

Trust and Tolerance – Enabling Social Capital Formation for Modern Economic Growth and Societal Change

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Abstract

Social capital has been a debated concept in search for non-economic sources of economic progress during the 1990s. This paper adds to this debate. It focusses on social virtues in the population, i.e., generalized trust and tolerance, that are likely to enable social capital formation of a non-exclusive type. We address three topics in the paper:

(1) First, we report on our cross-national analyses for a sample of 33 countries, both highly developed as well as NICs. These suggest fresh evidence that our index of trust and tolerance – as enabler of social capital formation – is a robust and substantial predictor for economic growth, 1980-1998.

(2) But where does the remarkable cross-country variation in generalized trust and tolerance come from? We suggest three areas of background variables that account for a considerable portion of that variance.

(3) Finally, does the ability to socialize easily simply foster economic growth or is there more to it? Our cross-national results suggest that it is indeed a valuable resource for the early transition into the emerging network society of the information age which will be the pre-eminent future base of economic growth. Thus, trust and tolerance in the population are also important for future competitive edges.

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Introduction

In studying comparative economic development, social capital has been a debated concept in search for non-economic sources of economic progress during the 1990s. A growing community of researchers in cross-national research has claimed that factors like real capital and labor can only explain a part of economic success; in addition, the educational capital, and the social capital of a country are also important for its affluence and its competitive strength.

The growing interest in the concept of social capital contrasted a long time with the lack of solid empirical evidence. Thus, in 1995, the dean of neoclassical growth theory, Robert Solow, intervened in the debate about the role of the social capital at the occasion of reviewing Fukuyama's book (Fukuyama 1995) and demanded: "but verify" (Solow 1995: 38). Meanwhile there are three recent cross-national studies which use reasonable operationalizations of social capital to predict economic growth in cross-national studies. Knack and Keefer (1997) have demonstrated the empirical relevance of generalized trust in the population for faster economic growth. Furthermore, Leicht (2000) has shown that tolerance is a significant, if up to now neglected component for the operationalization of social capital and is important for economic growth. Finally, Bornschieer (2000a) used an index combining generalized trust in the population with tolerance to measure the capacity for social capital formation. In a sample of 24 developed countries this index substantially added to predict economic growth from 1980-1997.

In this paper we first look again at the empirical relationship between measures that should enable social capital formation and economic growth. We include not only developed countries but also NICs which results in a sample of 33 cases. Furthermore, we extend the growth period to include the year 1998 when the consequences of the Asian crisis became manifest. Finally, we include further controls.

In the next step we address the remarkable country differences on our index – combining trust and tolerance to represent the capacity of modern social capital formation in the population. What are the sources of the considerable country differences with respect to the capacity for social capital formation? Due to data availability the investigation in section 2 is restricted to the wealthier countries of our total sample. Our findings suggest that Western countries – distinguished according to pluralist versus neocorporatist political systems – actually follow different paths to produce the ability for social capital formation.

In section 3 of the paper we investigate whether the capacity for modern social capital formation also facilitates a faster transition into the network society of the telematics era. In addition to the earlier findings suggesting that the capacity accounts for differences in economic growth we find that our index of social capital is a very strong predictor of the diffusion of internet use in a sample of 34 countries.

Section I

Our understanding of the concept of social capital and the findings for comparative economic growth

In the sociological tradition, the question of societal order has mostly been discussed since its inception by focussing on the negative end of the continuum of social order. Social disorientation and disorganization – two facets of the understanding of anomie in the sociological tradition of Emile Durkheim on the one hand and Robert Merton on the other – describe the variable absence of effective social order. This scale is to be expanded toward a positive end of the continuum, where we find variable degrees of qualitatively good social order.

Here is where the ability for social capital formation enters. Specific forms of social capital can be formed more easily, if the members of society attribute legitimacy to the social arrangements. These facilitative factors develop their economically extremely relevant productivity through the fact that they moderate the ever present latent conflict, allowing trust, tolerance, confidence and with it cooperation to take the place of mistrust and confrontation. Through this facilitation of social cooperation, existing contexts of action in the economy become more productive and new contexts of action are more easily created.

 Text note: The notion of social capital is already implicit in the work of Alexis de Tocqueville comparing the United states with the old continent. The more recent and explicit discussion begins especially with James Coleman (1990: 300f.), who appreciated Glenn Loury (1977) who is assumed to have used the term the first time, only a bit later Pierre Bourdieu used it, too. Early empirical studies are those by Ronald Inglehart (1990, see also 1997) and Robert Putnam (1993). Since the studies of Knack und Keefer (1997), Leicht (2000) and Bornschieer (2000a) the positive contribution of trust and tolerance to economic development can be considered to be empirically substantiated. Critical overviews are those by Michael Woolcock (1998) and Alejandro Portes (1998).

