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Generalized Trust, Helpfulness, Fairness and Growth in European Countries A Revised Analysis

Jan Jacek Sztaudynger [iD] https://orcid.org/0000-0002-2622-7997
Ph.D., Full Professor at the University of Lodz, Faculty of Economics and Sociology
Department of Econometrics, Lodz, Poland
e-mail: jan.jacek.sztaudynger@uni.lodz.pl

Ewa Ambroziak [iD] https://orcid.org/0000-0003-1402-8381
Ph.D., mBank, Lodz, Poland

Paweł Starosta [iD] https://orcid.org/0000-0002-6231-4510
Ph.D., Full Professor at the University of Lodz, Faculty of Economics and Sociology
Department of Rural and Urban Sociology, Lodz, Poland
e-mail: pawel.starosta@uni.lodz.pl

Abstract

This research is an attempt to assess the impact of trust, helpfulness, and fairness on economic growth in Europe. The first part of the paper highlights the concept of social capital and the related concept of trust, while the second part gives an overview of selected research hitherto conducted on the subject. The third part presents an econometric growth model based on a modified Cobb-Douglas production function. The model we propose includes three interrelated variables: generalized trust, helpfulness, and fairness, which can be combined into an aggregated variable, called 'cooperation capital'. The pooled sample covers the years 2006–2018 and includes 22 European countries. European Social Survey data provides a chance to examine the previously inaccessible measurement of the impact of bridging social capital increase on economic growth. The results suggest that approximately 1/8 of economic growth (measured by the GDP growth rate) may be ascribed to the effect of an increase in cooperation capital. In addition, 86% of this

effect occurs with a 1–4 year lag. The three-component cooperation capital explains economic growth better than generalized trust exclusively. The estimated model suggests that an increase in helpfulness among people has the largest impact on economic growth. As the outcomes of this research also clearly show, fairness and trust are key factors for economic growth in Europe.

Introduction

In social sciences, the importance of the relationship between social capital and the economy is widely recognized. The significance of social capital to the economy is generally interpreted in terms of the impact of social cooperation and institutional factors on economic phenomena. One of the main conditions for a more effective economy, and simultaneously an important component of bridging social capital, is generalized trust.

In this paper, we treat trust as an essential component of the capacity for social cooperation (Axelrod 1984). However, the effectiveness of collaboration is also based on the fair value of rewards received in the exchange process, the internalization of social norms (Blau 1964) and, to some extent, individuals' biological predisposition (Fehr 2009). These norms include credibility through fairness, which is expressed in the mutual conviction of both partners that they will observe the rules of fair play and will not deviate from either the mutually recognized principles or the general desire to cooperate. Along the same line, Coleman (1994), Cook and Cooper (2003), and Herreros (2004) underline fairness and a general desire to help others as principal factors in laying the foundations of trust. They have been incorporated into our present study as complementary factors to social capital and cooperation.

Credibility is a characteristic that relates to the partners involved in an interaction and represents their wishes and capabilities to respect the 'rules of the game' (norms) in the social milieu. As noted by Herreros (2004, p. 8), "trust reflects one's expectations concerning the credibility of other social partners". A general inclination to help others means that helping each other can thus be treated as a type of cooperative orientation (Cook and Cooper 2003), rooted in various socialization processes, which can either facilitate or weaken a general atmosphere of trust. The review of the surveys and experiments conducted by Cook and Cooper convincingly demonstrates the positive relationship between partners' credibility and orientation toward cooperation and willingness to engage in some form of collaboration (Cook and Cooper 2003).

The literature on the correlation between social trust and growth begins with Putnam's 1993 study in which he suggested that the substantial differences in economic perfor-

mance between northern and southern Italy could be explained by differences in social trust (see also Bjørnskov 2017).

At the end of the 20th and the beginning of the 21st century, there were attempts to assess the relationship between trust and long-run economic growth by means of econometric models. The first models by Knack and Keefer (1997), Whiteley (2000), and Zak and Knack (2001) combined data from international survey studies with macroeconomic data on GDP, fixed capital investments, and employment.

In these models, cross-sectional data (an average of 20–30 years) from the final three decades of the 20th century and a single measurement (related to one year) of trust were combined according to the values from social surveys. They made it possible to explain the differences in average economic growth for particular countries by means of varying trust levels. Hence, these models make it possible to analyze long-term differences in GDP growth.

In this article, we try to develop a thesis regarding the impact of trust on economic growth. As shown in Table 1, we analyze the level or increase in social capital variables and lags thereof. It seems that such an approach was not employed in either the early or recent literature.

Table 1. Comparison of initial econometric research with our present research

	Initial	Present
Bridging social capital	Trust (mainly generalized)	Cooperation capital: Generalized trust Helpfulness Fairness
Social capital measurement	One for each country	Several for 2002–2018 for each country
Data	Approx. twenty years average, cross-section	2002–2018 Pooled
Possible definition of social capital variables	Level	Level or increase
Possible analyses	Long term	Long term or short term
Time lags	Not possible	Up to 3 years

Source: authors' own considerations.

Pooled European Social Survey (ESS) data from 2002–2018[1] allow us to examine the impact of changes in trust on short-term fluctuations of economic growth; something that was previously impossible due to the lack of relevant data.

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1   This is not panel data because samples are newly selected, and the set of countries varied over time.

The study was conducted for 22 European countries. It involved three related components: generalized trust (most people can be trusted), helpfulness (people mostly try to be helpful), and a sense of fairness (most people try to be fair). The combined variable containing all three components will be called **cooperation capital**. With respect to social interaction, we assume that helpfulness and the conviction about the trustworthiness of other individuals are generally the basis for trust and fairness (Coleman 1994).

