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ASSESSMENT OF THE ROLE OF SOCIAL CAPITAL IN STIMULATING ECONOMIC DEVELOPMENT DEPENDING ON THE COUNTRY'S INCOME LEVEL

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Purpose: Assessing the impact of eleven components of social capital (SC) on economic development depending on the country's income level.
Design/methodology/approach: The research covered 96 countries. They were divided in three groups composed of 32 economies, i.e., low-income, middle-income, and high-income countries. The impact of eleven elements of SC was examined in the period 2008-2020. The economic development measures were GDP pc and GNI pc. The research methods were the Spearman's rank correlation and cluster analysis.
Findings: Social capital in high-income countries is a more important factor in increasing economic development compared to low-income and middle-income countries. In three income groups, the same four components of SC are statistically significant and positive: government effectiveness as defined by the World Bank, reliance on professional management, state of cluster development and willingness to delegate authority. These dimensions of social capital can be called strategic success factors on the road to prosperity.
Research limitations/implications: The main limitations are the availability of data on larger groups of countries over a sufficient long time and obtainig free access to more detailed social capital indicators. In the future, the authors intend to focus on the links between various components of SC occurring at different stages of economic development. This knowledge should help to formulate more precise guidelines for planning policies of improving SC in private and public sectors.
Social implications: The research results indicate that such dimension of SC as honesty, egalitarianism, equality of treatment, and democratic decision making should be adopted as patterns of behaviour in both private and public sectors and in cooperation between them. Without this, social development, which includes economic development, cannot be accelerated. This happens because it is reflected in improving the effectiveness of organisational arrangements applied at the national level and in companies.

Originality/value: There is still a need for more comprehensive research on the impact of social capital on economic development. In response to this need, this study examined eleven components of SC. The hope is that this research approach will result in a more holistic view of how social capital can influence economic development.
Keywords: elements of social capital, economic development, recommendation for public and private sectors.
Category of the paper: Research paper.

1. Introduction

The level of prosperity in the current economic reality depends to a greater and greater extent on achievements in the development of social capital. Therefore, the literature on the subject stresses that the development of an appropriate quality of social capital contributes to the improvement of a country's productivity and determines faster reaching the next stage of economic development.

There are many definitions of social capital because it is a complex and multidimensional phenomenon. However, they include the same primary forms of social capital. They are: general (interpersonal) and institutional trust, formal membership and participation, informal interactions and relations, altruism, and shared values, norms, and obligations.

Social capital at the country level can be viewed as a society's ability to cooperate and work together to achieve a common goal. Social capital researchers at the country level usually refer to the definitions of social capital described by three authors, namely a French sociologist and anthropologist Pierre Bourdieu, an American sociologist James Coleman, and an American political scientist Robert Putnam.

As suggested by Bourdieu, Coleman, and Putnam, trust is critical in providing a basis for the development of social capital. Their understanding of trust is well reflected in the definitions proposed by the American political theorist Francis Fukuyama. For Fukuyama (1995, p. 153), trust is the existing belief in a given community that other members of that group are characterised by honesty and cooperative behaviour based on shared values and principles.

Bourdieu (1986) defines social capital as the actual or potential resources linked to the possession of a durable network of approximately institutionalised relationships of mutual acquaintance and recognition. In other words, social capital is a network of various interpersonal relations or connexions occurring in a group (e.g., family, nation, association, party) under the condition that this network intensifies the sense of community. Bourdieu emphasises that social capital increases with the number of interpersonal connexions in the network, but on the condition that these connexions are based on the mutual solidarity of its members, trust and respect they have for one another, legitimisation of their roles, and the knowledge of group members about one another.

First, according to Coleman (1988, 1990), social capital is the social structure of a community (e.g., family, corporation, school, country) composed mainly of various types of institutional solutions for cooperation in achieving common goals. Secondly, it is an ability to share resources that members of a community can use to perform their tasks. Coleman emphasises that interpersonal relationships both create social capital and are its carrier. In other words, social capital is embedded in the network of interpersonal relations within a given community when that network facilitates the achievement of common goals and mutual benefits for its members. For him, the most important forms of social capital that shape the network of interpersonal relations are: obligations and expectations, information channels, and social norms.

Putnam (1993, 1995) defines social capital as connexions between individuals, norms, and trust that arise from these relationships and can increase the productivity of a society by facilitating the coordination of activities. Different forms of social capital are created through the development of various types of interpersonal relationships within a community. Putnam includes to social capital mainly norms, social trust, loyalty, and social networks that facilitate coordination and cooperation for mutual benefit. He is convinced that everyone would live better if they all worked together, but this requires mutual trust, commitment to joint action, and the ability to enforce commitments. Putnam indicates that forms of social capital expand as they spread within a given community and die when they are not duplicated by their members.

Ways of understanding social capital, for example, those presented by Bourdieu (1986), Coleman (1988, 1990), Putnam (1993, 1995), Majewska (2013), Engbers and Rubin (2018), and Ray, Nyberg and Maltarich (2023), indicate that social capital includes such dimensions as:

- Obligations, norms, and methods of their enforcement.
- Different types of social networks and collective actions at the micro, mezzo, and macro levels.
- Values and attitudes such as trust, solidarity, honesty, fairness, egalitarianism, sense of unity, equality of treatment, democratic decision making, and transparency of government decisions.
- The quality of institutional solutions for cooperation in achieving goals by the government that is reflected in the effectiveness of actions taken by persons responsible for increasing the welfare of the society.
- Organisational structures, arrangements and solutions for cooperation between and among the private and public sectors.
- Information and communication technology that facilitates cooperation.

In this work, the issues are continued, already considered in earlier studies by the authors that cover the enhancement of social development in order to become a post-industrial society with a knowledge-based economy. The aim of this study is to assess the role of eleven elements of social capital in the economic development of 96 countries during 2008-2020. The countries were studied and divided into low-income, middle-income, and high-income economies. The basis for assigning a country to one of the three income groups was the World Bank's classification.

The World Bank divides economies into four income groups according to their gross national income per capita (GNI pc) denominated in U.S. dollars. The groups are now: low income, 1135 or less; lower middle income, 1136 to 4465; upper middle income, 4466 to 13,845; and high income, 13,846 or more (World Bank Country and Lending Groups). In our study the first group consisted of low-income and lower-middle income economies, the second group of upper middle-income economies, and the third group of high-income economies.

The paper is organised as follows. The second part of the paper focuses on the literature review. The third part presents a description of the material selection and research methods. In the fourth and fifth parts, the results of comparative analysis of the examined attributes of countries are discussed and conclusions are described.

2. Literature review

The purpose of our literature review is to present various trajectories of the impact of social capital on economic development mainly at the country level. The literature review is arranged chronologically and covers the years 2005-2022.

Kaldaru and Parts (2005) examine the impact of macro-level social capital and related social factors on economic development in 34 European countries. The data used in the empirical analysis refer to the year 2001. In their studies social capital comprises different aspects of institutional quality and is closely related to the income distribution and social cohesion. The findings show that macro-level social capital is significant both in the formation of GDP per capita and HDI values.

Cheng and Mittelhammer (2008) analyse 40 countries in the period 1994-2002. The research results suggest that when social capital (either civic engagement or confidence) and institutional factors are included in the income model, economic integration has a positive and significant impact on economic development. In other words, the development of social capital together with the improvement of institutional conditions may be a facilitating factor that allows countries to benefit more from economic integration.

Doh and McNeely (2012) test the impact of social capital on economic development across 47 selected countries. Their social capital index, based on measures of trust, associational activities, and civic norms, was constructed for two research periods 1999-2001 and 2005-2007. The research results reveal strong support for the hypothesis suggesting a positive relationship between social capital and economic development.

Estrin, Mickiewicz and Stephan (2013) examine the relationship between social and commercial entrepreneurship drawing on social capital theory**.** Their study covers 114,341 individuals from 47 countries in 2009. Their indicator of social capital complements existing country-level measures including generalized trust and associational membership. The research results indicate that the country prevalence rate of social entrepreneurship is an indicator of constructible nation-level social capital. Moreover, high national rates of commercial entrepreneurship reduce the opportunities available for social entrepreneurs.

