992 prices)

	1993		1996		1999	
	bn ecu	%	bn ecu	%	bn ecu	%
Agriculture	35.2	50.9	36.4	48.4	38.4	45.7
Structural actions	21.3	30.8	25.0	33.2	30.0	35.7
Cohesion fund	1.5	2.2	2.3	3.1	2.6	3.1
Structural funds	19.8	28.6	22.7	30.2	27.4	32.6
Internal policies	3.9	5.6	4.5	6.0	5.1	6.1
External action	4.0	5.8	4.6	6.1	5.6	6.7
Other	4.8	6.9	4.8	6.4	5.0	5.9
Total commitments	69.2	100	75.2	100	84.1	100
Total payment appropriations	65.9		71.3		80.1	
% Community GNP (EUR12)	1.20		1.21		1.26	

* Total commitments relate to the legal obligation undertaken by the Community even if the total payment appropriations are not undertaken in the same period. Source: Hall and Van der Wee, 1995.

Several different reasons have been given for increasing the direct involvement of regional authorities (Council of Europe, 1990). First, the argument is based on the idea that this will lead to a better understanding of the local needs in the formulation of development plans. Second, by channelling funds directly to regional and local authorities, the Commission hopes to ensure that EC funds are wholly additional to national funds. Additionality has been a concern of the Community, for example when establishing the European Regional development Fund (ERDF) in 1975, the EC writes 'the fund's assistance should not lead to Member States to reduce their own regional development efforts but should complement these efforts' (EC Council of Ministers, 1975, 2).

In the initial period the European Agriculture Guidance and Guarantee Fund (EAGGF), set up by article 40(4), together with the European Social Fund (ESF, established by articles 123-127 Rome Treaty), contained provisions designed to help the development of less favoured regions of the Community. The third structural fund, the European Regional Development Fund (ERDF) was established in 1975 as part of the perceived need for the community to play a more active role in boosting regional development. The ERDF was designed to correct the main regional imbalances in the Community, which resulted from over-dependence on agriculture, and as a consequence of industrial change and structural underdevelopment. Areas in need of assistance were defined as those having a GDP per head less than the community average (now that is 75% of the Community average).

Since 1988 the Community's structural funds have been substantially reformed. EC regional policy was reformed in 1988/1989 in recognition of the fact that the effects of the completion of the internal market by 1992 would most probably be to widen the regional disparities in the EC even more. Therefore it was agreed that the Structural Funds of the EU, which comprise the European Regional Development Fund (ERDF), the European Social Fund (ESF) and the Guidance Section of the Agriculture Fund (EAGGF) were doubled in real terms in 1993. From a policy characterised by a project approach, the EC has moved to a more coherent strategy, guided by principles of spatial concentration, programming, additionality and partnership. Now the goal of the Structural Funds can be summarised as a focus on economic and social cohesion. Officially it is stated in the Treaty of the European Union (TEU) that 'in order to promote its overall harmonious development, the Community shall develop and pursue its actions leading to a strengthening of its economic and social cohesion. In particular the Community shall aim at reducing disparities between levels of development of the various regions and the backwardness of the least favoured regions, including rural areas' (EC Commission, 1986, 13).

B. Defining regions

A region is an elusive concept (Keating, 1998, 9). It 'covers a variety of territorial levels and a range of social contents. A minimum definition of a region would present it as an intermediate territorial level, between the state and the locality. A region can be recognized according to geographical criteria, as physical spaces. These are either homogeneous regions defined by topography, climate or other fixed characteristics, or nodal regions, defined by common central point. An economic definition of a region would probably focus on common production patterns, interdependencies and market linkages' (trade). A region can also be defined according to social criteria, for example according to language, dialect or patterns of social interaction.

The definition of a region is an essential prerequisite for the analysis of regional (economic) phenomena. Nevertheless, the definition of a region is rather ambiguous and not an easy task. First of all, the size of a region may vary from a relatively small area within a country to a vast massive sub-region within a continent or even to a whole continent, depending on the research question. But more important, there are a number of theoretical considerations when defining regions.

Siebert (1969) describes a region as an intermediate category between an aggregate economy with no spatial dimension and a highly disaggregated economic system defined as a set of spatial points. A region is an in between category similar to the sector, which makes possible some aggregation of the multitude of individual firms without requiring a complete aggregation into a national economic system. Still, how a national economy should be divided into regions is not evident from the description of Siebert.

Regional economic literature contains several regional prototypes. For an extensive discussion we refer to Richardson (1978) and Vanhove (1999). First of all, regions can be defined as uniform or homogeneous regions. The idea is that spatial units can be grouped together because of certain common characteristics. These characteristics can be physical (e.g. geography or resource endowments) or on the basis of economic and social characteristics (e.g. production structure, climate, sectoral employment structure, or social attitude). It needs no further explanation that the delimitation of regions is sometimes difficult when following this system, as some regions tend to be similar to another region in some respects, but in other respects show a closer link with a third region. The second standard system of defining regions is based on the so-called nodal or polarised region. 'A polarised space is a set of units or economic poles maintaining more trade or connections with a pole of the next superior order than with any other pole of the same order' (Boudeville, as quoted in Vanhove, 1999, 134). This means that Tilburg belongs to the region of Eindhoven if it has more trade relations with Eindhoven than with the region of Breda. The nodal approach demonstrates the functional interdependence between a region's internal components.