Our definition of cooperation capital is related to the theory of rational choice **as well as** to the theory of attitudes. We focus on three components: trust toward others, willingness to help others, and adopting an attitude of fair play. These attitudes constitute the foundation for building a **social network, bridging social capital,** and constraining individuals from acting toward others solely based on egoistic motivations. Cooperation capital can be considered a significant part of bridging social capital. By limiting egoism, resources are created with a necessary level of intensity to engage in social interaction (Hechter 1988).

We consider the following general hypothesis:

Cooperation capital has both long-term and short-term positive impacts on economic growth.[2]

Based on the above hypothesis, we can formulate three sub-hypotheses:

- The three-component cooperation capital explains economic growth better than the most commonly used measure – generalized trust.

- Taking into account lags in the weights of generalized trust, willingness to help, and sense of fairness estimated in the model of economic growth allows one to better specify the role of cooperation in economic growth compared to a variable with equal weighting.

- An increase in helpfulness has the greatest importance for economic growth (due to the essential role of help in cooperation and economic activities), while trust and fairness have a smaller but still significant impact.

This article describes the meaning of generalized trust and gives examples of three initial econometric models of trust's impact on the economy. In the first section, we discuss the concept and meaning of generalized trust as well as cooperative capital. The second section focuses on reviewing the literature on the impact of trust on economic growth. The methodological part characterizes the operationalization of the main concepts and database. Next, we present our own econometric model of the impact of co-

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2   From a theoretical perspective, we cannot find any basis for a determination on whether the level or the increase in cooperation capital influences economic growth.

operation capital (generalized trust, willingness to help, sense of fairness) on economic growth based on the ESS survey, while the last section is dedicated to the results of the model estimations.

Theoretical background

The concept and meaning of generalized trust

Psychologists and sociologists, as well as economists, note the importance of trust in social life. Psychologists treat trust as one of the cornerstones of interpersonal relationships, which allows for cooperation and, consequently, the maintenance of social and economic interactions. Sociologists see trust as one of the main sources of social integration beyond dyadic relationships, enhancing the durability of social order (Simmel 1997).

Economists consider trust to be an important non-economic factor for economic development. Marshall, recognized as the founder of neoclassical economics, noted early on that trust "permeates all life, like the air we breathe" (Marshall 1920, p. 165). However, Marshall's reflections, as well as Polanyi's (2001) subsequent suggestions, which highlight the importance of non-economic factors in economic development, have been omitted in mainstream neo-liberal analysis, which has been dominant since the mid-1970s.

With regard to the utilitarian concepts of neo-liberal analyses, it is worth mentioning the debate concerning the model of the under-socialized man (Granovetter 1985). It is mainly oriented toward achieving personal material benefits, choosing from the array of available alternatives the solution that leads to the maximization of individual benefits, and placing personal interest above the interests of the social group.

Views on the role of non-economic factors in economic development changed slightly following the publication of Schultz's article "Investment in Human Capital" (Schultz 1961), focusing on the importance of skills and education in the multiplication of wealth. Later on, the theory of institutional economics (North 1990) emphasized the significance of different types of social institutions, particularly the rules of law for economic efficiency.

The concept of social capital was reintroduced into academic discussion by Bourdieu (1986). It was then popularized in the 1980s and 1990s by Coleman (1988; 1994), Putnam (1993; 2000) and Fukuyama (1995), who provided further stimulus for analyzing the relationship between the degree of societal organization – characterized by a network of organizations, a set of norms, and in particular, the level of social trust – and economic development. As an integral component – and in some cases, even a synonym – of social capital, trust has become a subject of analysis to explain economic growth.

The essence of trust is the assumed relationship of reciprocity and expectation, reflected in the interaction parties respecting each other's interests. In this case, mutual expectations are a kind of platform for mutual understanding and sharing semantic meanings communicated by the interaction parties.

It can therefore be concluded that trust is A's positive attitude toward B, arising in situation X, resulting from A's knowledge or belief that B will not work to A's disadvantage. This approach is consistent with the position of Misztal, who stated that "to trust is to believe that the result of somebody's intended action will be appropriate from your point of view" (Misztal 1998, p. 24), as well as that of Gambetta (2010, p. 277), who writes that "trust (or, symmetrically, distrust) is a particular level of subjective probability with which an agent assesses that another agent or group of agents will perform a particular action, both before he can monitor such action […] and in a context in which it affects his own action." Mutual help "and our expressions of gratitude are social rewards that tend to make doing favors enjoyable, particularly if we express our appreciation and indebtedness publicly […] Besides, one good deed deserves another. […] The fact that furnishing benefits to others tends to produce these social rewards is, of course, a major reason why people often go to great trouble to help their associates" (Blau 1964, p. 16).

Therefore, trust is a consequence of ongoing or implied social interaction. It is an attitude in which the constitutive role is played by information about the subject or object of trust, together with the limited control of the agent who is trusting of the action and their assessment of the situation.

Information is the basis for describing and understanding the trusting agent's situation. The attitude of trust can result from verified knowledge (personal and/or expert) and established social stereotypes, as well as beliefs built on them. Information can also be the subject of trust in the case of confidentiality, i.e., keeping obligations and secrets, or even in the case of acts of treachery (see Simmel 1908). The ability to control is the result of the power resources available in particular social relations. They are the basis for the formation of credibility. The credibility of entities may, therefore, result from the application of sanctions, both through the use of external coercive measures and through possessed authority and social recognition. It may also be the result of direct experience, as suggested by proponents of the theory of self-contained benefits (Hardin 2006) and socialization processes (Watier and Markova 2006).

The assessment of a situation is based on shared norms and values. It is worth noting (Knight 2001) that the category of 'sharing' can relate to both knowledge of the content of norms and to an attitude of approval, ambivalence, or rejection thereof.