Doh (2014) investigates the relationship between social capital and the quality of government while taking into consideration the possible interaction between social capital and economic development in a sample of 89 countries in 2010. The findings suggest that social capital is positively related to the quality of the government. Therefore, countries with both high levels of social capital and economic development exhibit higher quality of the government.

Golubović, Džunić and Marinković (2014) analyse social capital available in Western Balkan countries in the period 1994-2010. Firstly their findings show that these societies are, characterised by very low levels of overall trust and confidence in institutions, as well as a poor level of civil society development. Secondly, by a tendency for the existence of informal networks of social relations created during the pre-transformation that could be marked as negative social capital. They conclude that this situation stands in the way of improving the economic and institutional efficiency of Western Balkan countries.

Hvižďáková and Urbančíková (2014) in their study confirm the existence of a positive relationship between the level of social capital, innovation, and competitiveness in the European Union in the period 2008-2009. The results show that the richer countries of Western Europe present a higher level of social capital than the poorer countries of Central and Eastern Europe. Thus, they emphasise that the development of social capital is necessary for faster economic development.

Leeves (2014) proves that there was an increasing opportunity cost associated with greater levels of social capital investment for high-skilled workers in the period 1991-2007. The findings also confirm that lower social capital is linked to reduced economic growth and innovation, higher transaction costs, and is detrimental to individual well-being. His sample consists of 57,336 person year observations for the wage returns (opportunity cost) analysis and 72,920 person year observations for the social life satisfaction analysis.

Oh, Lee and Bush (2014) test the effects of multidimensional social capital on different economic development partnerships. They employ the data of a survey conducted on economic development managers who were responsible for implementing city's economic development policies in the United States. The research results indicate that different dimensions of social capital contribute to creating economic development partnerships regardless of local boundaries.

Drozdowska and Majewska (2015) analyse the impact of social capital on economic development in 100 countries from 2012 to 2013. The results of the studies show that social capital is an important source of raising productivity, but on the condition that the country is already at a later stage of economic development. The results also indicate that without an appropriate ethical behavior, not just in business, productivity growth is hampered. This is because we have to deal with a decrease in the level of trust and willingness to cooperate.

Jalles and Tavares (2015) investigate the relationship between technological progress, trade, scale, and social capital (mainly trust) on a sample of 59 countries in two five-year periods 1970-1975 and 2005-2010. In a panel dataset of developing and developed countries they uncover a positive effect of social capital on a country's rate of technological progress, which is more significant in richer countries. According to endogenous growth theory, they justify their results on the grounds that as a country becomes richer it can move from imitating technology through trade to producing technology.

Loakimidis and Heijke (2016) verify the relationship between social capital in the form of interpersonal trust and country's four types of welfare regimes: social democratic regime, conservative regime, liberal regime and transition regime on a sample of 17 European countries. Their findings show that conservative regimes, liberal regimes, and transition regimes are all associated with a much lower level of interpersonal trust than social democratic regimes. Therefore, their studies confirm that countries with a social democratic regime have a higher level of social capital.

Peiró-Palomino (2016) analyses the role of two social capital indicators – social trust and active participation - on the growth of 237 European regions in the period 1995-2007. The research results suggest that social capital effects are heavily heterogeneous across regions in Europe. In general, for both social trust and active participation, the results show that Eastern and Central Europe regions not only present lower levels of social capital, but also that in some of these regions its effects on growth are negative.

Lee and Law (2017) investigate the roles of formal institutions and social capital in countries' innovation activities, which is a prerequisite for accelerating economic development. The sample consists of 62 developed and developing countries and the research period is 2006-2010. The findings indicate that formal institutions and social capital complement each other in influencing countries' innovation level. The empirical result also suggests that innovation level tends to be higher in countries with higher social capital.

Galaso (2018) presents a review on empirical research and finds evidence regarding the positive impact of collective social capital in the form of networks on the performance of cities and regions. He concludes that collective social capital accelerates territorial development especially by facilitating the diffusion of information and fostering cooperation among actors (e.g., local and foreign firms).

Obert, Theocharis and Deth (2019) study the relationships between economic developments and social capital in 23 European countries in the period 2002-2016. They show that economic decline is associated with a fall in social capital, especially in southern European countries. They also prove that in countries characterised by well-functioning governments social capital is significantly less affected by economic decline.

Madrysz (2020) focuses on the use of social capital for the development and success of social economy initiatives. He presents practical examples of social economy entities operating in Poland. He concludes that in Poland there is a need for strong cooperation between social economy entities and the community in which they operate. In his opinion, this cooperation should be based on shared values and aims as well as understanding of community needs and problems.

Cáceres-Carrasco, Santos and Guzmán (2020) verify whether the effects of social capital on innovation differ in low-income countries in comparison to other more highly developed countries in the research period 2006-2010. The data source is the World Values Survey (WVS). They find that, when an innovation-oriented system exists, the presence of strong social capital will reinforce the innovative trend through higher levels of cooperation and sharing of knowledge.

Kabakçi Günay and Sülün (2021) examine the relationship between the welfare levels of OECD countries and their social capital levels within the framework of the Legatum Prosperity Index in the research period 2009-2019. They prove that social capital is an important input in the difference between welfare levels of OECD countries. Social capital was high in countries with high levels of welfare across OECD countries with the exception of Japan, Poland, the Czech Republic, Greece, Lithuania, and South Korea. While these countries in 2019 were among the top 40 countries in the world in terms of general welfare level, they ranked 100th and above in the world in terms of social capital.

Tekdemir and Varol İyidoğan (2021) examine the impact of social capital on growth depending on the democratization level of 138 countries over the period 2009-2018. They take the annual percentage change in per capita GDP as an indicator of growth. The findings indicate that, in countries with a relatively higher level of democratization, social capital is a significant and positive determinant of growth. But in countries where the democratization level is low, social capital does not have a significant impact on growth. Therefore, they conclude that the establishment and maintenance of democratic structure is one of the substantial policy focuses in the process of social capital-led growth.

Berg (2022) investigates how individual generalized trust in retailers and providers in impersonal markets is affected by the efficiency and performance of consumer authorities. Based on survey data from 28 037 respondents living in 30 European countries collected for the European Commission's *Consumer Conditions Scoreboard*, Berg indicates that fair and effective consumer authorities are strong drivers of better performing markets, measured by safe consumer conditions. According to him, fair and effective consumer institutions enhance individual generalized trust and contribute to more equality in the markets.

Huidobro, Antonioni, Lipari and Tamarit (2022) examine the role of two types of social capital as drivers of GDP growth in 63 economies during 10 years. The first type of social capital is information capital. In their study information capital is a proxy for the ability to acquire valuable information and to spread it to others from such channels of knowledge flow as foreign direct investment, trade and migration. The second one is favor capital, which they define as having neighbors that are supported by a neighbor in common. They identify positive and significant effects of both information and favor social capital on GDP.

Based on the literature review, it can be concluded that there is still a need for more comprehensive research on the impact of social capital on economic development. For example, the authors of *The 2023 Legatum Prosperity Index*^{TM} point out that social capital, especially interpersonal and institutional trusts, is the least explained phenomenon that builds prosperity (Legatum Institute, 2023, p. 12). In response to this need, this study examined eleven components of social capital. To make it possible, own database including their changes in 96 countries over a ten-year period was created. The hope is that this research approach will result in a more holistic view of how social capital can influence economic development.

3. Material selection and research methods

At the beginning, the authors would like to emphasize that the main limitations of any study on social capital are the lack of universally accepted methods of measurement and the availability of data on larger groups of countries over a sufficient long time. It is also difficult to obtain free access to more detailed social capital indicators.

There is also a situation where certain indicators are published for some time and then not continued or you have to pay for them. A good example is our main source of data for indicators of social capital level, i.e. the Global Competitiveness Report. It was published by the World Economic Forum from 2008 until 2019. Currently data is available for a fee.

Due to the availability of data, we included in the studies 96 countries. Recalling they were divided in three groups composed of 32 economies according to their income levels, i.e., low-income, 4465 or less; middle-income, 4466 to 13,845; and high-income countries, 13,846 or more.

The indicators sourced from The Global Competitiveness Reports come from the executive opinion survey in which respondents estimate the presence of a given factor in their country on the seven-point scale, where 1 refers to the lowest level of this factor, and 7 the highest (the best situation).