The third type of conceptualising regions that is distinguished is the planning or programming region. In this case the unity derives from political or administrative control. One of the key advantages of this planning-region approach is that data are collected on the administrative unit base, which permits policy instruments to be evaluated more easily (Richardson, 1978). The disadvantage consists of the possible inconsistency between regional administrative boundaries and the boundaries of economic regions. As Richardson writes, 'a

system of planning regions based on nodality criteria provides the most satisfactory framework for analysis [...], the regional economist is frequently forced to work with existing administrative regions regardless of whether they satisfy economic criteria or not. Particularly in the area of applied research, he must be realistic, working with whatever data are available, rather than idealistic' (Richardson, 1978, 24).

Besides these classical theoretical ways to define regions, there are a number of other more ad hoc classification systems. Vanhove (1999) mentions the classification according of the rate of growth. Regions are defined in terms of growing, stagnating, and regressive regions. Combining a static (income *levels*) and a dynamic (GDP *growth*) viewpoint Vanhove suggests the following classification.

Regional growth rate with respect to national growth rate	Income level in comparison to national average	
	High (≥ 1)	Low (≤ 1)
High (≥ 1)	Prosperous region	Underdeveloped region in expansion
Low (≤ 1)	Potentially under- developed region	Underdeveloped region

Source: Vanhove, 1999, 137

It is clear that a regional division that serves all purposes (analytical as well as political) does not exist (Vanhove, 1999). Different concepts of regions are relevant for the analysis of different activities, and the same holds for policies concerning these activities. Whether one uses administrative, historical or other criteria there are no satisfactory methodologies (Richardson, 1978). No division can serve all purposes simultaneously.

C. The NUTS classification in Europe

The European Commission (Eurostat) set up the ‘Nomenclatura of Territorial Units for Statistics (NUTS)’ in the 70s as a single coherent system for dividing the Community’s territory. The European Committee justified the regional division of European countries in the following way: ‘In drawing up this report, an important question has been which level of geographical units is most suited for analysing regional problems and the regional economic capacity in the Community. The principle has been adopted that the regions chosen must be sufficiently significant in size and population to ensure a meaningful evaluation of the socio-economic situation in the regions involved.’ (CEC, 1982).

This NUTS classification has gained increasing importance in recent years as the basis for harmonised, and thus comparable regional data. NUTS was created and developed in accordance with several principles. First of all, NUTS is a hierarchical classification of 3 levels. Level 1 is subdivided into level 2 regions and the latter are further subdivided in NUTS 3 regions. Strictly speaking there is also the NUTS 0 level, which corresponds to the country level. The administrative structure of the Member States is generally based on two main regional levels (e.g. Länder and Kreise in Germany, régions and départements in France, Comunidades autonomas and provincias in Spain, the 4 Gewesten and the provinces in The Netherlands). Depending on the country, these levels may be NUTS 1 and NUTS 2, NUTS 1 and NUTS 3 or NUTS 2 and NUTS 3. There are several stages in the definition of the NUTS regions in a particular country. First, the administrative structure is analysed. Hence, the basis of the definition of the region in Europe is administrative. Then a check is made if (regional) data are collected and disseminated on the basis of this regional breakdown. After that the average size (in terms of population) of the units of the various existing administrative levels is analysed to determine whether these levels belong in the hierarchy of the regional classification. The average size of this class of administrative units in the Member States lies within the following thresholds, NUTS 1: min 3 million, max. 7 million, NUTS 2: min. 800.000, max. 3 million, NUTS 3: min. 150.000, max. 800.000. In 1998 the EUR 15 included 78 NUTS level 1 regions and 210 NUTS level 2 regions.

Though it is generally acknowledged that this NUTS classification has drawbacks as we referred to earlier, the fact that it is based on administrative boundaries has indeed an important advantage. As Richardson (1978, p. 18) notes ‘if regional planning is an element in national economic policy, it is less likely to be implemented effectively if it operates outside the existing administrative system and political structure’. Therefore, NUTS is still a useful level of analysis.

Nevertheless, by using the NUTS classification system as the unit of analysis in most of the remainder of the thesis, I cannot deny that Richardson was right when writing that ‘defining regions precisely is such a nightmare that most regional economists [...] are relieved when they are forced to work with administrative regions on the grounds that policy considerations require it or that data are not available for any other spatial units’ (Richardson, 1978, 17).