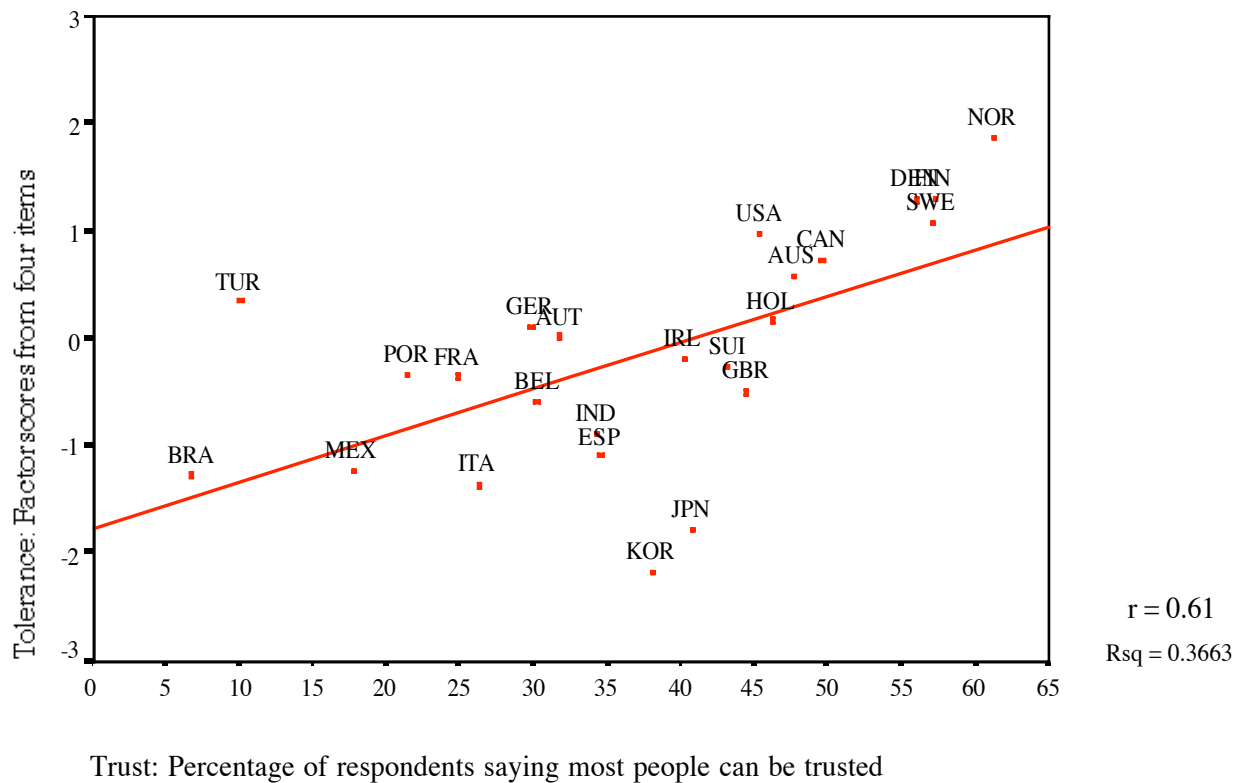
In defining social capital we suggest to avoid mystifications. Social capital must not be seen as something that is "good" per se. Various specific elements of social capital (such as typical organizational patterns in a technological style, procedures of industrial dispute resolution) are not *eo ipso* productive, even if they continue their unmodified existence as social practices, and even if they were once productive at an earlier time. This is theoretically just as evident as in the case of specific, historical forms of real capital, which are absolutely no longer productive today, because they were replaced with modified forms or were sorted out by competition as it were.

The fomula of Coleman (1990: 302), which starts with the notion that social capital equals "the ability to socialize easily", needs to be reversed. We claim that "the ability to socialize easily" is the *prerequisite* for creating concrete, but historically variable forms of social capital more easily. Thus we need to look for variables that can express the capacity "to socialize easily."

Which qualities are now especially important for the *modern*, that is, strongly knowledge- and innovation-based economic growth? Here it is helpful to fall back on the differentiation between strong ties and weak ties introduced by Granovetter (1973) (see also Fecker 1999: chapter 10, Bornschieer 1996: 76). Strong ties manage a large flow of information within social networks, and this promotes stability. At the same time, there are obvious disadvantages to such ties, for example, impediments to learning, which represent the danger that those linked by such ties will conform to each other's thinking. There is a further consideration: because the extent of sociability of individuals is limited, networks of social relationships with strong ties perforce cut off their opposite outside. That is, these networks are more exclusive than those with weak ties. Weak ties have the advantage of the greater inclusiveness with respect to various other networks, and they facilitate learning that comes from crossing boundaries.

What does the capacity to create social capital depend on in a society that is based on non-exclusive networks? We suggest that it is generalized trust and tolerance. Elsewhere we have thus combined measures for trust *and* tolerance in the population to construct an index of the ability for modern social capital formation. In Figure 1 we plot the values for both components of our index for social capital.

Figure 1: Trust and tolerance, the two components of our index of social capital in a scatterplot



Legend to Figure 1:

Social capital index (1980 and/or 1990) = (Trust + Tolerance) / 2

Trust: "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?" Source: World Values Surveys. Percentage of the answers: "Can be trusted" (without consideration of the "Don't know" answers. Here adopted from Knack and Keefer (1997).

Tolerance: Factor scores of the main factor of a factor analysis of four different test questions. Source of the basic data: World Competitiveness Report. The factor analysis which was performed by Michael Leicht is based on the means of the items for the years 1989, 1990, 1991.

The index of social capital as predictor of economic growth

In Table 1 we represent the results of our new tests to predict economic growth with our index of social capital which combines trust and tolerance. The equation for estimation is deduced from an extended Cobb-Douglas function through logarithmization:

$$d \log Y_t = b_0 + b_1 d \log K_t + b_2 d \log L_t + b_3 \log \mathbb{Y} + b_4 \log T + b_5 \log B + b_6 \log S + e_t$$

Here e_t is the residual of the regression; d is the operator of forward differences (dX equals $X_{t+1} - X_t$). The variables are:

Y representing the real gross domestic product, **K** the stock of real capital and **L** the labor force. \mathbb{Y} represents the straggler effect, represented by the difference in per capita wealth with regard to the leading nation. **T** is an index for the technology capital. **B** represents an index for the average educational capital (quantity and quality) among the economically active population. **S** indicates the mentioned index of social capital, being composed of trust and tolerance, in logarithmic form: $S = (\log \text{trust} + \log \text{tolerance}) / 2$.

The above listed equation for estimation can be applied to use the ordinary least squares regression technique, what would not be possible with the Cobb-Douglas function. The extended Cobb-Douglas function would read:

$$Y_t = K_t^{b_1} L_t^{b_2} \mathbb{Y}^{b_3 t} T^{b_4 t} B^{b_5 t} S^{b_6 t} \exp(b_0 t + v_t) \quad [\text{with } e_t \text{ equals } dv_t]$$

Table 1: The capability for social capital formation as predictor of economic growth between 1980 und the end of 1998. Multiple OLS estimates including five control variables. For the estimation equation and the symbols in brackets, see text.