These arguments do not, however, lead us to reduce trust purely to knowledge. For the same reason, we do not treat it as an attitude based solely on rational calculation, or as an action. According to the general theory of attitude, we assume that trust is more a dispo-

sition to take an action rather than an action itself. We agree with the argumentation of Ahn and Ostrom (2008, p. 80) that "[t]rust itself is a kind of belief but not an action per se". Trust or belief, therefore, may, and often does, stimulate an action, but it is not a precondition for its undertaking.

In the literature, one may find proposals to distinguish different forms of trust: horizontal, vertical and generalized (Fukuyama 1995). In the analyses of the relationship between trust and economic development, authors most commonly treat the generalized form of trust as being synonymous with trust as such.

Its specificity lies in the fact that it is not generated on the basis of personal experience or exchange processes but on a belief in the existence of a positive human nature (Uslaner 2008), shaped by socialization processes (Simmel 1908) and/or the social processes of identification (Braithwaite 1998).

Generalized trust is an orientation that we adopt toward entities, outside of the field of direct experience. It is more an attitude toward the social setting, one that expresses our need to have bonds beyond attaining an individual interest. In other words, generalized trust "refers to the confidence in the credibility of others" (Macek and Markova 2006, p. 176).

The attitude toward generalized 'others' is a good premise upon which to assess the extent of a culture of trust or a culture of cynicism in a society (Sztompka 2007). If trust is shown *a priori*, it is more likely to lead to cooperation and is certain to reduce social tensions. It also facilitates overcoming prejudice and intolerance. However, too much of this optimism, not based on social experience, may lead to naivety and being easily manipulated. A good example of the consequences of excessive trust is society's misplaced confidence in quasi-banks and their various activities or in institutions that provide instant, on-the-spot loans. In an era of growing risks in the countries of Central and Eastern Europe, generalized trust, or the lack thereof, sometimes becomes, in the absence of access to information, a substitute for cognitive competence.

The impact of trust on economic growth in the literature

Since the late 1990s, social capital has been considered a variable of the econometric growth model. Existing empirical research results lead to the conclusion that there is a positive relationship between the level of generalized trust in a given society and economic growth measured by GDP per capita growth. Knack and Keefer (1997) were the first to find a strong correlation between trust and the long-run growth rate. Their research utilized data taken from the 1981 and 1991 World Value Surveys (WVS) for 29 countries from different continents operating within market economies, and it led to some interesting conclusions. First, they stated that "a ten-percentage-point rise in [the trust] variable is associated with an increase in growth of four-fifths of a percentage point" (Knack

and Keefer 1997, p. 1260). Second, they admit that the impact of trust on GDP growth is stronger in poorer countries than in wealthier ones. This is explained by the importance of non-formal and non-legal transactions made through informal agreements and the weakness of financial institutions in such countries. They also noted that a seven-point increase in the trust variable increases the share of investment in GDP by one percentage point.

The relationship between economic development dynamics, measured by GDP per capita, and the level of trust was also researched by Whiteley (2000). Starting with Barro and Sala-i-Martin's (1995) neoclassical model, he directly introduced the level of the trust variable into the analysis. In his work, the concept of trust assumes two forms: generalized and particularized trust. The indicator for the former is based on answers to the classic question, "Can most people be trusted?" The indicator for the latter is based on answers to questions about trusting members of one's own family and trusting fellow nationals (Whiteley 2000, p. 453). Based on an analysis of the main components, he concludes that what is most important for economic development is trust toward one's compatriots, followed by trust toward one's family, with trust toward people in general being the least important.

Whiteley's study of the relationship between trust and economic growth was based on data from the European Social Survey (ESS) in 34 countries in 1992. Furthermore, based on estimates, he concluded that social capital measured by the trust index is more important to economic growth than human capital, which is included in the classical growth models alongside investment rate, population growth, and the initial level of GDP.

Along the same lines as Whiteley (2000), Zak and Knack (2001) also studied the effect of trust on the growth of GDP per capita in 41 countries, averaged over the period 1970–1992. They estimated that an increase of 10 percentage points in trust would increase the annual growth rate of income per capita from 1.9% to 2.4% (i.e., by approx. 0.5 pp). This means an approximately one-quarter increase in the average dynamics of economic growth in the countries surveyed.

Econometric studies on the impact of trust on economic growth were thus initiated by Knack and Keefer (1997), Whiteley (2000) and Zak and Knack (2001). They confirmed the impact level of generalized trust on economic growth (see also Ambroziak, Starosta, and Sztaudynger 2016).

Having investigated a later period and a bigger sample size than the previous studies, Berggren, Elinder, and Jordahl (2008) found that, on average, the trust coefficient is half

as large as that indicated in previous findings. This also confirms Zak and Knack's results – that a growth in trust by 10pp facilitates GDP growth by as much as one quarter.[3]

Tabellini (2010), pioneering the use of composite measure questions, utilized answers to four WVS items: trust, respect for others, confidence in individual self-determination and obedience. He shows that the principal component variable[4] constructed from the four indicators of individual values and beliefs introduced above is strongly correlated with economic development in regions of Europe.

Gorodnichenko and Roland (2011) analyzed Schwartz Values Survey variables. Among them, embeddedness is significant, with a negative effect on long-run growth. Affective autonomy, intellectual autonomy, and egalitarianism are jointly positively significant in models of long-run economic growth. The survey variables influence growth through innovation.

While macro-level research on the national scale confirms the importance of the impact of trust on GDP per capita dynamics, the results of research conducted on the regional level are not as consistent regarding the significance of the relationship between these two variables. Beugelsdijk and van Schaik (2005), who analyzed 54 European regions based on the European Value Survey database for 1990, found a very high differentiation in the level of trust in European regions, from 5.5% in Sardinia in southern Italy to 64.6% in the eastern Netherlands. However, they state that the extent, or level, of residents' membership in a variety of social associations and organizations, explains economic growth in regions, in terms of GDP per capita, to a greater degree than trust.