Another argument to use the NUTS classification is provided by Lösch. He argues that political frontiers are more rigid than economic boundaries (Lösch, 1954). They are also wider, so to speak than economic boundaries. States and regions are separated by laws,

language, a sense of community etc., whereas economic boundaries separate only through minute prices differences. Arguing so, Lösch (1954) draws our attention to the non-economic factors that may separate certain spatial units, be it either countries or sub-national units. Nevertheless, as Vanhove (1999, 139) remarks, in the initial burst of enthusiasm for a unified Europe, these factors were largely lost sight of, which partly explains the fact that the regional classification is based on administrative boundaries and not on social. The belief that removing the economic (and administrative) barriers would be sufficient and put an end to all barriers has been a historical mistake. People failed to realise that other culturally and institutionally determined impediments would continue to exist.

Appendix to chapter 3

This Appendix describes the variables that we have used in our analysis in chapter 3. In this Appendix, we restrict ourselves to the dependent and fixed variables and the 22 switch variables resulting from the .25 correlation criterion. The variables that resulted after imposing the .50 correlation criterion was applied are not shown. All datasets and a more extensive description of the variables are available upon request from the authors. Our basic dataset starts from Zak and Knack (2001), further denoted as ZK. The human capital data used in Section 4.3 were taken from Barro and Lee (BL). The log of real GDP per capita in 1970 is just a transformation of Real GDP per capita in 1970. The average investment ratio was constructed from the Penn World Table, Mark 5.6 (PWT56). The other institutional and geographical indicators included as switch variables were taken from Barro and Lee (BL), Sachs and Warner (SW), Sala-i-Martin (SiM) and Zak and Knack. We refer to the primary studies for more detailed information on the sources of these readily available data that are commonly used in empirical growth studies.

Dependent variables:

Growth of GDP per capita 1970–1992	ZK
------------------------------------	----

Fixed variables:

Real GDP per capita 1970	ZK
Investment good price 1970	ZK
School attainment 1970	ZK
Trust	ZK
Primary school enrolment rate 1960	BL
Secondary school enrolment rate 1960	BL
log(Real GDP per capita 1970)	ZK

Conditioning variables:

1 Fraction of Confucians in population	SiM
2 Average Investment/GDP 1970 – 1992	PWT56
3 Outward orientation	SiM
4 Fraction of Buddhists in population	SiM
5 Accessibility to international waters	SW
6 Area (in km ²)	SiM
7 Black market premium	BL
8 Public investment	SiM
9 Terms of trade growth	SiM
10 Exchange rate distortions	SiM
11 Size of the Labour force	SiM
12 Political assassinations	SiM
13 Public consumption	SiM
14 St. dev. Black mkt premium	SiM
15 Fraction of Jews in population	SiM
16 Former British colony	SiM
17 Fraction of GDP in mining	SiM
18 Perc. Chr. Orthodox in population	ZK
19 Country in Sub Saharan Africa	SiM
20 Political instability	SiM
21 Fraction of Hindus in population	SiM
22 Ethnolinguistic fractionalization	SW

Appendix to chapter 5

A. Static model

Log-linearizing (2), (3), and (4) and the budget constraint in (1), we find after substituting out endogenous variables:

$$\tilde{z} = -\varepsilon_{Zv+} \tilde{v}, \quad (7')$$

$$\tilde{f} = \varepsilon_{Fv} \tilde{v} + \tilde{\phi}, \quad (8')$$

$$\tilde{c} = \frac{w}{c} \left[-v - f \varepsilon_{Fv} + z \varepsilon_{Zv+} + (v + (1-v) \varepsilon_{Bz} \varepsilon_{Zv+}) \zeta B \right] \tilde{v} - \left(\frac{fw}{c} \right) \tilde{\phi} + \tilde{w}, \quad (9')$$

$$\tilde{c} = \left(1 + \frac{\zeta B}{1 - \zeta B} \varepsilon_{Bz} \varepsilon_{Zv+} [\varepsilon_{Sf} \sigma_{vf} + (1 - \varepsilon_{Sf}) \sigma_{cs}] \right) \tilde{v} + \left(\frac{\sigma_{vf} - \sigma_{cs}}{\sigma_{vf} - 1} \varepsilon_{Sf} \right) \tilde{\phi} + \tilde{\mu} + \sigma_{cs} \tilde{w}. \quad (10')$$

Variables with a tilde are logarithmic deviations from the initial equilibrium; variables without a tilde refer to the initial equilibrium; ε_{ij} denotes the elasticity of i with respect to j , and ε_{ij+} denotes the positively defined elasticity of i with respect to j :

$$\varepsilon_{Bz} = B_z z / B > 0,$$

$$\varepsilon_{Sf} = S_f f / s \in [0, 1],$$

$$\varepsilon_{Zv+} = \frac{v}{1-v} / \frac{-B_{zz} z}{B_z} > 0,$$

$$\varepsilon_{Fv} = 1 + \sigma_{vf} \frac{\zeta B}{1 - \zeta B} \varepsilon_{Bz} \varepsilon_{Zv+} > 1.$$

Note that (7')-(10') are the log-linear equivalents of (7)-(10) in the main text; they are used to determine the partial derivatives of the functions Z , F , T and C .