Dependent variable: Economic growth (d log Y)
Backward exclusion of insignificant predictors (n.s.), level of significance 5 %

Predictors	Developed countries and NICs, N=33			
	b	beta	t	p
<u>Test Variable:</u>				
Social capital index (log S) trust & tolerance	0.047	0.38	4.16	0.00
<u>Control variables:</u>				
Capital stock growth (d log K)	1.05	0.73	9.72	0.00
Labor force growth (d log L)		n.s.		
Catch-up effect (log ¥)	0.51	0.82	5.15	0.00
Technology capital (log T)	0.12	0.43	2.98	0.01
Educational capital (log B) (subjective assessment)		n.s.		
Constant		-0.37		
Rsqr		0.83		

The fresh results in Table 1 show that our index for social capital (trust and tolerance) is a statistically significant predictor of economic growth over the period 1980 to the end of 1998. This holds for a sample of 24 richer countries plus 9 NICs. The effect of $\beta=0.38$ is somewhat lower than in a sample of exclusively rich countries: $\beta=0.44$, $N=24$, indicating that our index of modern social capital formation is even more important in advanced capitalism. We conclude that the ability of modern social capital formation is an important extra-economic predictor of growth, and this holds also after controls.

Section II

Where do the remarkable differences in the capacity for social capital formation come from?

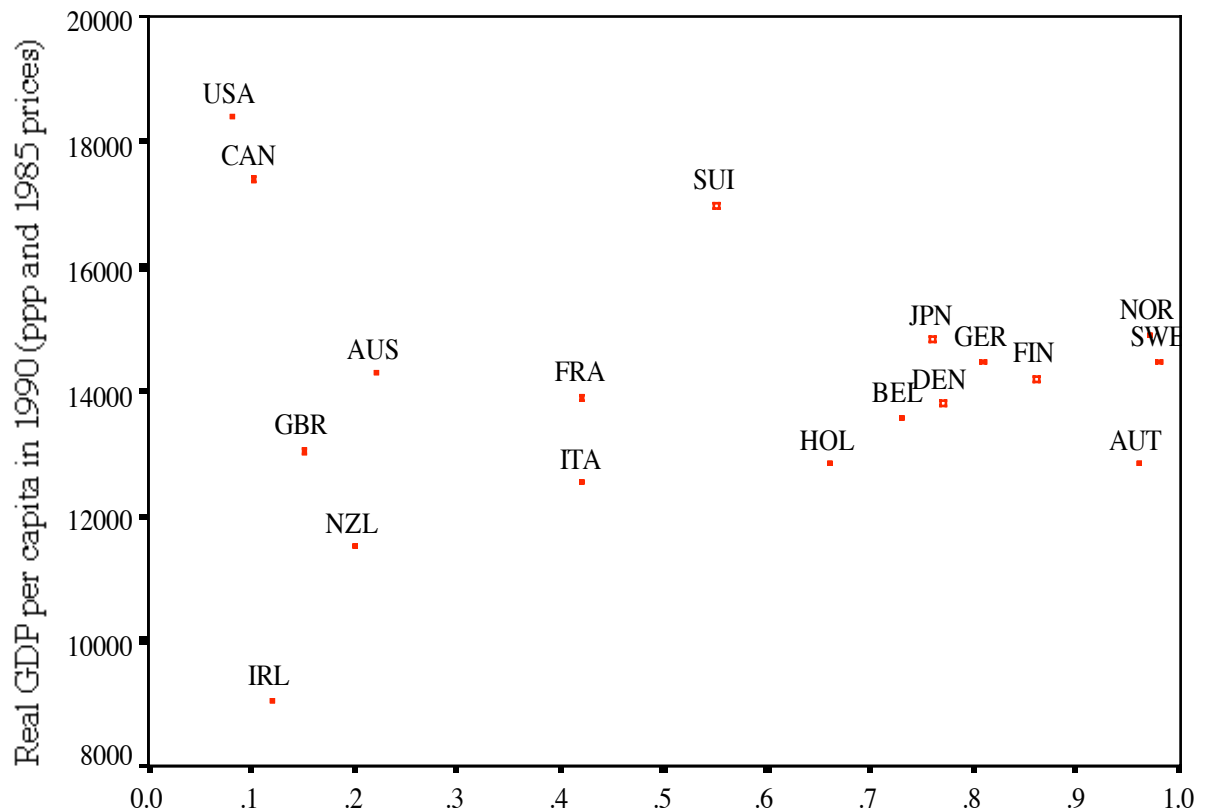
Two historically evolved state traditions in western societies are still clearly visible in the present. The two poles are: pluralism versus neocorporatist interest mediation in society.

 Text note: Details of the research on which this section bases are available from the author (Bornschieer 2001). Since we do not estimate growth models in this section, we use all variables in their non-logarithmic form, except for political conflict which is highly skewed and thus needs logarithmic transformation.

Nollert (1992) and Hicks and Kenworthy (1998) have developed scales which cover the distribution of Western core societies along the continuum ranging from pluralism to highly neocorporatist systems of interest mediation. Neocorporatism is defined as the well organized mediation of interests through associations, initiated and coordinated by the state. On this continuum the pluralist systems constitute a group with almost absent cooperative forms of the neocorporatist type. In terms of Hicks and Kenworthy's empirical classification of 18 developed Western societies, a group of pluralist societies – with values on the neocorporatist index between 0.10

and 0.22 – are clearly distinguishable from the other cases which range between 0.42 to 0.97 on the neocorporatist scale.

Figure 2: Pluralism and Neocorporatism plotted against level of development in 18 western countries



Neocorporatism scale for 1960-1989 taken from Hicks and Kenworthy (1998)

The six cases with very low values on the neocorporatist scale which are therefore termed: *pluralist* are all Anglo-saxon with Great Britain as the historical nucleus of this pattern that spread to the settler colonies, United States, Canada, Australia, New Zealand and to the former British colony Ireland. The other 12 countries of Hicks and Kenworthy's classification are more neocorporatist, albeit to varying degrees.

Different ways of legitimizing society

The pluralist/anglo-saxon group differs clearly from the neocorporatist one with regard to core elements of legitimizing society. We can demonstrate this on two levels of society, one representing the realm of actions and the other the realm of experiences. Each of the two realms are represented by two variables in the path analysis which we present in Figure 2.