Treating trust as a factor that explains economic growth can be justified by four arguments related to the ; investment activity, human capital, quality of institutions, and financial intermediation (Boulila, Bousrih, and Trabelsi 2008).

The essence of the first argument lies in reducing transaction costs and the reduced propensity to invest when there is a misleading level of trust. As Whiteley notes, "[…] when transaction costs are low, actors will be able to negotiate solutions to collective action problems more efficiently than could be achieved by outside regulations" (Whiteley 2000, p. 451).[5] The greater the trust, the greater the likelihood of cooperative action by members of a society. The translation of trust and cooperation into economic benefits usually occurs in two ways. First, as Warren (2008, p. 136) writes, "A relationship of trust ena-

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3   Zak and Knack (2001) confirmed the hypothesis that there is a reverse causal direction in the low-trust/poverty trap. Poor societies are characterized by a low level of trust, which, in turn, slows economic growth and makes it difficult to escape poverty.

4   In our opinion, the principal component method eliminates the causal character of analysis.

5   See also Gur and Bjørnskov (2017). In a set of cross-country regressions, they note that delegation is a low-cost option when management decisions can be implemented without monitoring. Delegation is, however, risky and more likely to be profitable in higher-trust environments. High-trust environments will be characterized by a less formal hierarchy (Bjørnskov 2017).

bles the truster to benefit from the resources of the trustee and vice versa." Thus, trust extends access to others' resources, thereby increasing the chances of achieving additional benefits. Second, it encourages the establishment of all sorts of companies, initiatives and projects by merging small financial capital into larger financial institutions, capable of more complex tasks and competing more effectively in the market.

The second argument refers to the impact of trust and social capital on the growth of human capital and thus on a higher level of economic development Bjørnskov (2009). However, the phonomenon of "squaring the circle between effects of competition and cooperation in the educational system as well as allowing firms in countries with high social trust to demand a more educational workforce" shoud also be underlined (Bjørnskov 2012, p. 1347).

The third argument refers to the relationship between trust and institutions that provide economic growth. The greater the trust, the greater the tendency to legitimize the existing social inequalities, and the lesser the inclination to initiate conflicts, which weaken the effectiveness of the existing socio-economic system. As Knack and Keefer emphasized, "government officials in societies with higher trust may be perceived as more trustworthy and their policy pronouncements as thus being more credible" (Knack and Keefer 1997, p. 1253). Moreover, this greater trust leaves greater freedom of action to the state bodies responsible for economic policy, even if some decisions are not beneficial to society in the short term. Thus, greater trust facilitates policies aimed at long-term objectives. Economic growth – building human potential, as well as human and physical capital – is inherently a long-term phenomenon. This is why economic policy requires long-term objectives, which are facilitated by trust. A positive correlation between institutions and social trust has also been found in China. Cui stressed that a "higher level of social trust is conducive to economic growth. A one standard deviation increase in trust is associated with the increase in growth of 0.225 units of standard deviation, which is 0.638 percentage points. […] the effect of social trust depends on the quality of the institution, and this effect decreases with institutional strength" (Cui 2017, p. 1256).

The fourth argument refers to the relationship between financial market development and trust. Guizo et al. (2000) found trust to have a strong influence on financial development. Their study from Italy discovered that "in regions with high level of trust, individuals have more access to credits, more participation in the stock market and less resort to informal sources of finance" (Boulila, Bousrih, and Trabelsi 2008, p. 406). Meanwhile, Calderon, Chong, and Galindo (2001) found evidence of a significant association between a higher level of trust and financial deepening ratios.

The multitude of measures of social capital has encouraged researchers to search for the best instrument for explaining economic growth. Beugelsdijk and van Schaik (2005) found that economic growth is better explained by citizens' participation in various social associations and organizations than by trust. This is an argument for entering

both variables into the model simultaneously, or for a combined variable. Several variables, which represent trust in family members, compatriots, and people in general, were accounted for in the model employed by Whiteley in the form of a combined variable. We can thus infer that there is a more widespread conviction as to the need to analyze the impact of several variables representing social capital on economic growth. We will explore this further below.

The main **research problem** is encapsulated in the following question: To what extent does **cooperation capital**, including helpfulness, fairness, and generalized trust, have an impact on economic growth?

If the answer to the above question is positive, we can formulate three more detailed research questions:

1. Which component – trust, helpfulness or fairness – plays the most important role in economic growth? In other words, what weights should be assigned to the three components?

2. How does this impact break down over time? In other words, what time lags of trust, helpfulness or fairness should be used?

3. Is economic growth determined by the level of or the increase in cooperation capital? Is this a short-term or long-term determination?

Data and method

The study included 22 countries: Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, the Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Switzerland, Sweden, and the United Kingdom. The analyzed period covers the years 2002–2018. Due to the three-year lags, our model was estimated for the period 2007–2018 and 212 observations.[6] The macro data come from the Eurostat database. The survey pooled data were taken from the European Social Survey.[7] Because the variables of the cooperation capital were reported in even years, it was necessary to interpolate observations for the odd years (an arithmetic average of the surrounding years was applied).

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6   The Referee drew our attention to the weights recommended for ESS data (European Social Survey 2014). We will apply these weights at the next stage of research.

7   "One possibility in developing more persuasive evidence of social capital effects is a broader use of survey data" (Durlauf and Fafchamps 2005).

The cooperation **capital** was measured by the respondents' choice:

1. *People mostly look out for themselves* (*0*) *–> People mostly try to be helpful* (*10*) – (**help-fulness**).

2. *Most people try to take advantage of me* (*0*) *–> Most people try to be fair* (*10*) – (**fairness**).