B. Dynamic model

The complete model reads:

$$\text{maximize} \quad \mu [\ln c_y + \delta \ln c_o] + \ln s, \quad (\text{B.1})$$

$$\text{subject to} \quad s = S(f, v), \quad (\text{B.2})$$

$$c_y = (1 - v - f - z - l) e^{w_l} w_h + (1 - v) [B(z) \bar{w} - D(\bar{z}) e^{w_l} w_h] - \frac{1}{1+r} c_o, \quad (\text{B.3})$$

where δ is the discount factor and c_y and c_o denote consumption when young and when old, respectively. Note that we assume a Diamond-type of OLG model with logarithmic preferences (which implies $\sigma_{cs} = 1$). For simplicity, social interaction matters only for young agents.

The first order conditions can be written as [note that (primed) equation numbers without prefix B correspond to (non-primed) equations in the main text]:

$$(1-\nu)B_z(z)\bar{w} = w, \quad (2)$$

$$\frac{S_v(f, \nu)}{S_f(f, \nu)} = 1 - \left[D(\bar{z}) - B(z) \frac{\bar{w}}{w} \right], \quad (3)$$

$$\frac{\mu S(f, \nu)}{c_y} = \frac{S_f(f, \nu)}{w}, \quad (4')$$

$$l = [(1-\nu)(1 + D(\bar{z})) - f - z] - 1/\psi, \quad (11')$$

$$c_o = \delta(1+r)c_y. \quad (B.4)$$

Substituting (11') and (B.4) in budget constraint (B.3), we find:

$$(1+\delta)c_y = w[1/\psi + (1-\nu)B(z)\bar{w}/w].$$

Eliminating c_y between this equation and (4'), we find:

$$\mu(1+\delta) = \frac{S_f(f, \nu)}{S(f, \nu)} [1/\psi + (1-\nu)B(z)\bar{w}/w]. \quad (10')$$

From now on we focus on symmetry. As before, from (2) we derive $z = Z(\nu)$ and from (3) we derive $f = F(\nu; \phi)$. Substituting these results in (11') and log-linearizing, we find:

$$\tilde{l} = \left(\frac{-\nu - f\varepsilon_{F\nu} + z\varepsilon_{Z\nu} + [\nu + (1-\nu)\varepsilon_{Bz}\varepsilon_{Z\nu}](1+\zeta)B}{l} \right) \tilde{\nu} - \left(\frac{f}{l} \right) \tilde{\phi} + \frac{1}{\psi l} \tilde{\psi}. \quad (B.5)$$

Substituting $z = Z(\nu)$ and $f = F(\nu; \phi)$ into (10') and log-linearizing, we find:

$$\tilde{\nu} = \frac{-1}{\varepsilon_\nu} \left[\varepsilon_{Sf} \tilde{\phi} + \tilde{\mu} + \left(\frac{w}{(1+\delta)c} \right) \frac{1}{\psi} \tilde{\psi} \right], \quad (13')$$

where

$$\varepsilon_\nu = 1 + \frac{\zeta B}{1-\zeta B} \varepsilon_{Bz} \varepsilon_{Z\nu} \left[\varepsilon_{Sf} \sigma_{vf} + (1-\varepsilon_{Sf}) \right] + \frac{wB}{(1+\delta)c} [\nu + (1-\nu)\varepsilon_{Bz}\varepsilon_{Z\nu}] > 0.$$

Solving (B.5) and (13') for l we find:

$$\tilde{l} = - \left(\frac{\varepsilon_{Lv} \varepsilon_{Sf} + f/l}{\varepsilon_\nu} \right) \tilde{\phi} - \left(\frac{\varepsilon_{Lv}}{\varepsilon_\nu} \right) \tilde{\mu} + \left(\frac{\varepsilon_{Cv} - \varepsilon_{Tv}}{\varepsilon_\nu} \right) \frac{1}{l\psi} \tilde{\psi}. \quad (12')$$

Equations (13') and (12') are used to complete Table 5.2

Appendix to chapter 7

The following EVS variables are used to construct the Traditional/Rational and Survival/Well-being values indices. Weights are based on Inglehart and Baker (2000).

HAPPY V10. Taking all things together, would you say you are:

- 1 Very happy
- 2 Quite happy
- 3 Not very happy
- 4 Not at all happy

TRUST V27. Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?

- 1. Most people can be trusted
- 2. Can't be too careful

DISCPOL When you get together with your friends, would you say you discuss political matters frequently, occasionally or never?

- 1 Frequently
- 2 Occasionally
- 3 Never

LIFESAT V65. All things considered, how satisfied are you with your life as a whole these days? Please use this card to help with your answer.

1	2	3	4	5	6	7	8	9	10	
Dissatisfied										Satisfied

MATPOSTM V106. If you had to choose, which one of the things on this card would you say is most important?