We decided to verify the impact of the following components of social capital on economic development:

- Diversion of public funds due to corruption (DPF).
- Public trust in politicians (PTP).
- Favouritism in decisions of government officials to well-connected firms and individuals when deciding upon policies and contracts (FGO).
- Transparency of government policymaking that affects business activities (TGP).
- Ethical behaviour of firms in interactions with public officials, politicians, and other firms (EBF).
- Cooperation in labour-employer relations that can be generally confrontational or generally cooperative (CLE).
- Reliance on professional management relating to whether in a given country senior management positions hold relatives and friends without regard to merit, or professional managers chosen for merit and qualifications (RPM).
- State of cluster development (SCD).
- Willingness to delegate authority to subordinates relating to whether in a given country top management controls all important decisions, or authority is mostly delegated to business unit heads and other lower-level managers (WDA).
- University-industry collaboration in R&D (UIC).

Our research also included the World Bank indicator of government effectiveness (GE) because it reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.

Referring to the literature on the subject presented in the second part of this study, it is clear that the World Bank indicator of government effectiveness undoubtedly provides an indirect measure of social capital level in the public sector. The World Bank indicator of government effectiveness ranges from -2.5 (weak) to 2.5 (strong) governance performance. These values were converted to the 10-point scale, where 1 refers to the lowest level of this indicator, and 10 the highest.

The economic development measures were gross domestic product per capita in current prices (GDP *pc*), gross domestic product per capita in constant prices (GDPCP *pc*), and gross national income per capita in current prices (GNI *pc*) – all denominated in USD. These measures of economic development are usually treated as indirect indicators of national wealth. The data was taken from the United Nations Conference on Trade and Development's statistics.

The examined measures of social capital and economic development need to be first standardized for comparison between indicators and countries to be meaningful. Therefore, all variables included in our research were transformed into natural logarithms.

According to the statistical literature, the validity of parametric tests depends on normal distribution of data. So the next step was to check whether the values of our variables are normally distributed. Three types of normality tests, such as the e.g. Kolmogorov-Smirnov (K-S) test, Lilliefors corrected K-S test, and Shapiro-Wilk test, were used for assess whether the elements of social capital and the economic development indicators have normal distributions.

If p-values of the Kolmogorov-Smirnov (K-S) test and Lilliefors corrected K-S test are greater than 0.05, there are no grounds to reject the hypothesis about the normality of the distribution. If the significance correction (Sig.) value of the Shapiro-Wilk test is below than 0.05, the data significantly deviates from a normal distribution. The results of normality tests are shown in Table 1. They indicate that most of the variables in our datasets are not normally distributed (see: Gupta, Kapoor, 2000).

Table 1.
Tests of normality for all researched countries (N = 960)

Variables	Kolmogorov-Smirnov	Lilliefors	Shapiro-Wilk
GE	d=0.14556, p<0.01	p<0.01	W=0.92351, Sig.=0.00000
DFP	d=0.08514, p<0.01	p<0.01	W=0.96565, Sig.=0.00000
PTP	d=0.08243, p<0.01	p<0.01	W=0.97708, Sig.=0.00000
FGO	d=0.08960, p<0.01	p<0.01	W=0.97649, Sig.=0.00000
TGP	d=0.05020, p<0.05	p<0.01	W=0.99122, Sig.=0.00002
EBF	d=0.12822, p<0.01	p<0.01	W=0.95287, Sig.=0.00000
CLE	d=0.07270, p<0.01	p<0.01	W=0.98622, Sig.=0.00000
RPM	d=0.06896, p<0.01	p<0.01	W=0.97126, Sig.=0.00000
SCD	d=0.04455, p<0.05	p<0.01	W=0.98354, Sig.=0.00000
WDA	d=0.09526, p<0.01	p<0.01	W=0.98618, Sig.=0.00000
UIC	d=0.08546, p<0.01	p<0.01	W=0.97720, Sig.=0.00000
GDP *pc*	d=0.08514, p<0.01	p<0.01	W=0.95950, Sig.=0.00000
GDPPC *pc*	d=0.09155, p<0.01	p<0.01	W=0.95774, Sig.=0.00000
GNI *pc*	d=0.08751, p<0.01	p<0.01	W=0.95602, Sig.=0.00000

Note. GE - government effectiveness, DFP - diversion of public funds due to corruption, PTP - public trust in politicians; FGO - favouritism in decisions of government officials, TGP - transparency of government policymaking affecting business activities, EBF - ethical behaviour of firms, CLE - cooperation in labour-employer relations, RPM - reliance on professional management, SCD - State of cluster development, WDA - willingness to delegate authority, UIC - university-industry collaboration in R&D, GDP *pc* - gross domestic product per capita in current prices, GDPPC *pc* - gross domestic product per capita in constant prices, GNI *pc* - national income per capita in current prices.

Source: Authors' calculations.

Therefore, a decision was made to carry out the Spearman's rank correlation analysis to examine the strength and direction of association between the variables. The Spearman's rank correlation coefficient is a nonparametric measure of relationship that exists between two variables. It is used when one or two variables are measured on an ordinal scale or are not normally distributed. It assumes a value between -1 and 1. The closer Spearman's rank

correlation coefficient is to 1 or -1, the stronger the analyzed association. If it is positive, then as one variable increases, the other tends to increase. If it is negative, then as one variable increases, the other tends to decrease (see: Baker, 2019).

The Spearman's rank correlation analysis was performed for two types of relationships between variables. Firstly, the strength and direction of the relationship between a given element of social capital and a given indicator of economic development was checked. As a result, statistically significant relations between the changes in a given component of social capital and three indicators of economic development were identified. The correlation coefficients were calculated for a whole set of countries and three income groups.

In this case the correlation analysis was accounted also for the time delays in which the independent variable being the given component of social capital in year t_0, is the cause of a change of the size of GDP *pc*, GDPPC in year t_{+1}, t_{+2} and t_{+3}.

Models that take into account time delays allow checking if there is a statistically significant dependence of one variable on the other variable. They are a kind of substitute for regression analysis when the variables do not have a normal distribution. The research period covered the years 2008-2020. The results of these calculations are presented in tables 3, 5 and 7.

Secondly, we examined the associations between the components of social capital, which turned out to be statistically significant for the change in the level of economic development, and the rest of the analyzed components of social capital. The correlation coefficients were calculated for three income groups of countries. In this case the research period covered the years 2008-2017. Tables 4, 6 and 8 show the values of correlation coefficients obtained for relationships between the studied components of social capital statistically significant for changes in economic development of a given group of countries and other elements of social capital. In these tables the values of correlation coefficients are ranked according to the strength of relationships between the studied components of social capital. The results obtained can be used as guidelines for planning economic policy.

It is worth recalling that the interpretation of correlation coefficients differs according to the number of observations. For smaller samples correlation coefficients can be high and not statistically significant, and for larger samples low and significant. Therefore, in order to ensure the comparability of the obtained results, our research assumed the same size of the income-level groups of countries, which each time gave the number of observations amounting to 320.

We also used a cluster analysis in order to examine similarities and dissimilarities between the analysed income-level groups of countries. Based on this multivariate data mining technique, it is possible to determine which variables have a stronger mutual influence on each other in a given group of countries. The cluster analysis was carried out with the help of the method of agglomeration based on Chebyshev distance, which is a generalised version of Euclidean distance between variables. The results of the cluster analysis have been presented graphically in a dendrogram. The branches of it represent distances between the examined variables (see: Brian et al., 2011).

The statistical analysis was carried out to verify the following hypotheses:

H1: The importance of the studied components of social capital in stimulating the welfare growth changes depending on the stage of economic development.

H2: The influence of the studied components of social capital on economic development is strongest in high-income countries.

H3: Government effectiveness as defined by the World Bank, ethical behaviour and reliance on professional management are necessary conditions for accelerating economic development.

4. Results

The interdependency between higher value of social capital indicators and the increase in GDP *pc*, GDPCP *pc*, and GNI *pc* have been confirmed by Spearman's rank correlation analysis for a whole set of countries. All correlation coefficients are positive and statistically significant on the level of 0.05 (Table 2). Moreover, this positive influence of social capital on economic development continues over time. Therefore, in the situation when coefficients are positive and statistically significant, we can state that social capital development is accompanied by an increase in the national wealth of examined countries.