3. *You can't be too careful* (*0*) *–> Most people can be trusted* (*10*) – (**generalized trust**).

These questions were formulated for the first time by Rosenberg in 1956 (Paxton 1999, p. 105). The foundations on which respondents' relationships with fellow members of the community and region rest and are created characterize these choices. Fairness and helpfulness are treated here not only in altruistic terms but also in terms of investments, for which may pay back at a later date.

These three choices were recorded using the same 11-point scale (0–10), with 10 points meaning that the respondent fully agrees with the opinion that most people can be trusted, that most people act fairly, and that most people are helpful to others.

The correlation coefficients between levels of trust,[8] helpfulness and fairness are so high, and the variables are multicollinear (correlation coefficients above 0.9) that it is not possible to distinguish their impact on GDP growth. In addition, they are negatively correlated with GDP growth. We conclude that GDP growth should not be linked with the level of trust, helpfulness, or fairness.[9]

Comparing correlation coefficients for levels and increases, we can note that the coefficients between increases of the variables (with lags) are lower. The correlation coefficient increases of helpfulness, and two other components of cooperation capital (particularly compared with GDP growth coefficients) are still relatively high.

A panel EGLS (cross-section weights) method was used to estimate the model for all the analyzed countries.[10]

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8 There are several models with the level of trust variable related to GDP growth, i.e., Knack and Keefer (1997), Whiteley (2000), and Zak and Knack (2001).

9 See also Ambroziak, Starosta, and Sztaudynger (2016).

10 The main aims of the ESS are to chart stability and change in social structure, conditions, and attitudes. It assumes that newly selected, cross-sectional samples are comparable. Based on this justification, we used panel estimation methods. Additionally, we assumed that the impact of social capital on economic growth is equal (the same) over both time and the 22 analysed countries. We partly reject the constant over time assumption.

The model and hypothesis of cooperation capital's impact on economic growth in European countries

To study the effects of the three measures of cooperation capital – helpfulness, fairness and trust – on economic growth, the neoclassical, constant returns to scale, augmented Cobb-Douglas production function was applied:

$$GDP_t = A_t L_t^{1-\beta} K_t^{\beta},$$

where:

GDP_t – product (GDP) in constant prices, in year t,

K_t – physical capital in constant prices,

L_t – labor,

t – time,

A_t – Total Factor Productivity.

We will use the dynamic version of the CD production function:

$$\overset{o}{GDP}_t = \overset{o}{A}_t + (1-\beta)\overset{o}{L}_t + \beta \overset{o}{K}_t.$$

After approximating the rate of physical capital by investment output ratio[11], we obtain the following function:

$$\overset{o}{GDP}_t = \overset{o}{A}_t + \alpha_1 \overset{o}{L}_t + \alpha_2 (investment / GDP)_t,$$

where:

$\overset{o}{GDP}_t$ – GDP growth rate,

$\overset{o}{L}_t$ – labor growth rate,

$\overset{o}{A}_t$ – total factor productivity growth rate.

We assumed that $\overset{o}{A}_t$ depends on three variables representing cooperation capital CooperationC (level or increase) and constant α_0:

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11   This is a common practice mainly due to considerable difficulties in calculating the statistical value of fixed assets at constant prices.

$$\overset{o}{A}_t = \alpha_0 + f\left(CooperationC_t\right)$$

and get the following general growth model:

$$\overset{o}{GDP}_t = \alpha_0 + f\left(CooperationC_t\right) + \alpha_1 \overset{o}{L}_t + \alpha_2(invest\,/\,GDP)_t. \qquad (1)$$

There is no convergence variable in the model. In the world economy, we can observe a growing disproportion, growing divergence. Hence, the functioning of the real economy suggests that the assumptions of a long-term equilibrium and convergence are not appropriate. It can only be viewed as a club convergence. In some models of Romer and Lucas, convergence does not appear, or at least its incorporation in the model is dependent on a shortage of physical or human capital.

The current models analyzed cross-sectional data from the last three decades of the 20th century and single, one-time measurements of trust level. They make it possible to explain the long-term differences in the average rate of economic growth by means of different generalized trust levels.

The available pooled data from the European Social Survey from 2002 to 2018 provide a previously inaccessible opportunity to explore how the changes in trust (as well as changes in fairness and helpfulness) over time translate into short-term fluctuations in economic growth.

We use model (1), in which the GDP growth rate is dependent on the employment rate and the investment output ratio. An average annual rate of inflation was also added to the set of explanatory variables.[12] We also added a zero-one variable for the "crisis" years (2008 and 2009).

Based on existing models, including the ones described above, we tried to confirm the positive impact of the level of cooperation capital indicators on economic growth, which resulted in complete failure (wrong signs or insignificant structural parameters). Therefore, we did not confirm that, at the beginning of the 21st century, countries with a higher level of cooperation capital attained "permanently" higher economic growth.[13] According to the main research questions, we provide the general hypothesis:

Economic growth is positively affected by an increase in cooperation capital (generalized trust, helpfulness, fairness). It is a short-term impact[14].

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12 See, for example, research on the negative impact of inflation on economic growth, e.g., Sidrauski (1967), Sarel (1996), and Barro (2013).

13 Different levels of social capital in such a case would have a divergent effect.

14 Adopting the first hypothesis would lead to the question of whether the difference in the social capital impact on economic growth in the 1990s and the beginning of the 21st century does not mean that

Based on the above hypothesis, we can formulate three sub-hypotheses:

1. The three-component cooperation capital explains economic growth better than the traditional one-element indicator of generalized trust. Employing all three variables better reflects the integrity of others, the mutual moral obligation, and thus the complex cooperation phenomenon (Axelrod 1984; Paxton 1999) than one component of trust.