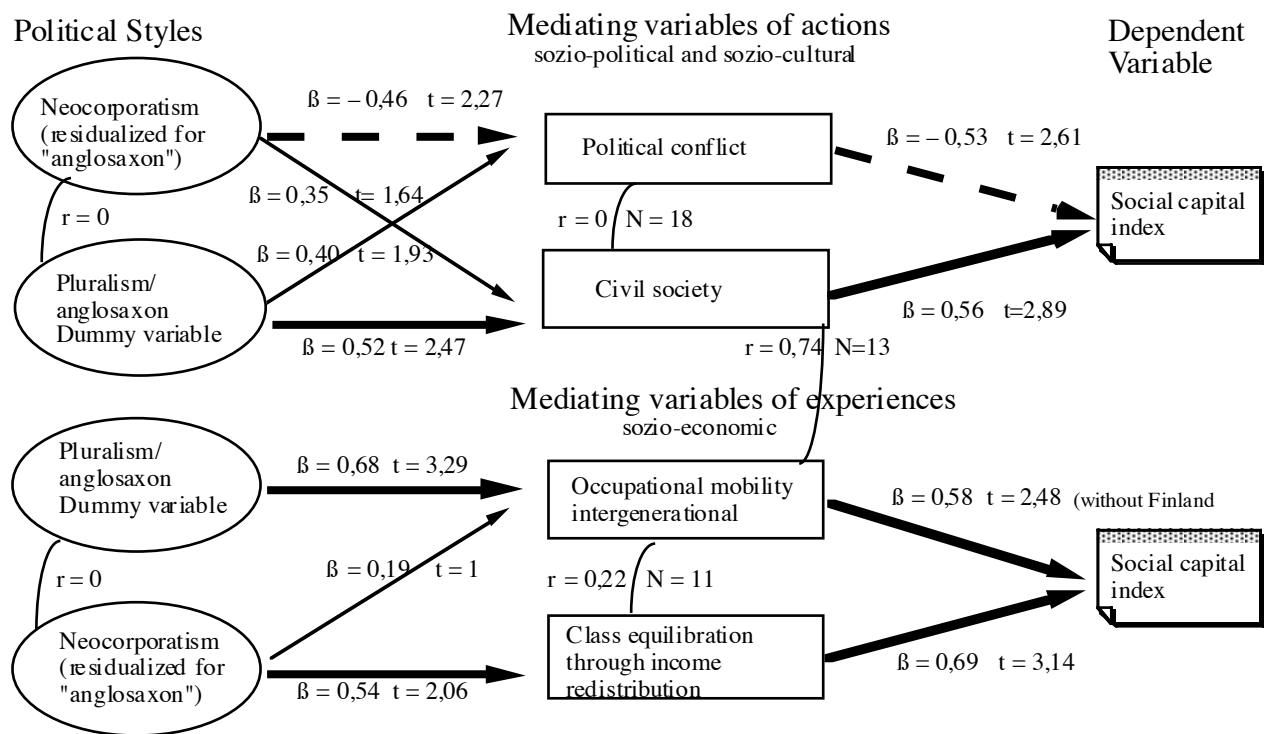
The societal action level is represented by the following variables:

- The extent of civil society, i.e., social integration beyond the family and the workplace. This index represents the average number of associations to which respondents of the World Values Surveys 1980 and 1990 belonged. The figures are also listed in Knack and Keefer (1997: 1285).
- The prevalence of political conflict indicated by the number of soft (mass protests) and hard (internal war) events of political conflict for the period 1960 to 1982, weighted by the population in million. These data are from Taylor (1985) and discussed in Bornschieer (1996).

The societal level of experience represents two variables as well:

- The intergenerational openness of the occupational structure represented by an index of circulation mobility derived from intergenerational mobility matrices by Slomczynski and Krauze (1987) which were published by Nollert (1991: 170). these data represent the openness of the vertical structure of the society around 1970.
- The redistribution of income by measures of social security and progressive taxes as indicated by the difference between the Gini index of income distribution before transfers and taxes and the Gini index after these equilibrating measures of the state. The data are from Swank and Hicks (1985: 134) and represent the situation around 1970.

Figure 3: Path analysis linking socio-political system style with variables of legitimizing society and with the index of social capital



Legend: The path analysis in Figure 3 uses only 18 cases for political conflict and civil society, 14 for occupational mobility (where Finland as an outlier was excluded), and 13 for redistribution of income. Details are available in Bornschieer (2001).

The results of the path analysis in Figure 3 reveal that in pluralist/anglo-saxon socio-political systems on the one hand and in neocorporatist systems of interest mediation on the other different ways of indirectly increasing the capacity to form social capital are pursued. In pluralist/anglo-saxon societies the values on our index of social capital increase via a rich civil society and the openness of intergenerational occupational mobility. And in neocorporatist political systems the moderation of political conflict and the redistribution of income through the welfare state increases the values on our index of social capital.

These different ways of augmenting legitimacy of the society and thus enhancing the ability of social capital formation lead on the average to similar results since the

differences for both groups on our social capital index are not significant (details Bornschieer 2001). Since the *results* of the two different policies are similar the underlying different socio-political practices are unlikely to converge. Thus we predict that differences in socio-institutional practices across the West – the mentioned socio-political system styles – will continue.

Section III

Is there more to social capital than enhancing economic growth?

The route into the telematics era

We find considerable differences in the capacities for social capital formation when we compare western countries. And we could point to variables that explain these differences. However, the ability to socialize easily does not only foster economic growth as the studies of Knack and Keefer (1997), Leicht (2000) and Bornschieer (2000a) have shown and to which we have added further consolidating evidence in the first section of this paper. Furthermore, we suggest that our measure of the ability of modern social capital formation is also a valuable resource for the early transition into the emerging network society of the telematics era. This new economy will increasingly become the base for future economic growth. Thus, social capital encapsulates a sort of "double dividend".

Since the 1980s models of discontinuous technological change – pioneered by Carlota Perez (1983, 1985) – have received new attention, as evidenced by the contributions of Chris Freeman, Giovanni Dosi, Richard Lipsey and the author. Speculations about features of the new technological style have been many. Yet, only since a couple of years it has become obvious that the Internet will be the nucleus of the new technological style and its new economy. The different converging innovations which lead to the Internet as we know it at the turn of the new century developed in the United States and the social praxis of the Internet

started to diffuse to other countries during the second half of the 1990s. However, the penetration of this new technological system is quite different in the various countries of the West. Our indicator is the number of Internet hosts per 10.000 population in July 1997 and January 1999.

 Text note: Description and sources of the data in Figure 4 and Tables 2 & 3.