Table 2.

Spearman's Rank Correlation Coefficients for the Relationship between Components of Social Capital and GDP pc, GDP_{CP} pc, GNI pc in USD, 96 countries, 2008-2020

N = 960	GE	DPF	PTP	FGO	TGP	EBF	CLE	RPM	SCD	WDA	UIC
GDP pc_{t0}	0.89*	0.64*	0.49*	0.53*	0.62*	0.68*	0.51*	0.69*	0.66*	0.71*	0.74*
GDP pc_{t+1}	0.89*	0.64*	0.49*	0.53*	0.62*	0.67*	0.52*	0.69*	0.66*	0.71*	0.74*
GDP pc_{t+2}	0.89*	0.64*	0.49*	0.54*	0.62*	0.68*	0.52*	0.70*	0.66*	0.71*	0.74*
GDP pc_{t+2}	0.89*	0.65*	0.49*	0.54*	0.62*	0.68*	0.53*	0.70*	0.66*	0.71*	0.74*
GDCP pc_{t0}	0.89*	0.64*	0.49*	0.53*	0.62*	0.68*	0.52*	0.69*	0.67*	0.72*	0.74*
GDCP pc_{t+1}	0.89*	0.64*	0.49*	0.53*	0.62*	0.68*	0.52*	0.69*	0.67*	0.72*	0.74*
GDCP pc_{t+2}	0.89*	0.64*	0.49*	0.53*	0.62*	0.68*	0.53*	0.70*	0.67*	0.72*	0.74*
GDCP pc_{t+2}	0.89*	0.64*	0.49*	0.53*	0.62*	0.68*	0.53*	0.70*	0.67*	0.71*	0.74*
GDP pc_{t0}	0.89*	0.64*	0.49*	0.54*	0.61*	0.67*	0.51*	0.69*	0.66*	0.71*	0.74*
GNI pc_{t+1}	0.89*	0.64*	0.49*	0.54*	0.62*	0.67*	0.51*	0.69*	0.66*	0.71*	0.74*
GNI pc_{t+2}	0.89*	0.65*	0.49*	0.54*	0.62*	0.67*	0.52*	0.69*	0.66*	0.71*	0.74*
GNI pc_{t+2}	0.89*	0.65*	0.49*	0.54*	0.62*	0.68*	0.52*	0.69*	0.66*	0.71*	0.74*

Note. N – number of observations, * p <0.05.

GE - government effectiveness, DFP - diversion of public funds due to corruption, PTP - public trust in politicians; FGO - favouritism in decisions of government officials, TGP - transparency of government policymaking affecting business activities, EBF - ethical behaviour of firms, CLE - cooperation in labour-employer relations, RPM - reliance on professional management, SCD - State of cluster development, WDA - willingness to delegate authority, UIC - university-industry collaboration in R&D, GDP *pc* - gross domestic product per capita in current prices, GDPPC *pc* - gross domestic product per capita in constant prices, GNI *pc* - national income per capita in current prices.

Source: Authors' calculations.

For a whole set of countries an economic development growth is the most strongly positively correlated with an increase in the World Bank indicator of government effectiveness (0.89). The strong correlation coefficients (above 0.60) occur also in the case of the interdependency between an increase in economic development and university-industry collaboration in R&D (1st place), willingness to delegate authority (2nd place), ethical behaviour of firms (3rd place), reliance on professional management (4th place), state of cluster development (5th place), transparency of government policymaking affecting business activities (6th place), and diversion of public funds due to corruption (7th place). On the other hand, the weakest correlation coefficient was obtained for public trust in politicians.

Tables 3 and 4 present the research results obtained for low-income countries. The correlation coefficients are statistically significant and positive for relationships between an increase in economic development and state of cluster development (0.28), willingness to delegate authority to subordinates (0.27), the World Bank indicator of government effectiveness (0.24), cooperation in labour-employer relations (0.21), transparency of government policymaking (0.13), and reliance on professional management (0.12).

Table 3.
Spearman's rank correlation coefficients for the relationship between components of social capital and GDP pc, GDP_{CP} pc, GNI pc in USD, 32 low-income countries, 2008-2020

N = 320	GE	DPF	PTP	FGO	TGP	EBF	CLE	RPM	SCD	WDA	UIC
GDP pc_{t0}	0.24*	0.04	-0.02	-0.12*	0.09	0.11	0.21*	0.13*	0.28*	0.27*	0.08
GDP pc_{t+1}	0.23*	0.05	-0.04	-0.12*	0.10	0.09	0.20*	0.14*	0.28*	0.27*	0.08
GDP pc_{t+2}	0.23*	0.06	-0.05	-0.12*	0.10	0.09	0.22*	0.17*	0.28*	0.27*	0.06
GDP pc_{t+2}	0.23*	0.06	-0.06	-0.13*	0.09	0.10	0.24*	0.18*	0.28*	0.26*	0.04
GDCP pc_{t0}	0.21*	0.08	-0.04	-0.13*	0.06	0.10	0.20*	0.16*	0.34*	0.31*	0.07
GDCP pc_{t+1}	0.20*	0.08	-0.05	-0.13*	0.07	0.10	0.21*	0.17*	0.34*	0.32*	0.07
GDCP pc_{t+2}	0.20*	0.08	-0.05	-0.13*	0.07	0.11	0.21*	0.18*	0.34*	0.32*	0.07
GDCP pc_{t+2}	0.21*	0.07	-0.06	-0.13*	0.08	0.11	0.22*	0.19*	0.34*	0.30*	0.07
GDP pc_{t0}	0.25*	0.08	0.02	-0.08	0.08	0.10	0.20*	0.11*	0.28*	0.26*	0.07
GNI pc_{t+1}	0.25*	0.09	0.00	-0.08	0.09	0.08	0.19*	0.12*	0.28*	0.26*	0.08
GNI pc_{t+2}	0.25*	0.09	-0.02	-0.09	0.10	0.09	0.21*	0.14*	0.28*	0.26*	0.07
GNI pc_{t+2}	0.25*	0.09	-0.03	-0.10	0.09	0.10	0.23*	0.16*	0.29*	0.25*	0.05

Note. N – number of observations, * $p < 0.05$.

GE - government effectiveness, DFP - diversion of public funds due to corruption, PTP - public trust in politicians; FGO - favouritism in decisions of government officials, TGP - transparency of government policymaking affecting business activities, EBF - ethical behaviour of firms, CLE - cooperation in labour-employer relations, RPM - reliance on professional management, SCD - State of cluster development, WDA - willingness to delegate authority, UIC - university-industry collaboration in R&D, GDP *pc* - gross domestic product per capita in current prices, GDPPC *pc* - gross domestic product per capita in constant prices, GNI *pc* - national income per capita in current prices.

Source: Authors' calculations.

The negative and statistically significant correlation coefficients occur only in the case of favouritism in decisions of government officials to well-connected firms and individuals when deciding upon policies and contracts. However, the negative correlation coefficients for FGO were low and in the case of GNI *pc* not statistically significant.

Taking into account the first 5 places (Table 4), only ethical behaviour of firms in interactions with public officials, politicians, and other firms is statistically significantly correlated with six elements of social capital influencing economic development of the analyzed low-income countries. Diversion of public funds due to corruption ranks second in this category. It is statistically significantly correlated with five of the six components of social capital that are drivers of economic development in this group of countries. Reduction in the scale of DPF is most strongly correlated with an increase in government effectiveness as defined by the World Bank.

The scale of corruption is influenced by many factors, including socially approved behavior of those ruling the country or the lack of social control over the actions of people who have access to public funds. The research results, therefore, indicate that in the group of low-income countries a value system, which constitutes the core of national culture, is already a strategic factor, which can either slow down or accelerate the growth of prosperity.