2. Based on a two-stage estimation, the weights of the cooperation capital components can be determined, taking into account the lags. It means that weights of trust, willingness to help, and a sense of fairness, are not arbitrary (as is common practice) but estimated in the growth model. The variable determined in this way allows one to better specify the role of cooperation in economic growth compared to the variable with equal weights.

3. An increase in helpfulness has the greatest importance for economic growth (due to the essential role of help in cooperation and economic activities), while trust and fairness have a smaller but significant impact. Helpfulness may then be a necessary but insufficient condition for building trust and fairness. We assumed that the effects of trust, helpfulness, and fairness could be different and show, in the empirical section, that they are indeed different. There is no reason that such different phenomena should have equal effects. The other argument is that trust, fairness, and helpfulness are not simultaneous in time.

4. Help usually comes first, followed by our belief that somebody is fair. Finally, trust is built. Helpfulness is the first factor and the one that is crucial from the economic point of view. Everything in the economy happens between people. It is impossible to cooperate without help, and it is impossible to build a good relationship with somebody if he does not respond to the help given.

According to the general hypothesis, there are increases in the variables that constitute cooperation capital (helpfulness, fairness, trust) in the model. The model is as follows:

$$GDP_{i,t} = \alpha_0 + \alpha_1 \overset{o(+)}{L}_{i,t} + \alpha_2 \overset{(+)}{(investment/GDP)}_{i,t} +$$

$$\alpha_3 \overset{(-)}{inflation}_{i,t} + \alpha_4 \overset{(+)}{\Delta helpfulness}_{i,t} + \alpha_5 \overset{(+)}{\Delta fairness}_{i,t} +$$

$$\alpha_6 \overset{(+)}{\Delta trust}_{i,t} + \alpha_7 \overset{(-)}{crisis\_2008} + \alpha_8 \overset{(-)}{crisis\_2009} + \xi_{i,t}$$

previously an impact of the level of social capital determined economic growth while currently there is an impact of the increase of social capital.

where:

$\overset{o}{GDP}_{i,t}$ – GDP growth (for the country i, year t), constant prices, in %,

$\overset{o}{L}_{i,t}$ – number of employed, growth in %,

investment/GDP$_{i,t}$ – investment/GDP ratio, in %,

inflation$_{it}$ – CPI growth rate, in %,

Δ*helpfulness*$_{it}$ – increase in average *helpfulness*,

Δ*fairness*$_{it}$ – increase in average *fairness*,

Δ*trust*$_{it}$ – increase in average *trust*,

crisis_2008 – dummy variable, 1 in 2008, 0 in other years,

crisis_2009 – dummy variable, 1 in 2009, 0 in other years,

i – subscript denoting country *i* = 1, …, 22.

Expected parameter signs are given in parentheses above the variables.

The results of the model estimation

A panel EGLS (cross-section weights) method was used to estimate the model.[15] As mentioned earlier, the parameters of variables representing the level of cooperation capital were insignificant, often with a minus sign. The estimation results confirmed the hypothesis about the impact of increases in cooperation capital on economic growth:

Table 2. The basic model of GDP growth and increases in helpfulness, fairness and generalized trust, panel EGLS (Cross-section weights), 2007–2018, 212 observations

Variable	Basic model	
	Coefficient	Std. error
constant	0.40	0.50
employed, growth$_t$	0.54***	0.05
(investment/gdp)$_t$	0.06***	0.02
inflation$_{t-1}$	−0.23***	0.07
(Δhelpfulness$_t$ + *Δhelpfulness*$_{t-1}$ + *Δhelpfulness*$_{t-2}$ + *Δhelpfulness*$_{t-3}$)/4	6.00***	1.96

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15   The basic model presented in Table 4 was also estimated using the fixed effect and random effects methods. Significantly worse results were obtained.

Variable	Basic model	
	Coefficient	Std. error
$\Delta fairness_{t-2}$	**2.63****	1.10
$(\Delta\,trust_{t-3} + \Delta\,trust_{t-4})/2$	**2.51****	1.12
crisis_2008	**–1.78*****	0.29
crisis_2009	**–3.96*****	0.35
IRland_15	**21.3*****	2.58
ESTONIA_2008_2009	**–5.91*****	1.58
R2 weighted	0.831	
Adjusted R2 weighted	0.823	
R2 unweighted	0.771	
S$_e$ weighted	1.55	
JB	0.97	
DW weighted	1.65	
F-statistic	99.0	

R^2 – goodness of fit, JB – Jarque–Ber test, DW – Durbin–Watson statistic, S_e – average residual error.
The coefficient is statistically different from 0 at the *** .01, ** .05, and * .10 levels.
Source: authors' own calculations.

The choices of delays are based on empirical model estimations. "Economic theory rarely provides a basis for specifying the lag lengths in empirical macro-models" (Stigum 2003, p. 388; see also Nerlove 1972; Holden 2005). The delays were chosen taking into account the F-statistic, t-statistic and adjusted R^2 values.

The explanation of delays is relatively intuitive: trust requires time. It is much faster to make sure that someone is helpful to me or to people in general. Usually, the next step is to believe in someone's fair incentives. Trust is built on the recognition of these two. Because of this time sequence, it is possible that an increase in helpfulness will affect economic growth first. The second argument is that the help is relatively directly linked to economic activity, which is not the case with trust. So, the influence of helpfulness is fast, which is not the case for the impact that indirect trust has on economic growth.

Let us explain the construction of the variable: $\Delta helpfulness_t + \Delta helpfulness_{t-1} + \Delta help\text{-}fulness_{t-2} + \Delta helpfulness_{t-3}$, for example. At the beginning, we introduce these variables to the model separately. As the numerical values of the estimated parameters were similar, we assumed that they were equal, and we summed up the Δhelpfulness variables. In addition, it helps to cope with the fact that the ESS survey is only available every other year.