"Internet hosts are computers connected directly to the world-wide network; many computer users can access the Internet through a single host. Hosts are assigned to countries on the basis of the host's country code, though this does not necessarily indicate that the host is physically located in that country. All hosts lacking a country code identification are assigned to the United States. Because Network Wizards (the source of these data at <http://www.nw.com>) changed the method used in its Internet domain survey beginning July 1998, the data shown here are not directly comparable with those published last year. The new survey is believed to be more reliable and to avoid the problem of undercounting that occurs when organizations restrict download access to their domain data. Nevertheless, some measurement problems remain, and so the number of Internet hosts shown for each country should be considered an approximation." (World Development Report 1999/2000: 285; the source of the data for January 1999, for the July 1997 data, see World Development Report 1998/1999)

The sample is restricted to those countries listed in the World Competitiveness Reports, various years.

Figure 4 shows the enormous differences in the Internet penetration comparing developed countries plus NICs and a few large developing countries. Since the distribution is highly skewed we used a logarithmic transformation, both the dependent as well as the predictor variables are used in logarithmic form in this section.

Figure 4: The proliferation of the Internet usage in cross-national perspective, July 1997 and Januar 1999

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Internet hosts per 10.000 persons

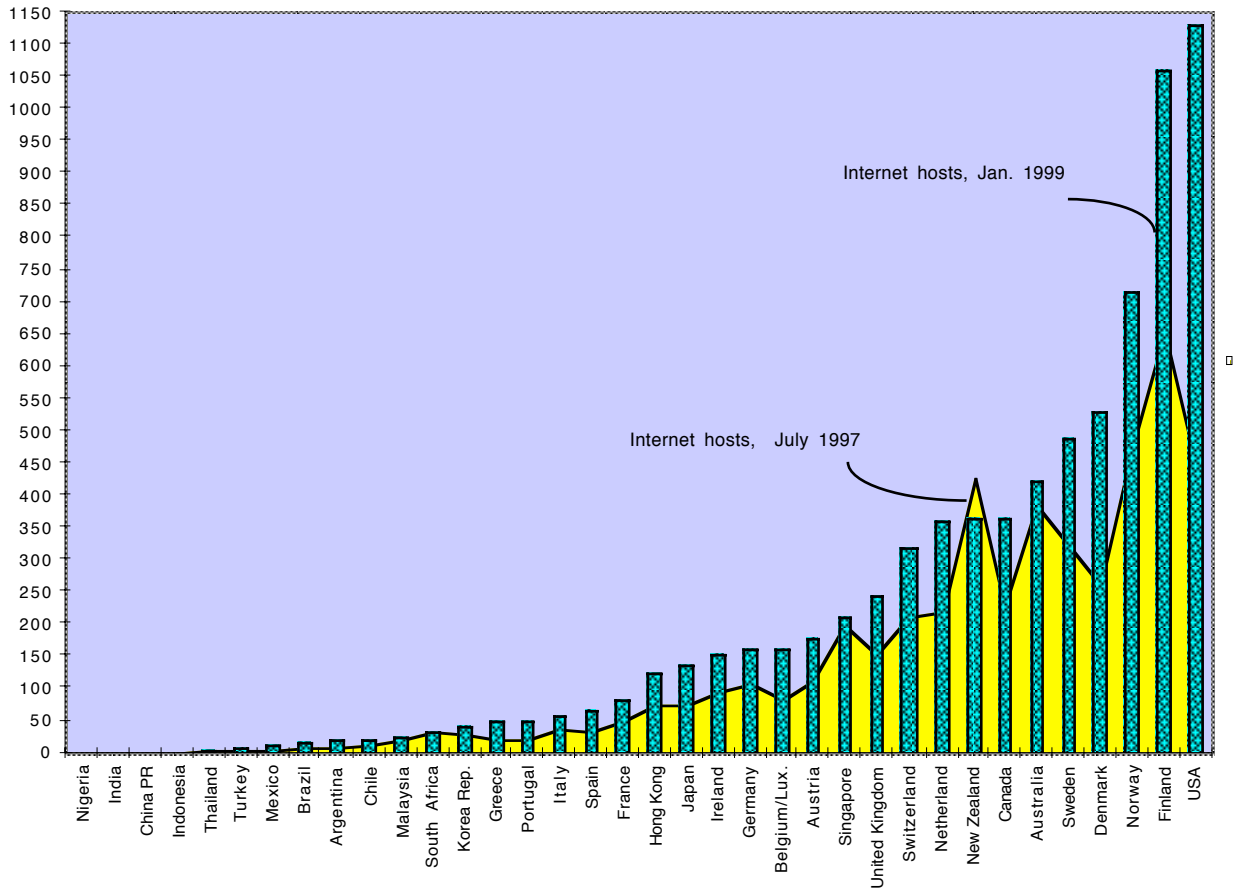
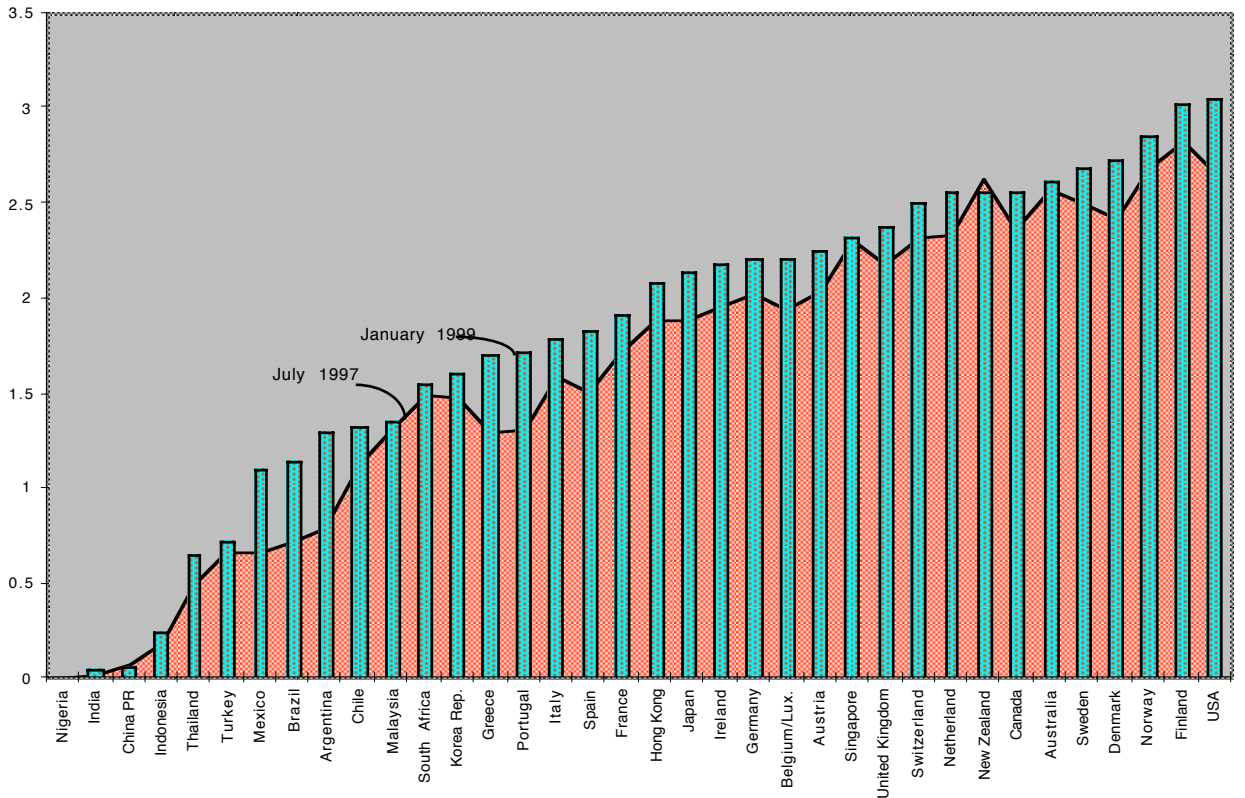