Table 4.
Spearman's rank correlation coefficients for the statistically significantly relationship between components of social capital, 32 low-income countries, 2008-2017

Place	SCD	WDA	GE	CLE	RPM	FGO
1	UIC: 0.51	RPM: 0.66	DPF: 0.43	EBF: 0.54	WDA: 0.66	PTP: 0.82
2	WDA:0.49	EBF: 0.58	EBF: 0.43	RPM: 0.48	EBF: 0.60	DPF: 0.77
3	EBF: 0.46	SCD: 0.49	PTP: 0.40	TGP: 0.46	TGP: 0.55	EBF: 0.61
4	DPF: 0.43	UIC: 0.47	SCD: 0.39	WDA: 0.40	CLE: 0.48	UIC: 0.49
5	GE: 0.39	DPF: 0.42	UIC: 0.38	DPF: 0.31	SCD: 0.39	TGP: 0.41
6	RPM: 0.39	CLE: 0.40	TGP: 0.35	UIC: 0.29	UIC: 0.37	GE: 0.35
7	PTP: 0.37	TGP: 0.38	FGO: 0.35	SCD: 0.27	DPF: 0.30	SCD: 0.28
8	FGO: 0.28	PTP: 0.30	WDA: 0.25	PTP: 0.26	GE: 0.23	WDA: 0.26
9	TGP: 0.28	FGO: 0.26	RPM: 0.23	FGO: 0.25	FGO: 0.19	CLE: 0.25
10	CLE: 0.27	GE: 0.25	CLE: 0.22	GE: 0.22	PTP: 0.12	RPM: 0.19

GE - government effectiveness, DFP - diversion of public funds due to corruption, PTP - public trust in politicians; FGO - favouritism in decisions of government officials, TGP - transparency of government policymaking affecting business activities, EBF - ethical behaviour of firms, CLE - cooperation in labour-employer relations, RPM - reliance on professional management, SCD - State of cluster development, WDA - willingness to delegate authority, UIC - university-industry collaboration in R&D.

Source: Authors' calculations.

The values of statistically significant correlation coefficients obtained for middle-income economies (Table 5) suggest that the higher level of such indicators of social capital as university-industry collaboration in R&D, state of cluster development, government effectiveness, willingness to delegate authority, and reliance on professional management, the faster the economic development of this group of countries.

In the group of middle-income economies only the negative and statistically significant coefficients occurred for association between cooperation in labour-employer relations and economic development. It is due to the fact that middle-income countries are often industrial societies operating like a factory with a vertical hierarchy structure. Power in such countries is concentrated in the hands of a small number of people who centralise the decision-making

process. In other words, there is no question of greater participation of workers or citizens in management, which is characteristic for the autocratic management style.

Table 5.
Spearman's rank correlation coefficients for the relationship between components of social capital and GDP pc, GDP_{CP} pc, GNI pc in USD, 32 middle-income countries, 2008-2020

N = 320	GE	DPF	PTP	FGO	TGP	EBF	CLE	RPM	SCD	WDA	UIC
GDP pc_{t0}	0.25*	-0.12	-0.01	-0.08	-0.07	0.00	-0.20*	0.17*	0.34*	0.19*	0.38*
GDP pc_{t+1}	0.26*	-0.11	0.01	-0.07	-0.03	0.00	-0.19*	0.18*	0.36*	0.18*	0.39*
GDP pc_{t+2}	0.26*	-0.09	0.01	-0.06	-0.03	0.01	-0.16*	0.20*	0.35*	0.18*	0.39*
GDP pc_{t+2}	0.26*	-0.07	0.01	-0.04	-0.05	0.03	-0.15*	0.19*	0.33*	0.16*	0.37*
GDCP pc_{t0}	0.25*	-0.12	-0.02	-0.08	-0.05	0.01	-0.15*	0.21*	0.39*	0.25*	0.39*
GDCP pc_{t+1}	0.25*	-0.11	-0.01	-0.07	-0.04	0.01	-0.14*	0.20*	0.39*	0.24*	0.39*
GDCP pc_{t+2}	0.26*	-0.10	-0.01	-0.07	-0.04	0.00	-0.13*	0.20*	0.39*	0.23*	0.38*
GDCP pc_{t+2}	0.26*	-0.09	-0.01	-0.06	-0.03	0.01	-0.13*	0.19*	0.38*	0.19*	0.38*
GDP pc_{t0}	0.25*	-0.11	-0.01	-0.08	-0.08	-0.00	-0.21*	0.17*	0.34*	0.19*	0.38*
GNI pc_{t+1}	0.26*	-0.10	0.01	-0.07	-0.03	-0.00	-0.19*	0.18*	0.36*	0.18*	0.40*
GNI pc_{t+2}	0.26*	-0.09	0.01	-0.06	-0.03	0.01	-0.17*	0.20*	0.35*	0.18*	0.39*
GNI pc_{t+2}	0.26*	-0.07	0.00	-0.04	-0.06	0.02	-0.15*	0.19*	0.34*	0.16*	0.38*

Note. N – number of observations, * $p < 0.05$.

GE - government effectiveness, DFP - diversion of public funds due to corruption, PTP - public trust in politicians; FGO - favouritism in decisions of government officials, TGP - transparency of government policymaking affecting business activities, EBF - ethical behaviour of firms, CLE - cooperation in labour-employer relations, RPM - reliance on professional management, SCD - State of cluster development, WDA - willingness to delegate authority, UIC - university-industry collaboration in R&D, GDP *pc* - gross domestic product per capita in current prices, GDPPC *pc* - gross domestic product per capita in constant prices, GNI *pc* - national income per capita in current prices.

Source: Authors' calculations.

However, the transition from an autocratic to a democratic management style is a prerequisite for further social development. The research results presented in Table 6 indicate that in the group of middle-income countries the reduction of the scale of confrontational labour-employ relations was most strongly associated with accelerating actions aimed at:

- increasing transparency of government policymaking that affects business activities,
- reducing favouritism in decisions of government officials to well-connected firms and individuals,
- promoting ethical behaviour of firms in interactions with public officials, politicians, and other firms,
- increasing the scale of willingness to delegate authority to subordinates.

Taking into account the first 5 places, again only ethical behaviour of firms was statistically significantly correlated with six elements of social capital influencing the economic development of the middle-income countries. Ethical behaviour by companies was the most positively correlated with an increase in the World Bank's government effectiveness index. Comparing with the group of low-income countries, the strength of this association increased from 0.40 to 0.62. The same trend occurred for the correlations between GE and diversion of public funds due to corruption (increase from 0.43 to 0.60) and public trust in politicians (increase from 0.40 to 0.51).

In the groups of low- and middle-income country group, as increase in reliance on professional management was most strongly correlated with an increase in willingness to delegate authority. In the middle-income country group compared to the low-income country group, higher values of correlation coefficients were obtained for associations between RPM and favouritism in decisions by government officials of well-connected firms and individuals (by 0.22), government effectiveness (by 0.20), public trust in politicians (by 0.14), state of cluster development (by 0.13), university-industry collaboration in R&D (by 0.11), and diversion of public funds due to corruption (by 0.6).

Table 6.
Spearman's rank correlation coefficients for the statistically significantly relationship between components of social capital, 32 middle-income countries, 2008-2017

Place	UIC	SCD	GE	WDA	CLE	RPM
1	SCD: 0.70	UIC: 0.70	EBF: 0.62	RPM: 0.61	TGP: 0.45	WDA: 0.61
2	RPM: 0.48	WDA: 0.60	DPF: 0.60	SCD: 0.60	FGO: 0.40	EBF: 0.56
3	WDA: 0.46	RPM: 0.52	PTP: 0.51	UIC: 0.46	EBF: 0.36	SCD: 0.52
4	EBF: 0.35	EBF: 0.47	FGO: 0.48	EBF: 0.42	WDA: 0.35	UIC: 0.48
5	GE: 0.31	GE: 0.45	TGP: 0.47	CLE: 0.35	SCD: 0.29	GE: 0.43
6	TGP: 0.25	TGP: 0.36	SCD: 0.45	GE: 0.24	PTP: 0.27	FGO: 0.41
7	FGO: 0.24	FGO: 0.31	RPM: 0.43	FGO: 0.23	DPF: 0.25	TGP: 0.37
8	PTP: 0.24	CLE: 0.29	UIC: 0.31	TGP: 0.23	RPM: 0.21	DPF: 0.36
9	DPF: 0.12	PTP: 0.23	WDA: 0.24	PTP: 0.14		PTP: 0.27
10		DPF: 0.17		DPF: 0.13		CLE: 0.21

GE - government effectiveness, DFP - diversion of public funds due to corruption, PTP - public trust in politicians; FGO - favouritism in decisions of government officials, TGP - transparency of government policymaking affecting business activities, EBF - ethical behaviour of firms, CLE - cooperation in labour-employer relations, RPM - reliance on professional management, SCD - State of cluster development, WDA - willingness to delegate authority, UIC - university-industry collaboration in R&D.