All coefficients have the expected sign and are significant (at a significance level of 5% or lower).

The standard approach is three variables combined into one variable as a simple sum:

$$\Delta helpfulness + \Delta fairness_t + \Delta\ trust.$$

"This variable can be taken to denote the general moral basis of a society, a set of unwritten rules and norms that govern everyday life. Thus, we can argue here that … [this variable] indicates individuals' expectations that in general, others, unknown to him/her, will be helpful and fair in their everyday interactions" (Daskalopoulou 2019, p. 283). Unfortunately, in our model, the simple sum of variables (no lags) has a negative sign.

For comparison, we ran a model with three variables combined into one, with weights taken from the basic model:

$$\Delta Cooperation\ C = 6.00[(\Delta helpfulness_t + \Delta helpfulness_{t-1} +$$
$$\Delta helpfulness_{t-2} + \Delta helpfulness_{t-3})/4] + 2.63$$
$$\Delta fairness_{t-2} + 2.51(\Delta trust_{t-3} + \Delta trust_{t-4})/2. \tag{2}$$

This variable is significant at the 0.0001 level.

The results confirm the hypothesis about the positive impact of increases in the components of cooperation capital on economic growth. For example, the parameter of variable $\Delta helpfulness$ indicates that the GDP growth rate is influenced by an increase in helpfulness from the current and three previous years – an increase of 0.1 points leads to a cumulative increase in economic growth by approx. 0.60 percentage points (ceteris paribus);

The influence of helpfulness is more than twice as strong as that of trust or fairness.

Among the 15 countries (Table 3), the average GDP growth between 2007 and 2018 was 1.8%. About 1/8 of it can be attributed to cooperation capital.

The most important positive role of cooperation capital growth was seen (CooperationC absolute share GDP growth from 1/4 to 1/3) in Finland, Hungary, the Netherlands, Portugal, and Slovenia.

Table 3. The increase in the cooperation capital effect
and the average annual GDP growth for 2007–2018

No.	Country	Average annual %			CooperationC absolute share (2)/(1)
		GDP growth (1)	CooperationC effect equation (2)	GDP growth without CooperationC (3)	
1	Belgium	1.4	0.3	1.1	1/5
2	Finland	0.8	0.3	0.5	1/3
3	France	1.0	0.2	0.8	1/5
4	Germany	1.4	0.4	1.0	3/10
5	Hungary	1.4	0.3	1.1	1/4
6	Ireland	4.4	0.0	4.5	within statistical error
7	Netherlands	1.3	0.3	1.0	1/4
8	Norway	1.3	0.1	1.2	1/10
9	Poland	3.9	0.4	3.4	1/10
10	Portugal	0.5	0.1	0.3	1/4
11	Slovenia	1.5	0.4	1.1	1/4
12	Spain	0.8	0.1	0.7	1/10
13	Sweden	1.8	0.1	1.7	1/20
14	Switzerland	1.8	0.2	1.6	1/10
15	United Kingdom	1.3	0.2	1.1	1/8

Source: authors' own calculations based on the basic model presented in Table 2.[16]

In general, models with cooperation (social) capital variables have a much better fit than models without this variable.

Because of the relatively high[17] correlation between the components of cooperation capital, we built one combined variable with them. After replacing three increases in cooperation capital with the increase in combined cooperation capital (2) in the basic model, we obtained very similar estimates of the parameters, their significance, and the R^2 coefficients.

A difficult problem with creating combined variables is the arbitrary selection of weights. What weights should we give to the three measurements of social capital in our study, i.e., fairness, helpfulness, and trust? The simplest solution is to give each of them equal

[16]　If there is no increase in the cooperation capital in a country, the effect will be "zero".

[17]　Comparing the 0.4 correlation coefficient with 0.15, for example.

weight, with three lags "suggested" by the basic model.[18] This yields significant estimates. However, we obtained much better results when taking weights from the basic model (adjusted R^2 0.830 and 0.784, respectively).

Table 4. The increase in the cooperation capital effect and the average annual GDP growth in the sub-periods of 2007–2018

No.	Country	Period	Average annual %			CooperationC absolute share (2)/(1)
			GDP growth (1)	CooperationC effect equation (2)	GDP growth without CooperationC (3)	
1	Bulgaria	2011–2012	1.4	0.3	1.0	1/4
2	Cyprus	2011–2012	–1.5	–1.8	0.2	xxx
3	Czech Republic	2013–2018	2.9	0.4	2.4	3/20
4	Denmark	2007–2014	0.2	0.0	0.2	within statistical error
5	Estonia	2009–2018	1.8	0.5	1.4	1/4
6	Slovak Republic	2009–2012	1.3	–0.1	1.4	within statistical error

Source: as in Table 3.

The three components of cooperation capital (involving generalized trust, fairness, and helpfulness) explain economic growth better than the traditional, single generalized trust.

Conclusions

In the research, we investigated and expanded both the theoretical discussion of generalized trust and empirical analyses of the potential impact of the three components of bridging social capital on economic growth. We developed a commonly recognized thesis on the positive impact of generalized trust on economic growth (see Knack and Keefer 1997; Zak and Knack 2001). In addition to trust (most people can be trusted), we used two related components of social capital, helpfulness and fairness.

The model was estimated using a sample from 22 European countries between 2007 and 2018 (212 observations). In general, we confirmed our main hypothesis that economic growth is positively affected by an increase in cooperation capital (trust, willingness to help, and fairness). This is a new finding because, so far, the analysis of the role of trust in growth in the economic literature has usually not been connect-

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18   In the case of weights determined arbitrarily, the lags are usually not used.

ed with the role of helpfulness and fairness. Additionally, the variables of social capital level (mainly the level of trust) were used. The long-term influence of cooperation capital level on economic growth was not confirmed in our analysis. Instead, we found short-term positive relations between economic growth and increases in trust, willingness to help, and fairness. In the surveyed countries, approximately one-eighth of their growth can be attributed to the growth in cooperation capital. This impact varied from 1/20 to 1/3 of the total value of economic growth.