Figure 4 continued: Internet hosts on a logarithmic scale



Explaining the Internet diffusion

The network society has become a fashionable term in recent years (see, for example, Castells 1996). If this is a reasonable description of core features of the emerging society, then our index for the capacity of modern social capital formation should be a good predictor, especially in the phase of early adopters.

In comparing countries at rather different levels of development it is reasonable to predict that the diffusion in cross-national perspective is dependent on the average income. Beside this material factor we expect that the technological potential in a society is a good predictor of the diffusion, too. And, since the Internet evolved out of the academia and until the early 1990s it remained a social practice confined to scientific exchange we expect that an early high level of university education in a country will still be a visible advantage with regard to the Internet diffusion.

Controlling for the level of available material means we finally expect that the ability to create modern social capital will become an imminent predictor to explain the early adoption of the social praxis of the Internet.

Text note: the predictor variables in Table 2 and 3.

Social capital index, like in section I, i.e. in its logarithmic form.

Early prevalence of university education in the population is measured by the student enrolment rate (weighted by the age cohort of 20-24) in 1970.

Technology capital is measured by scientists and engineers in R&D per million population, average for 1985-1995.

Average level of development is measured by income per capita 1997, corrected for purchasing power parities.

Extent and quality of education in the population, a subjective index for 1992, the same variable as employed in the analysis of section I.

Details and sources for these variables are given in Borschier (2000b).

The employed equation for estimating the diffusion of the Internet (I) is:

$$\log I_t = b_0 + b_1 \log S_t + b_2 \log U_t + b_3 \log T_t + b_4 \log Y_t + b_5 \log E_t + e_t$$

Here is e_t the residuum of the regression, S an index of social capital, U the index of (historically) early tertiary student enrolment, T an index of technology capital, Y represents the per capita income (purchasing power parities) and E an index for the amount and quality of general education.

The multiplicative function from which the above estimation equation can be deduced in order to apply OLS techniques would be:

$$I_t = S_t^{b_1} T_t^{b_2} U_t^{b_3} Y_t^{b_4} E_t^{b_5}$$

The results

The Figure 5.1 shows a close association between average income and the diffusion of the Internet usage in the overall sample, i.e., when we compare societies at rather very different levels of development (N=34). In Figure 5.2 we then restrict the range of material wealth per capita and consider only rich societies (N=21). It becomes evident from Figure 5.2 that for rich countries average income is a bad predictor of the Internet diffusion. Actually, the total variance explained by the level of development is reduced from 0.86 in the sample including developing societies to 0.05 in the sample of rich societies.

Figure 5.1 and 5.2: Diffusion of the Internet usage in January 1999 according to per capita income (ppp) in the total sample (N=36) and for 21 rich countries

(see next page)