Source: Authors' calculations.

Based on this, it can be concluded that the results of our research show how the professional management along with ethical behavior of government and firm are important for accelerating the rate of economic development. For middle-income countries still stuck in the industrial era to achieve this, the social structure must change. In other words, a new model of social stratification should be introduced at the stage of industrial society.

This model of social structure is shaped by the following main principles. One of them is the principle of equality before the law of all members of society. This principle together with universal suffrage forms the foundation of every democratic system. The state should also create such social institutions that would guarantee equal opportunities and ensure an equal start in life. These rules lead to an increase in social mobility and management professionalization. In this case, a social position depends on diligence and willingness to take advantage of the educational system's offers. Then the elites with power are formed naturally and have both informal and formal authority.

In the group of middle-income countries the strongest positive correlation occurred between university-industry collaboration in R&D and state of cluster development (0.70). Recalling there are two elements of social capital that had the greatest impact on economic development of this group of countries in the research period. It is due to the fact that in middle-income countries the innovation activity and the commercialisation of new technologies take place more and more often in various types of clusters, techno-parks, business incubators and technology transfer centres.

These institutional arrangements form an infrastructure that facilitates knowledge sharing and diffusion of technological progress as a result of fostering the cooperation on innovation activities among domestic and foreign enterprises, universities and other scientific research units. All of them can improve social capital, making the cooperation more effective, as well as develop knowledge more focused on the needs of the industry. They are an important part of the National Innovation System (NIS). The NIS should operate as a network of various interconnected institutions of the public and private sectors that constitute inspiring conditions for knowledge acquisition, development and diffusion (compare: Kuczewska, Tomaszewski, 2022; Lis, Majewska, 2016; Nelson, 1998; Nelson, Romer, 1996; Porter 1990).

Table 7.
Spearman's rank correlation coefficients for the relationship between components of social capital and GDP pc, GDP_{CP} pc, GNI pc in USD, 32 high-income countries, 2008-2020

N = 320	GE	DPF	PTP	FGO	TGP	EBF	CLE	RPM	SCD	WDA	UIC
GDP pc_{t0}	0.75*	0.74*	0.73*	0.69*	0.63*	0.71*	0.64*	0.71*	0.62*	0.74*	0.66*
GDP pc_{t+1}	0.76*	0.74*	0.73*	0.69*	0.65*	0.70*	0.66*	0.71*	0.63*	0.74*	0.66*
GDP pc_{t+2}	0.76*	0.75*	0.75*	0.70*	0.67*	0.71*	0.68*	0.73*	0.63*	0.74*	0.66*
GDP pc_{t+2}	0.77*	0.75*	0.75*	0.70*	0.65*	0.73*	0.68*	0.72*	0.62*	0.74*	0.67*
GDCP pc_{t0}	0.77*	0.75*	0.75*	0.68*	0.66*	0.71*	0.67*	0.71*	0.64*	0.74*	0.68*
GDCP pc_{t+1}	0.76*	0.75*	0.75*	0.68*	0.66*	0.70*	0.68*	0.71*	0.64*	0.74*	0.68*
GDCP pc_{t+2}	0.77*	0.75*	0.75*	0.68*	0.67*	0.70*	0.68*	0.71*	0.65*	0.74*	0.68*
GDCP pc_{t+2}	0.77*	0.75*	0.75*	0.68*	0.67*	0.70*	0.68*	0.71*	0.64*	0.73*	0.69*
GDP pc_{t0}	0.76*	0.72*	0.74*	0.70*	0.61*	0.71*	0.64*	0.71*	0.65*	0.75*	0.66*
GNI pc_{t+1}	0.77*	0.73*	0.74*	0.69*	0.64*	0.70*	0.66*	0.71*	0.66*	0.71*	0.67*
GNI pc_{t+2}	0.77*	0.74*	0.75*	0.70*	0.66*	0.71*	0.68*	0.72*	0.65*	0.76*	0.67*
GNI pc_{t+2}	0.77*	0.74*	0.75*	0.70*	0.64*	0.73*	0.68*	0.71*	0.64*	0.76*	0.67*

Note. N – number of observations, * p <0.05.

GE - government effectiveness, DFP - diversion of public funds due to corruption, PTP - public trust in politicians; FGO - favouritism in decisions of government officials, TGP - transparency of government policymaking affecting business activities, EBF - ethical behaviour of firms, CLE - cooperation in labour-employer relations, RPM - reliance on professional management, SCD - State of cluster development, WDA - willingness to delegate authority, UIC - university-industry collaboration in R&D, GDP *pc* - gross domestic product per capita in current prices, GDPPC *pc* - gross domestic product per capita in constant prices, GNI *pc* - national income per capita in current prices.

Source: Authors' calculations.

Table 7 presents the results of correlation analysis for high-income countries. As would be expected in the case of high-income countries, all correlation coefficients are statistically significant, positive, and the highest among the analysed groups of economies. According to country's development path theory, it may be due to the fact that the significant impact of social

capital on economic development appears only after a country has accumulated the sufficient stock of it. This requires first planning a long-term policy of social capital development by experts, and then its effective implementation by successive governments.

In the group of high-income countries an economic development growth was the most positively correlated with both a decline in diversion of public funds due to corruption as well as an increase in public trust in politicians and ethical corporate behaviour. The weakest correlation coefficient was obtained for state of cluster development, public trust in politicians, and cooperation in labour-employer relations. However, these correlation coefficients were significantly higher than those calculated for middle-income countries.

The research results presented in Table 8 illustrate the strength and direction of associations between all elements of social capital that occurred in the group of high-income countries. The strongest positive correlation between elements of social capital was 0.93. It appeared first for the relationship between diversion of public funds due to corruption and favouritism in decisions of government officials to well-connected firms and individuals, second for the relationship between ethical behaviour of firms and public trust in politicians, third for the relationship between FGO and PTP.

Table 8.
Spearman's rank correlation coefficients for the statistically significantly relationship between components of social capital, 32 high-income countries, 2008-2017

Place	GE	DPF	WDA	PTP	EBF	RPM	UIC	FGO	CLE	TGP	SCD
1	DPF: 0.84	FGO: 0.93	RPM: 0.88	FGO: 0.93	DPF: 0.93	WDA: 0.88	SCD: 0.75	DPF: 0.93	FGO: 0.78	DPF: 0.86	UIC: 0.75
2	EBF: 0.83	EBF: 0.93	FGO: 0.78	DPF: 0.93	FGO: 0.90	FGO: 0.86	RPM: 0.72	PTP: 0.93	TGP: 0.78	PTP: 0.84	GE: 0.70
3	FGO: 0.81	PTP: 0.93	DPF: 0.77	EBF: 0.88	PTP: 0.88	DPF: 0.85	GE: 0.71	EBF: 0.90	DPF: 0.77	FGO: 0.83	FGO: 0.61
4	PTP: 0.81	TGP: 0.86	PTP: 0.76	TGP: 0.84	RPM: 0.83	EBF: 0.83	WDA: 0.68	RPM: 0.86	PTP: 0.77	CLE: 0.78	CLE: 0.60
5	TGP: 0.77	RPM: 0.85	EBF: 0.75	RPM: 0.81	GE: 0.83	PTP: 0.81	DPF: 0.65	TGP: 0.83	EBF: 0.76	EBF: 0.77	PTP: 0.59
6	RPM: 0.76	GE: 0.84	GE: 0.73	GE: 0.81	TGP: 0.77	GE: 0.76	EBF: 0.64	GE: 0.81	GE: 0.73	GE: 0.77	RPM: 0.59
7	CLE: 0.73	CLE: 0.77	CLE: 0.71	CLE: 0.77	CLE: 0.76	TGP: 0.74	FGO: 0.64	CLE: 0.78	WDA: 0.71	RPM: 0.74	TGP: 0.57
8	WDA: 0.73	WDA: 0.77	UIC: 0.68	WDA: 0.76	WDA: 0.75	UIC: 0.72	PTP: 0.60	WDA: 0.78	RPM: 0.69	WDA: 0.65	DPF: 0.57
9	UIC: 0.71	UIC: 0.65	TGP: 0.65	UIC: 0.60	UIC: 0.64	CLE: 0.69	TGP: 0.58	UIC: 0.64	SCD: 0.60	UIC: 0.58	EBF: 0.56
10	SCD: 0.70	SCD: 0.57	SCD: 0.55	SCD: 0.59	SCD: 0.56	SCD: 0.59	CLE: 0.56	SCD: 0.61	UIC: 0.56	SCD: 0.57	WDA: 0.55

GE - government effectiveness, DFP - diversion of public funds due to corruption, PTP - public trust in politicians; FGO - favouritism in decisions of government officials, TGP - transparency of government policymaking affecting business activities, EBF - ethical behaviour of firms, CLE - cooperation in labour-employer relations, RPM - reliance on professional management, SCD - State of cluster development, WDA - willingness to delegate authority, UIC - university-industry collaboration in R&D.