V107. And which would be the next most important?

	First Choice	Second Choice
Maintaining order in the nation		1 1
Giving people more say in important government decisions	2	2
Fighting rising prices	3	3
Protecting freedom of speech	4	4

[The Materialist/Postmaterialist values index used here is created as follows: if the respondent's first and second choices are both Materialist items (i.e., maintaining order and fighting rising prices), the score is "1". If the respondent's first and second choices are both postmaterialist items (i.e., giving people more say and protecting free speech), the score is "3". If the two choices are any mixture of Materialist and Postmaterialist items, the score is "2"].

AUTHORITY I'm going to read out a list of various changes in our way of life that might take place in the near future. Please tell me for each one, if it were to happen, whether you think it would be a good thing, a bad thing, or don't you mind?

V114 Greater respect for authority

Good	mind	Bad
1	2	3

GODIMPORTANT V190. How important is God in your life? Please use this scale to indicate- 10 means very important and 1 means not at all important.

1	2	3	4	5	6	7	8	9	10
Not at all									Very

Please tell me for each of the following statements whether you think it can always be justified, never be justified, or something in between, using this card.

HOMOSEX V197. Homosexuality

Never									Always									
Justifiable									Justifiable									
1	/	2	/	3	/	4	/	5	/	6	/	7	/	8	/	9	/	10

DIVORCE V200. Divorce

Never									Always									
Justifiable									Justifiable									
1	/	2	/	3	/	4	/	5	/	6	/	7	/	8	/	9	/	10

NATPRIDE V205. How proud are you to be FRENCH? (substitute your own nationality for 'French')

- 1 Very proud
- 2 Quite proud
- 3 Not very proud
- 4 Not at all proud

The indices are constructed from the mean scores on the ten variables listed above, using the following SPSS recode instructions:

```
COMPUTE Surv Well = 0.10 * MATPOSTM + 0.06 * LIFESAT - 0.20 * TRUST
+ 0.02 * HOMOSEX - 0.14 * HAPPY
```

```
COMPUTE TradRat = 0.06 * AUTHORITY + 0.11 * NATPRIDE - 0.03 * GODIMPORT
- 0.09 * DISCPOL + 0.05 * DIVORCE
```

```
FORMATS SurvWell (F8.3), TradRat (F8.3).
```

VARIABLE LABELS

SurvWell "Survival-Well-being index".

TradRat "Traditional-Rational index".

EXECUTE.

Samenvatting (Summary in Dutch)

Cultuur en economische ontwikkeling in Europa

In dit proefschrift staat de relatie tussen cultuur en economische ontwikkeling in Europa centraal. Cultuur dient hierbij te worden opgevat als de algemeen gedeelde normen en waarden in een samenleving. De achtergrond van het thema van dit proefschrift komt voort uit een toegenomen interesse van economen van de rol van cultuur bij het verklaren van verschillen tussen rijke en arme landen en regio's. Voortbouwend op het standaard neoklassieke groeimodel zoals ontwikkeld door Solow in de jaren '50 van de vorige eeuw zijn er in de loop van de tijd factoren toegevoegd aan de verklaring van welvaartsverschillen. Na de standaard variabelen fysiek kapitaal K and arbeid L zijn dat menselijk kapitaal H , instituties (I) en uiteindelijk cultuur.

Een belangrijke reden voor de toegenomen interesse in cultuur is het economische succes van Japan en andere landen in Zuid Oost Azië in de zeventiger en tachtiger jaren en het besef dat er niet één westers model is dat leidt tot economisch succes. Sterker nog, het economische succes van deze landen wordt voor een deel toegeschreven aan de specifieke cultuur. De interesse in cultuur wordt in de recente literatuur toegespitst op het begrip sociaal kapitaal. Hoewel het begrip sociaal kapitaal ouder is, kunnen we constateren dat Robert Putnam met zijn publicatie 'Making Democracy Work' het begrip sociaal kapitaal op de wetenschappelijke agenda heeft gezet. In dit boek bestudeert hij het economische succes en het al dan niet functioneren van de overheid in 20 Italiaanse regio's en constateert dat een belangrijke reden voor de verschillen tussen zuidelijke en noordelijke regio's dient te worden gezocht in het aanwezige sociaal kapitaal. Onder sociaal kapitaal verstaat Putnam 'aspecten van de organisatie van het sociaal leven, zoals vertrouwen, normen, netwerkrelaties, die de efficiency van de samenleving kunnen vergroten door het faciliteren van gecoördineerde acties'.