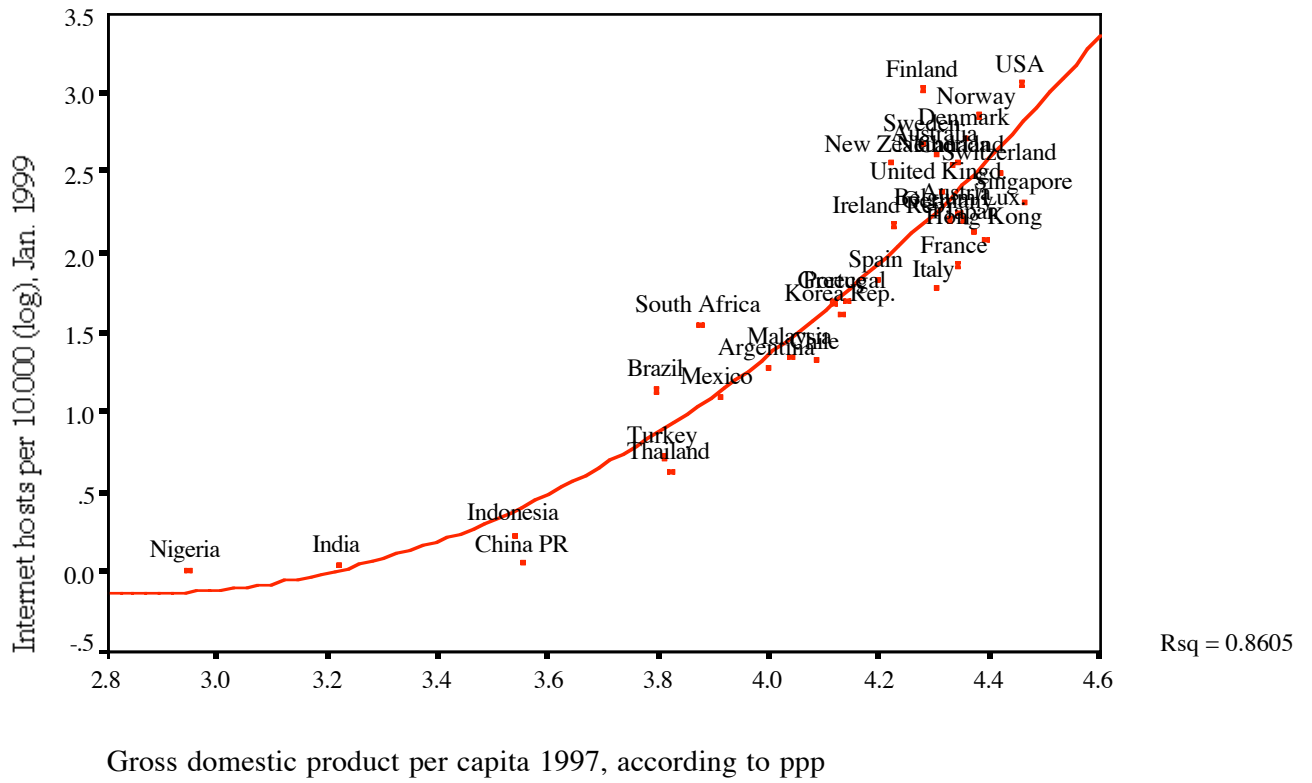


Figure 5.1: Full sample of rich countries, NICs and selected large LDCs

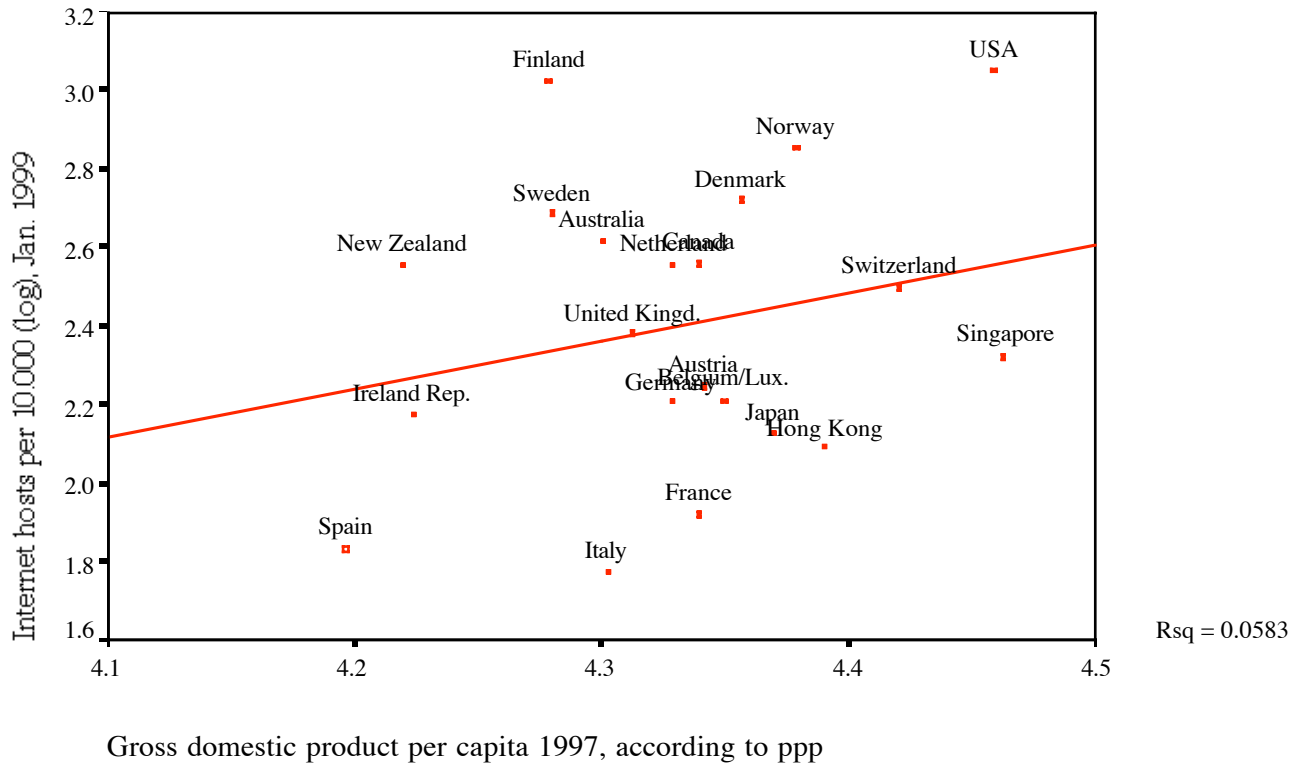


Figure 5.2: Reduced sample of rich countries

In Table 2 we list the results of our multiple regression predicting the diffusion of the Internet usage in July 1997 and January 1999. Average income per capita is for both July 1997 and January 1999 a significant predictor in cross-national comparison. Furthermore, our index of social capital is a statistically significant predictor, too. The index for the early proliferation of university education and the index for technology capital have an impact on either the 1997 or the 1999 measure of the Internet diffusion while the quality of general education has no impact in our analysis.

Table 2: Internet hosts in cross-national perspective, July 1997 and January 1999 predicted by various variables. OLS estimates, level of significance 5%

Dependent variable: Internet hosts per 10.000 persons, final equations after deleting non significant predictors (n.s.)

Predictors	July 1997 N=34			January 1999 N=34		
	beta	t	p	beta	t	p
Social capital index (trust & tolerance)	0.31	4.58	0.00	0.29	4.84	0.00
Proliferation of university education		n.s.		0.31	4.59	0.00
Research & development personnel (index of technology capital)	0.39	3.43	0.00		n.s.	
Level of development	0.39	3.49	0.00	0.59	7.96	0.00
Quality of general education (subjective assessment)		n.s.			n.s.	
Rsq		0.89			0.91	

Alternative control of the level of development and the average material wealth

We now restrict the range of income per capita – as already graphically demonstrated in Figure 5 – and test the predictors of the internet proliferation again in a subsample of countries above an income per capita in 1997 (corrected for purchasing power parities) of more than \$15,000. In this subsample of rich countries it turns out that the index of social capital (which is statistically completely independent of the proliferation of university education) is the eminent predictor of the progress towards the network society of the telematics era as indicated by Internet hosts. As a second predictor the proliferation of university education enters while the other variables have no predictive power. The details are given in Table 3.