Source: Authors' calculations.

The findings suggest that the examined high-income countries are already post-industrial societies to a greater or lesser extent. In the context considered in work, knowledge gives access to power in a post-industrial society. Social position depends on diligence and willingness to take advantage of the educational system's offers. Decision makers, i.e., those who have power, are not only professionals, but also people who put the common good over their own self-interest. The science sector is independent from government and business, which is manifested in the freedom of teaching and research. The prevailing political system is participatory democracy. All citizens participate in society according to the same principles. Decisions about the future of society are made with them. Decentralization in the management of the public and private sectors is very common.

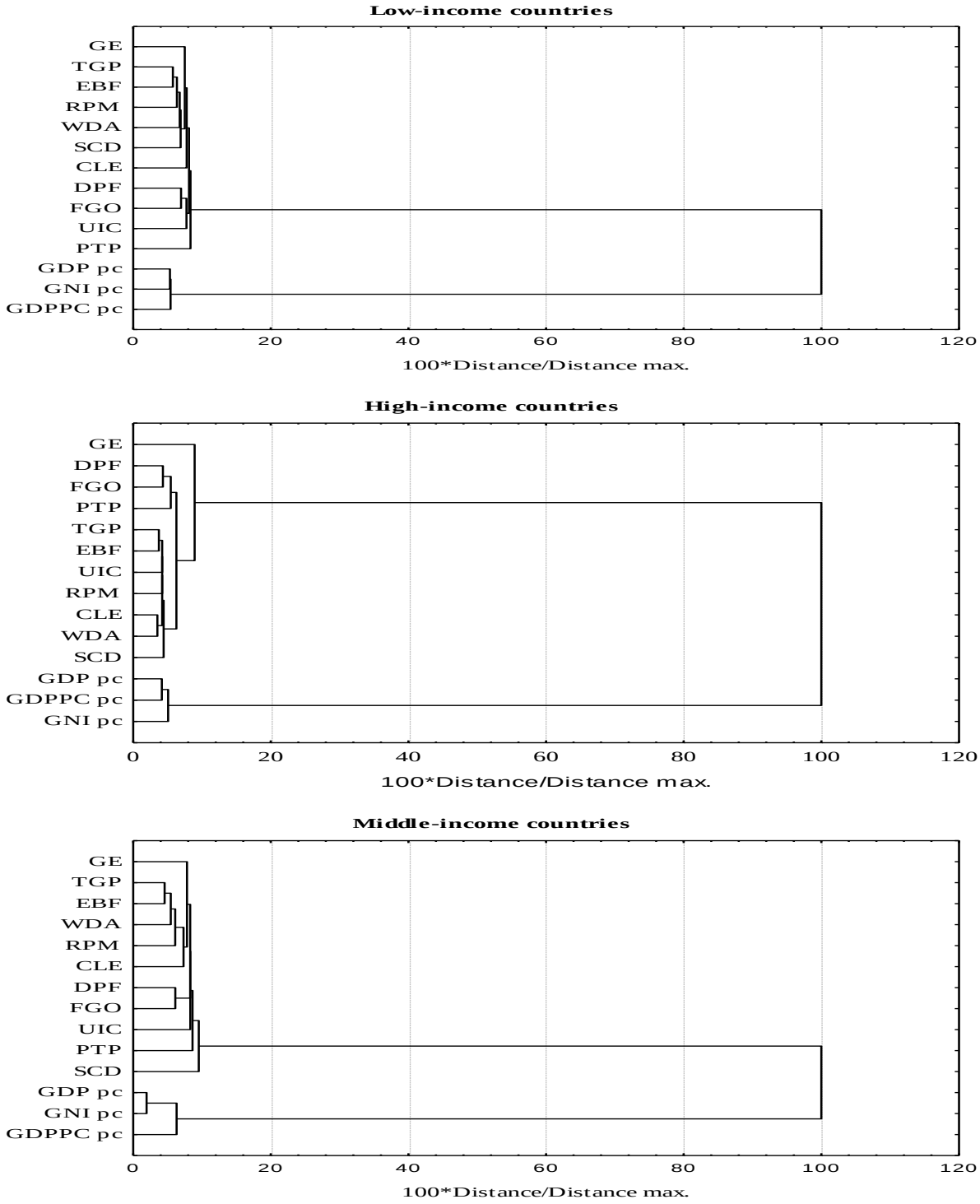
The results of the cluster analysis (Figure 1) carried out with the help of the method of agglomeration based on the Chebyshev distance show that the low-income countries display two main clusters between the examined components of social capital. The first cluster covers the diversion of public funds due to corruption, favouritism in the decisions of government officials, university-industry collaboration in R&D, and public trust in politicians.

The second cluster covers transparency of government policymaking affecting business activities, ethical behaviour of firms, reliance on professional management, willingness to delegate authority, and state of cluster development. At longer distances the cluster is joined by government effectiveness and cooperation in labour-employer relations. In the second cluster, the five components of social capital are closer in terms of distance. This suggests that the variables forming the second cluster may influence one another more strongly.

In the analysed low-income countries, the indicators of economic development join the second cluster of components of social capital and government effectiveness through the first cluster. Hence, the research results indicate that without the implementation of a state policy to improve the studied components of social capital forming the first cluster, the impact of the second cluster on economic development will be lower.

In the group of middle-income countries, we also deal with two main clusters of components of social capital joined at longer nodes by government effectiveness and state of cluster development. The first cluster is created by the transparency of government policymaking affecting business activities, ethical behaviour of firms, reliance on professional management and cooperation in labour-employer relations. In this cluster, transparency of government policymaking affecting business activities and ethical behaviour of firms are closest in terms of distances between them, and this phenomenon is based on the principle that the example often comes from the top. In other words, if politicians are dishonest and get away with it, companies can also behave unfairly in the market.

The second cluster covers the diversion of public funds due to corruption, favouritism in government officials' decisions, university-industry collaboration in R&D, and public trust in politicians. In the second cluster, there are longer distances (weaker links) between variables than in the first cluster. Thus, the components of social capital constituting the second cluster interact less with each other.



GE - government effectiveness, DFP - diversion of public funds due to corruption, PTP - public trust in politicians; FGO - favouritism in decisions of government officials, TGP - transparency of government policymaking affecting business activities, EBF - ethical behaviour of firms, CLE - cooperation in labour-employer relations, RPM - reliance on professional management, SCD - State of cluster development, WDA - willingness to delegate authority, UIC - university-industry collaboration in R&D, GDP *pc* - gross domestic product per capita in current prices, GDPPC *pc* - gross domestic product per capita in constant prices, GNI *pc* - national income per capita in current prices.

Figure 1. Dendrogram for selected variables of surveyed countries clustered using Chebyshev distance in 2008-2017.

Source: Authors' calculations.

The indicators' of economic development first connect with cluster development. Next, they connect through this node with university-industry collaboration in R&D, and then with the rest of the components of social capital. This again shows that in the case of middle-income countries, cluster development with university-industry collaboration in R&D is the engine of technological progress.

Countries with a high level of income explicitly demonstrate a larger similarity to the analysed features. Moreover, indicators of social capital and economic development that we have examined influence one another more strongly in the group of high-income countries than in the groups of economies with lower levels of income. The results of our study again prove that the impact of social capital on economic development is strongest in high-income countries.