Parallel aan deze interesse in de rol van cultuur is er een ontwikkeling binnen de (algemeen) economische wetenschappen geweest waarbij een toegenomen interesse is in de rol van regio's en ruimte meer in het algemeen. Het bestaan van economisch succesvolle regio's in de wereld (Silicon valley, Baden Württemberg en Noord Italië) heeft geleid tot een opleving of herontdekking van het ruimtelijke of regionaal economisch denken. Traditioneel is deze literatuur veel aandacht geweest voor de rol van instituties en cultuur. Naast deze wetenschappelijke ontwikkelingen heeft de integratie van Europa geleid tot een groter belang van de regio's binnen landen en de Europese Commissie zelfs verleid tot een thema als het 'Europa van de regio's'.

Tegen deze achtergrond van toegenomen interesse in cultuur en regio's, in Europa in het bijzonder wordt in dit proefschrift in verschillende hoofdstukken de relatie tussen cultuur, meer specifiek sociaal kapitaal en economische ontwikkeling in 54 Europese regio's onderzocht. De data die gebruikt zijn voor de operationalisering van cultuur zijn afkomstig van het Europees Waarden Onderzoek (European Values Studies, EVS). Doel van de EVS is het waardepatroon van Europeanen te meten en te onderzoeken. Daartoe zijn in 1981, 1990 en 1999 onderzoeksrondes gehouden in een toenemend aantal landen. In dit proefschrift is met name gebruikt gemaakt van de gegevens van de 1990 ronde.

Alvorens een begrip als sociaal kapitaal te operationaliseren is het belangrijk de theorievorming rond sociaal kapitaal te beschrijven (hoofdstuk 2). Het is van belang een onderscheid te maken naar niveau van analyse. In de literatuur wordt het begrip zowel

gebruikt en toegepast op het individuele als het aggregaat niveau. Op het laatstgenoemde niveau gaat het om normen van maatschappelijke betrokkenheid zoals Putnam ze bestudeerd heeft voor Italië. Sociaal kapitaal wordt op dit niveau in de meeste empirische studies gemeten als de mate van onderling vertrouwen tussen mensen en de mate van inbedding in sociale netwerken als de voetbalclub, politieke partijen, zangkoren, leesclubs en andere verenigingen. Op het individuele niveau wordt sociaal kapitaal gepercipieerd als het netwerk van een individuele actor (onderneming of individu) en de relaties van deze actor binnen dit netwerk. De literatuur geeft aan dat op beide niveaus sociaal kapitaal zowel positieve als negatieve effecten kan hebben. In het onderzoek naar de relatie tussen cultuur en economische ontwikkeling gaat het om sociaal kapitaal op aggregaat niveau.

Belangrijke empirische bijdrages op het terrein van aggregaat sociaal kapitaal zijn van Knack en Keefer (1997) en Zak en Knack (2001). Zij onderzoeken de vraag of de mate van algemeen vertrouwen van invloed is op economische groei in 29 respectievelijk 41 landen (*ceteris paribus*). Daarbij maken ze gebruik van zogenaamde Barro groeimodellen. Deze zijn echter sterk bekritiseerd in de literatuur wegens gebrek aan robuuste statistische resultaten. Omdat genoemde bijdrages belangrijke ‘benchmarks’ vormen in de literatuur van sociaal kapitaal is het zinvol de robuustheid van deze resultaten nader te onderzoeken (Hoofdstuk 3). Gebruik makend van de data uit hun onderzoek zijn verschillende aspecten van statistische robuustheid onderzocht via verschillende econometrische technieken zoals de extreme bounds analysis. Er is gekeken naar significantie, de grootte van de geschatte effecten, de gevoeligheid voor andere modelspecificaties en de invloed van de verschillende sets van landen die zijn onderzocht door Knack en Keefer (1997) en Zak en Knack (2001). Het resultaat van deze econometrische exercitie is dat de resultaten zoals gerapporteerd door Zak en Knack robuust zijn, maar dat dit slechts in zeer beperkte mate geldt voor Knack en Keefer. Belangrijke bevinding is dat de robuuste positieve relatie tussen vertrouwen en economische groei in de analyse van Zak en Knack wordt gedragen door een aantal ontwikkelingslanden die zeer laag scoren op de mate van onderling vertrouwen. Dit suggereert dat een diverse set van landen voor welke een onderzoek naar de relatie tussen vertrouwen en economische groei wordt gedaan belangrijke effecten kan hebben op de feitelijke uitkomsten. In de literatuur is een dergelijk risico reeds door Temple (1999) geschetst. Dat is één van redenen om een onderzoek naar cultuur en economische ontwikkeling te beperken tot een *relatief* homogene set van landen of regio’s.