In some countries, this influence is negligible.

We also support the first sub-hypothesis: The three-component cooperation capital explains economic growth much better than the one-component generalized trust. Most likely, this concept better reflects the mutual moral obligation, which is important for economic cooperation and effectiveness.

We also validate the second sub-hypothesis. Based on the econometric model estimation, the weights of the above components of cooperation capital (taking lags into account) can be determined. The lag cooperation capital variables, to the best of our knowledge, were not used, mainly due to the lack of statistical data and the long-term character of most of the investigated relationships.

The cooperation capital variable with the weights estimated in the basic model (Table 2) allows one to specify more precisely the role of cooperation in economic growth compared to the cooperation capital variable with equal weights. The standard model with equal weight without lags is much worse. An increase in cooperation capital affects economic growth in a current year only to a small degree; over 80% of the effect occurs with a lag of 1–4 years.

If we choose a cooperation capital variable with unequal weights, it will be possible to test sub-hypothesis 3. The basic model shows that the most important economic growth factor of cooperation capital is the increase in the willingness to help others, which can be explained by the critical importance of cooperation in economic activities. Approximately twice smaller but significant effects are associated with trust and fairness. Therefore, we confimed sub-hypothesis 3.

This article discusses three issues: the definition and importance of trust, a review of the models of the impact of generalized trust on the economy, and our model of economic growth with the increase in trust, willingness to help, and fairness variables, while considering lags.

During the global crisis of 2008 and 2009, called a crisis of trust, there was a GDP slowdown in the analyzed countries by approx. 1.8% and 4%, respectively. This constitutes an essential prerequisite for the continuation of the initiated analysis.

Our findings point to the conclusion that the most important potential areas of investigation are, firstly, the influence of the global crisis on the relationship between cooperation capital and economic growth. Secondly, when the optimal level of trust, willingness to help, and fairness are exceeded, the phenomenon of cooperation abuse intensifies so much that the cumulative effect on the economy will be negative.[19]

In summary, our analysis claims that helpfulness is a leading and more significant factor in explaining economic growth dynamics than generalized trust and fairness. This means that the intensification of fairness and trust is more likely when based on helpfulness.

The main policy implication of our research is the significance of the positive role of cooperation capital for social and economic development. The important, pragmatic task of government and local authorities should be to support trust, help and fairness, not only because of their moral values but also their impact on the economy.

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19   Due to the cooperation capital variable, it can be studied by introducing only one variable to the model – the cooperation capital variable squared. The first attempt was not satisfactory (see also Butler, Giuliano, and Guiso 2016).

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Zgeneralizowane zaufanie, skłonność do udzielania pomocy, poczucie uczciwości innych a wzrost ekonomiczny w Europie. Zmodyfikowane ujęcie

Celem artykułu jest próba oszacowania wpływu postaw zaufania, pomocniczości i uczciwości na wzrost gospodarczy w krajach Europy. W pierwszej części tekstu skupiono uwagę na prezentacji koncepcji kapitału społecznego i na związanym z nim pojęciu zaufania, natomiast w kolejnej części dokonano selektywnego przeglądu literatury dotyczącej wpływu zaufania na rozwój ekonomiczny. Część trzecia zawiera prezentację ekonometrycznego modelu wzrostu gospodarczego, bazującego na zmodyfikowanej funkcji produkcji Cobba-Douglasa. Zaproponowany model zawiera trzy powiązane ze sobą zmienne: zgeneralizowane zaufanie, skłonność do udzielania pomocy (pomocniczość) oraz deklarowaną postawę stopnia uczciwości innych ludzi, które wyrażone są w postaci zmiennej zagregowanej, nazwanej przez autorów kapitałem współpracy. Próba badawcza, będąca podstawą analiz empirycznych, odnosi się do kolejnych rund badań przeprowadzonych w latach 2006–2018 w ramach Europejskiego Sondażu Społecznego w 22 krajach Europy. Dane zawarte w Europejskim Sondażu Społecznym, wykraczające poza wąsko rozumiane

zjawisko zaufania, dają pewną szansę na weryfikację niezbyt dotychczas dokładnego pomiaru wpływu kapitału współpracy i pomostowego na kształtowanie się poziomu wzrostu ekonomicznego. Uzyskane rezultaty analiz wskazują, iż w przybliżeniu 1/8 wzrostu (mierzonego wielkością stopy wzrostu GDP) może być traktowana jako efekt wzrostu zgeneralizowanego zaufania, pomocniczości i uczciwości. Ponadto odnotowano, iż 86% tego wpływu ujawnia się z opóźnieniem od roku do 4 lat. Przyjęte do analizy trzy zmienne cząstkowe lepiej wyjaśniają zmienność wzrostu gospodarczego niż wyłącznie poziom zaufania, który stanowił jedyną kategorię wyjaśniającą w większości dotychczasowych analiz. Wyestymowany przez autorów model sugeruje, iż spośród trzech analizowanych zmiennych cząstkowych największy wpływ na zmienność ekonomicznego wzrostu ma skłonność do wzajemnego udzielania sobie pomocy przez ludzi. Nie podważa to jednak faktu, że również zaufanie i uczciwość to istotne czynniki wpływające na wzrost gospodarczy w badanych krajach Europy.

Słowa kluczowe: społeczny kapitał pomostowy, zgeneralizowane zaufanie, pomocniczość, uczciwość, wzrost ekonomiczny, Europa