In the case of high-income countries, the measures of economic development first connect with the World Bank indicator of government effectiveness, and this node joins the rest of the variables. Therefore, the results of our study illustrate the importance of the quality of government activities in the area of social capital development for increasing the well-being of society.

High-income countries display two main clusters among the examined components of social capital. The first larger and closer cluster contains seven variables for which the distances are smaller and more similar. These variables are transparency of government policymaking affecting business activities, ethical behaviour of firms, university-industry collaboration in R&D, reliance on professional management, cooperation in labour-employer relations, willingness to delegate authority, and state of cluster development. The second cluster includes the diversion of public funds due to corruption, favouritism in the decisions of government officials, and public trust in politicians.

5. Discussion

The findings of our research confirmed that social capital is becoming an increasingly important source of improving a country’s welfare along with achieving the next stage of economic development. Thus, the impact of social capital indicators on economic development is the strongest in countries with high levels of welfare.

It results, among others, from the fact that moving to the next stage of economic development requires growing scale of innovative activity concerning various areas of people's lives, not only the economy. Hence, the interdependency between university-industry cooperation in R&D and economic development appeared only in the case of middle-income countries, and its strength has clearly increased for high-income countries.

Therefore, our findings suggest that without the support of universities and academies, it is impossible to build well-functioning innovation system in developing countries, which would strengthen competitive advantages. Universities and academies not only in developing countries are the important sources of knowledge and should provide staff for the public and private sectors. As a result, the scale of management professionalization is growing. Firstly, it is connected with the participatory decision-making model, which is characterized by willingness to delegate authority to subordinates, i.e. decentralisation of management. Secondly, it is connected with ethical behavior of firms and transparency of government policymaking. Referring to the literature review, the above conclusions are confirmed by the research results of Hvižďáková and Urbančíková (2014), Leeves (2014), Jalles and Tavares (2015), Peiró- Palomino (2016), Lee and Law (2017), Madrysz (2020), Cáceres-Carrasco, Santos and Guzmán (2020), Kabakçi Günay and Sülün (2021).

According to an American sociologist Daniel Bell (1973, 1976), universities and academies to fulfill this task should operate as in the concept of a higher education institution proposed by Wilhelm von Humboldt. Humboldt's dream was to create an education system that would guarantee all social classes better access to education and academic freedom understood as independence of universities and academies from outside governmental and economic constraints.

Humboldt encouraged the University of Berlin to operate according to his concept. The University of Berlin was opened in 1810 and was supposed to educate and conduct research at the same time, which was then a breakthrough innovation in science. The University of Berlin was financed by the state, but spending of the budget was independent of the government. In this situation the University of Berlin could develop according to scientific criteria and not the immediate needs of people in power.

As Bell explains, the condition for accelerating social development is not subordinating scientific research to the goals set by the state or business representatives, but maintenance of autonomy in the operation of universities and other institutions forming the science sector. In fact, people who govern preindustrial and industrial societies may be afraid of scientists and other knowledge workers and do not want to delegate authority to them. In preindustrial and industrial societies formal rather than informal authority gives a higher social position, which is mistakenly identified with wealth and the possibility of centralizing management in the hands of a small group of people. Then we are dealing with negative social capital, which slows down or even reduces economic development. It is worth emphasizing that Bell's considerations written in the 1970s are currently valid and will be in the future, similarly to the previously quoted Bourdieu, Coleman, Putnam and Fukuyama.

This does not mean the hegemony of universities and academies in setting research directions. On the contrary, it becomes necessary to create a platform facilitating communication and cooperation between the government, scientists, economists, entrepreneurs and other entities participating in or using innovation activities. This is important for both

sectors in terms of the future ability of the private sector to commercialize research results and legitimize research efforts in the public sector.

As American economist Paul Romer (1990, 1993) explains, it's about not wasting efforts and resources on socially useless goals when there are so many wonderful things to discover. He also emphasizes that an economy must be viewed as a common good. According to him, it means funding by government those research areas that are socially important, such as health care, environmental protection or education. Entrepreneurs may not be willing to cover the costs of such research efforts. Therefore, one can concluded that governments thinking about the development of the country should finance basic research. This is justified because the diffusion of knowledge obtained through such research is important for strengthening the basic knowledge base of a given society, which determines its development possibilities and for improving the quality of life.

The research results indicate also that such dimensions of social capital as honesty, egalitarianism, equality of treatment, and democratic decision making should be adopted as patterns of behaviour in both private and public sectors and in cooperation between them. Without this, social development, including economic development, cannot accelerate. This happens because it is reflected in improving the effectiveness of organisational arrangements applied at the national level and in companies because of the decline in corruption and nepotism and an increase in the professionalism of management. Our conclusions confirm findings obtained for example by Kaldaru and Parts (2005), Cheng and Mittelhammer (2008), Doh and McNeely (2012), Golubović, Džunić and Marinković (2014), Loakimidis and Heijke (2016).

6. Conclusions

Considering the results of our statistical analysis, it is sufficient evidence in the three income group of countries in favour of our first hypothesis (H1) that the importance of the examined components of social capital in stimulating welfare growth changes depending on the stage of economic development. Thus, the results of this research can answer an extremely important question concerning economic development. This is why poor developing countries are unable to catch up with rich developed countries. One of the important reasons can be differences in both the level and effectiveness of investing in social capital development.

Our findings confirm our second hypothesis (H2) that social capital in high-income countries is a more important factor in increasing economic development than in low- and middle-income countries. In other words, social capital is becoming an increasingly important source of improving a country’s welfare and achieving the next stage of economic development.

Hence, countries at earlier stages of economic development should invest not only in physical and human capital but also in social capital. This will allow them to become societies with a higher level of welfare and reduce the risk of being stuck in an industrial society with an outdated production structure powered predominantly by energy from non-renewable sources. Again, it will not be possible without competent and socially - oriented governments, thinking in the long-term perspective and not solely focussing on staying in power and enriching themselves at the expense of society.

The statistical analysis was carried out also to verify our third hypothesis (H3) that government effectiveness as defined by the World Bank and reliance on professional management are necessary conditions for accelerating economic development. In the three income groups of countries, the same four components of social capital are statistically significant and positive: government effectiveness as defined by the World Bank, reliance on professional management relating to whether in a given country senior management positions hold relatives and friends without regard to merit, or professional managers chosen for merit and qualifications, state of cluster development, and willingness to delegate authority. These components of social capital can be called strategic success factors on the way to prosperity. Therefore, we have sufficient evidence to support our third hypothesis.

Moreover, our findings indicate that in low-income countries, a value system, at the core of a nation's culture, is already a strategic factor that can either slow down or accelerate prosperity. Therefore, governments of low-income countries, in addition to improving strategic success factors on the way to prosperity, should especially focus on upgrading the situation in the areas of public trust in politicians, favouritism in decisions of government officials to well-connected firms or individuals, and diversion of public funds due to corruption. These three variables had the lowest values among all the analysed components of social capital in this group of countries.

The findings also allow us to conclude that in the case of middle-income countries state of cluster development together with university-industry collaboration in R&D are the engines of technological progress. Thus, in this group of economies, it is essential to build NSIs. At this stage of economic development, the main tasks of the NSI should be to improve knowledge absorption from abroad and to strengthen activities aimed at its assimilation and implementation in both private and public sectors. This is because the development of knowledge absorption capacity from various channels through which it flows, positively influences an increase in expenditures on R&D activities.

Therefore, transformation to the post-industrial stage of economic development will also not be possible without the development of communication and cooperation skills between people who create and commercialise knowledge as well as rebuilding the trust lost in the industrial age. Coleman (1988, 1990) explains that the condition for enhancing a community's productivity is to develop an appropriate level of trust, communication, and cooperation among its members that should prioritise common interest over self-interest. Coleman indicates that a community with a high degree of trustworthiness, extensive trust, mutual communication,

and cooperation can achieve much more than a comparable group with a lack of trustworthiness, trust, communication skills, and cooperation skills.

In the future, the authors intend to analyse the links between various components of social capital occurring at successive stages of economic development. It must be preceded by an in-depth analysis of the literature on the subject and the results of empirical studies conducted by other researchers in this field. Knowledge of the nature and strength of the relationship between the various components of social capital should help the authors express more precise guidelines for planning long-term policies to improve social capital at different stages of economic development.

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