In de vervolg analyses staan Europese regio’s centraal. In navolging van de eerdergenoemde bijdrages van Knack en Keefer en Zak en Knack is een soortgelijke analyse uitgevoerd voor 54 Europese regio’s. De centrale vraag is of sociaal kapitaal van invloed is op economische groei in regio’s in Duitsland, Spanje, Frankrijk, Italië, Nederland, België en het Verenigd Koninkrijk (Hoofdstuk 4). Sociaal kapitaal wordt in navolging van de bestaande empirische bijdrages gemeten door mate van onderling vertrouwen en inbedding in sociale netwerken. Een toevoeging is dat we niet enkel het lidmaatschap van verenigingen meten, maar ook actief lidmaatschap in de vorm van vrijwilligerswerk meenemen in onze analyses. Controlerend voor de rol van investeringen, menselijk kapitaal, het initieel niveau van welvaart, en agglomeratie-effecten vinden we geen relatie tussen vertrouwen en economische groei. We vinden daarentegen wel een relatie tussen passief en actief lidmaatschap enerzijds en economische groei anderzijds. Gebruik makend van econometrische technieken als in hoofdstuk 3 is de robuustheid van deze resultaten onderzocht en bevestigd. In dit hoofdstuk is echter geen onderscheid gemaakt tussen verschillende soorten sociaal kapitaal.

De literatuur onderscheidt verschillende soorten sociaal kapitaal, te weten samenbindend en overbruggend sociaal kapitaal. De vraag rijst of het verband tussen sociaal kapitaal in de vorm van netwerkrelaties en economische groei geldt voor beide typen sociaal kapitaal. Samenbindend sociaal kapitaal wordt opgevat als relaties tussen individuen van

soortgelijke aard (naaste familie en vrienden). Een voorbeeld van samenbindend sociaal kapitaal zijn getto's bestaande uit een relatief homogene groep mensen die onderling sterk aan elkaar gebonden zijn en van waaruit het lastig is contacten te leggen met individuen buiten deze groep. Veel samenbindend sociaal kapitaal gaat in dit geval ten koste van overbruggend sociaal kapitaal. Dit laatste wordt gezien als het bestaan van relaties tussen groepen. De theorie suggereert dat overbruggend sociaal kapitaal positief gerelateerd zou zijn aan economische groei. Om deze hypothese te onderzoeken hebben we op basis van een theoretisch model overbruggend en samenbindend sociaal kapitaal geoperationaliseerd met behulp van EVS. Daarbij hebben we geredeneerd dat regionale verschillen in de twee typen sociaal kapitaal veroorzaakt kunnen worden door verschillen in levenshouding. In regio's waar meer belang wordt gehecht aan familie en vrienden is relatief veel samenbindend sociaal kapitaal, maar zijn er relatief weinig sociale contacten buiten de nauwe sociale kring van vrienden en familie in bijvoorbeeld allerlei verenigingen. De empirische resultaten suggereren dat verschillen in levenshouding (gemeten door bestaande en nieuw ontwikkelde maatstaven voor materialisme) van invloed zijn op de keuze voor sociale contacten buiten de nabije familie- en vriendenkring, hetgeen effect heeft op de mate van overbruggend sociaal kapitaal welke vervolgens de economische groei beïnvloedt. Belangrijke constatering is dat onze analyses suggereren dat er een afruil bestaat tussen materialisme en economische groei. Enerzijds gaat er een positief effect uit van materialisme op economische groei via de voorkeur voor wereldse voordelen, anderzijds heeft materialisme een negatief effect op de inbedding in sociale netwerken buiten de nabije sociale kring omdat het geen directe materiele voordelen sorteert hetgeen uiteindelijk een negatief effect heeft op de economische groei.

Na de uitgebreide discussie en analyse van de relatie tussen sociaal kapitaal en economische groei in Europese regio's worden twee andere thema's op het terrein van cultuur en economie behandeld. In de eerste plaats gaat het daarbij om de vraag of regio's die gekenmerkt worden door een ondernemerscultuur ook economisch succesvoller zijn (Hoofdstuk 6). Met name in de economische geografie is er de laatste jaren aandacht geweest voor de rol van clusters en de bijdrage die deze geografische geconcentreerde netwerken van economische activiteiten kunnen leveren aan de economische ontwikkeling van een gehele regio. De literatuur suggereert dat een belangrijk element in de verklaring van het succes van deze clusters gezocht dient te worden in het bestaan van een cultuur van ondernemerschap. Om dat te onderzoeken is op basis van EVS een onderscheid gemaakt tussen ondernemers en niet-ondernemers. Een analyse op individueel niveau geeft aan dat ondernemers zich zoals de voornamelijk sociaal-psychologische literatuur aangeeft inderdaad onderscheiden op zaken als individuele verantwoordelijkheid en een voorkeur voor een geringe rol van de staat. Op basis van de vijf kenmerkende karakteristieken van ondernemers hebben we scores uitgerekend voor de gemiddelde bevolking in elk van de 54 regio's. Deze score geeft de gemiddelde ondernemerschapsattitude weer. Op basis van een standaard groei model zoals ontwikkeld en gebruikt in de vorige hoofdstukken is de mate van ondernemerschapsattitude gerelateerd aan economische groei. Uitgebreide robuustheids testen geven aan dat er een positieve relatie bestaat tussen ondernemerschapsattitude en economische groei. Daarmee is een belangrijke empirische bijdrage geleverd aan het debat in de economische geografie dat gedomineerd wordt door case-by-case bijdrages of theoretische exercities.