Table 3: Internet hosts in cross-national perspective, July 1997 and January 1999 predicted by various variables. OLS estimates, level of significance 5%

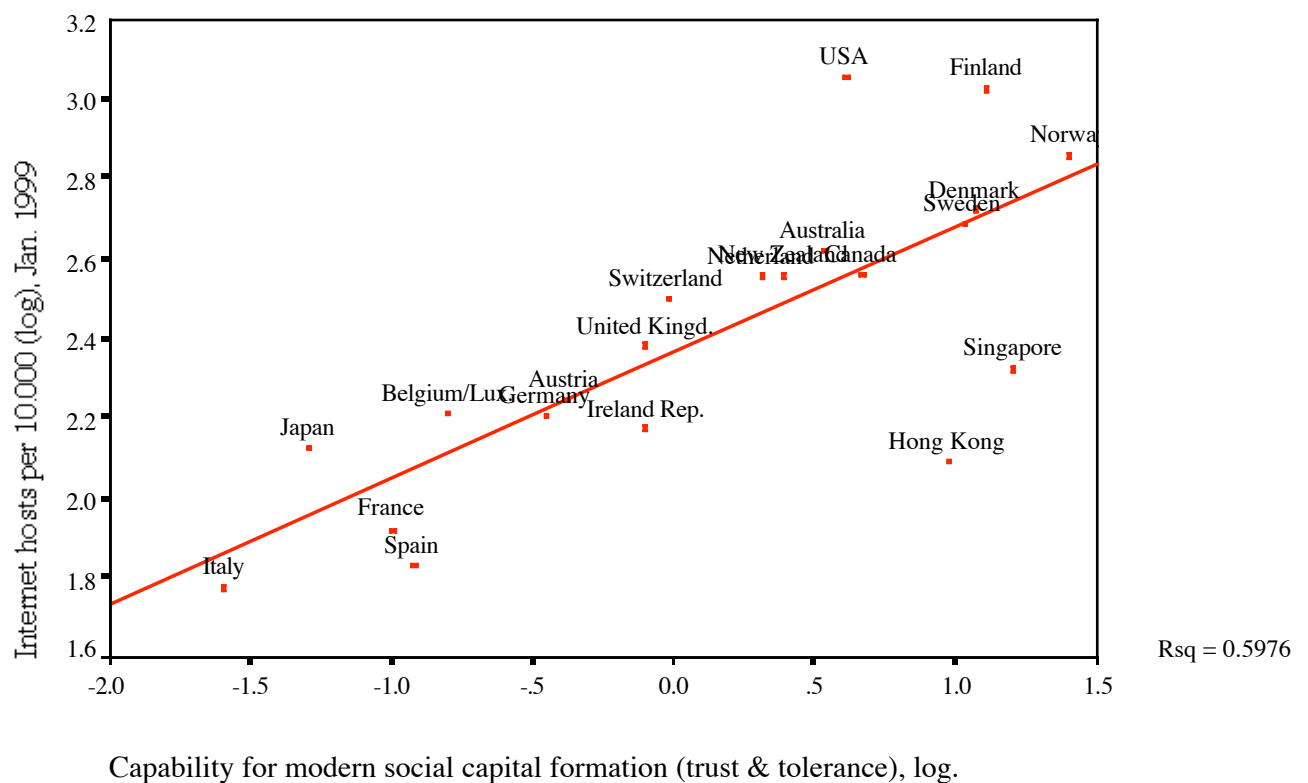
Dependent variable: Internet hosts per 10.000 persons, final equations after deleting non significant predictors (n.s.)

Subsample of rich countries (GDP per capita in 1997 > \$15,000, purchasing power parities)

Predictors	July 1997 N=21			January 1999 N=21		
	beta	t	p	beta	t	p
Social capital index (trust & tolerance)	0.78	7.00	0.00	0.74	7.51	0.00
Proliferation of university education	0.37	3.29	0.00	0.48	4.82	0.00
Research & development (index technology capital)			n.s.			n.s.
Level of development			n.s.			n.s.
Quality of general education (subjective assessment)			n.s.			n.s.
Rsq			0.75			0.80

We can summarize the result of our tests in section III as follows: The higher the level of development the less it is possible to explain the differences in Internet usage between societies in terms of the then remaining differences in average material wealth. Instead, the ability of modern social capital formation in the population – our index combining trust and tolerance – becomes the pre-eminent predictor for the transition into the network society of the telematics era. For the subsample of 21 richer countries this is again impressively demonstrated in Figure 6. Of all other evaluated predictors only the early and broad proliferation of university education in the population has an additional predictive power in rich countries – albeit smaller than that of social capital (both variables are virtually statistically independent). Such an effect of university education in the phase of early adopters is plausible since well into the 1990s the Internet remained in the domain of academia.

Figure 6: Internet diffusion and the index of social capital for 21 rich countries



With the results reported in this last section we have provided first evidence that social virtues like trust and tolerance are important for the shift toward the new technological style and the new economy of the telematics era which will be the growth engine of the long economic upswing ahead.

Summary

Trust and tolerance, the two components of our index indicating the capacity for modern social capital formation does not only promote economic growth beside the classical growth factors (section I), but it also speeds the transition of the society into the telematics era (section III). This economically valuable resource for the evolutionary societal transition is, however, not available to all developed and developing societies to the same extent. We find that the different state traditions of Western society pursue different routes to legitimize society (section II). And these differing degrees of a legitimate society turn out to go together with higher levels of the ability for modern social capital formation which also affects future competitive edges. Thus, the ability of modern social capital formation provides a double economic dividend.

The lesson we can learn from these results is that effective social order is an economically valuable resource. It is not so much the specific societal practices that count but the outcome which, however, seems to be compatible with rather different socio-political styles. In terms of future convergence of societal institutional orders like pluralism and neocorporatism we predict that such a convergence is unlikely as long as the different approaches are able to produce equally potent resources – like modern social capital formation – for competing in the modern world political economy.

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