In het voor na laatste hoofdstuk wordt de relatie tussen cultuur en economie vanuit een sociologisch perspectief gezien. In het bijzonder sluiten we hierbij aan bij het werk van Inglehart, meer specifiek de bijdrage van Inglehart en Baker uit 2000. De centrale vraag is wat de oorzaak is van verschillen in waarden en normen in het algemeen en in Europa in het bijzonder (hoofdstuk 7). De toegenomen Europese integratie en het eerder genoemde idee van het Europa van de regio's doet de vraag rijzen in welke mate er culturele verschillen zijn

in Europa. Daarbij is het tevens interessant de cultuur te bestuderen in de landen die naar alle waarschijnlijkheid in 2004 zullen toetreden (en waarvan enkele op het moment van schrijven reeds via een referendum hebben besloten tot toetreding). De vraag waar culturele verschillen vandaan komen is een klassieke sociologische vraag. Inglehart's stelling luidt dat verschillen in waardepatronen worden veroorzaakt door welvaartsverschillen en dat er sprake is van een zekere mate van padafhankelijkheid van cultuur via de culturele erfenis van een land of regio. Welvaart en historie (en dan in het bijzonder de rol van religie) zijn in zijn theorie de belangrijkste elementen. Inglehart en Baker operationaliseren cultuur middels twee dimensies, te weten de traditioneel/rationele en de survival/zelf-expressie dimensie. De eerste dimensie beschrijft de verschuiving van waarden (van traditioneel naar rationeel) bij de overgang van een agrarische naar een industriële samenleving en kan ook wel vergeleken worden met het proces van modernisering. De tweede dimensie beschrijft de overgang van een industriële naar een dienstensamenleving en wordt door Inglehart en Baker ook wel vergeleken met het proces van post-modernisering. In plaats van overleving bieden de economische en fysieke zekerheden de mogelijkheid voor mensen zich bezig te houden met allerlei subjectieve maatstaven van geluk. Om te bestuderen wat de oorzaak is van culturele verschillen in Europese regio's hebben we op basis van EVS deze twee dimensies berekend en de thesis van Inglehart en Baker getoetst. Onze analyses geven aan dat er ondanks de Europese integratie nog relatief grote culturele verschillen bestaan tussen Europese regio's. We vinden bevestiging van de thesis van Inglehart en Baker. De verklaring van culturele verschillen is voor een belangrijk deel te vinden in welvaartsverschillen en culturele (religieuze) erfenis. Interessant is verder dat onze panel analyse aangeeft dat er een periode specifiek effect is opgetreden in de jaren negentig. Tussen 1990 en 1999 is er sprake van een opwaartse schok op de tweede dimensie, dat wil zeggen in post-modernistisch denken. Oorzaken van deze postmodernistische schok kunnen zijn de val van de Sovjet Unie en de daarmee gepaard gaande bevestiging van het liberale vrije markt denken, de optimistische toekomstverwachtingen in de jaren negentig van het effect van de invoering van de euro en het feit dat de meting van cultuur in 1999 plaats heeft gevonden op een moment dat het 'nieuwe economie'denken op haar hoogtepunt was. Op basis van onze bevindingen en culturele dimensies bestuderen we de cultuur in de toetreders van de Europese Unie. Onze conclusie luidt dat de meerderheid van deze landen in hoge mate afwijken van de bestaande leden van de Unie en met behulp van een hypothetische economische groei in deze landen berekenen we hoe lang het duurt al eer er sprake is van enige mate van waardeconvergentie. Onze resultaten geven aan dat dit zeer lang duurt.

In het laatste hoofdstuk (8) worden de resultaten en analyses van de verschillende hoofdstukken met elkaar geconfronteerd en bediscussieerd. Een belangrijke conclusie naar het sociaal kapitaal onderzoek luidt dat het statistisch onderzoek aangevuld dient te worden met meer case-benaderingen, waardoor een onderzoek naar sociaal kapitaal en meer in het bijzonder de rol van vertrouwen op meerdere niveaus tegelijk gedaan kan worden. Daarnaast kan ook de meting van sociaal kapitaal verbeterd worden. De relatie tussen sociaal kapitaal en instituties is een potentieel interessante en vruchtbare lijn van onderzoek op het brede terrein van cultuur en economie.

Executive Summary (In Dutch)

In dit proefschrift staat de relatie tussen cultuur en economie in Europese regio's centraal. Uit het onderzoek komt naar voren dat er ondanks het proces van Europese integratie nog steeds relatief grote verschillen bestaan in cultuur binnen Europa. Tevens wordt aangetoond dat bepaalde aspecten van cultuur, in het bijzonder het aanwezige sociaal kapitaal in een regio, belangrijke positieve effecten kunnen hebben op de economische groei in deze regio's. De wijze waarop mensen in een samenleving met elkaar omgaan heeft niet enkel een sociale dimensie, maar ook economische gevolgen.

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