

# Growth and Social Capital: Empirical Analysis of the Relationship

KSENIA V. BAGMET<sup>i</sup>

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The article provides an empirical test of the hypothesis of the influence of the level of economic development of the country on the level of development of its social capital based on panel data analysis. In this study, the Indices of Social Development elaborated by the International Institute of Social Studies under World Bank support are used as an indicators of social capital development as they best meet the requirements for complexity (include six integrated indicators of Civic Activism, Clubs and Associations, Intergroup Cohesion, Interpersonal Safety and Trust, Gender Equality, Inclusion of Minorities), comprehensiveness of measurement, sustainability. In order to provide an empirical analysis, we built a panel that includes data for 20 countries divided into four groups according to the level of economic development. The first G7 countries (France, Germany, Italy, United Kingdom); the second group is the economically developed countries, EU members and Turkey, the third group is the new EU member states (Estonia, Latvia, Lithuania, Romania); to the fourth group – post-Soviet republics (Armenia, Georgia, Russian Federation, Ukraine). The analysis shows that the parameters of economic development of countries cannot be completely excluded from the determinants of social capital. Indicators show that the slowdown in economic growth leads to greater cohesion among people in communities, social control over the efficiency of distribution and use of funds, and enforcement of property rights. The level of tolerance to racial diversity and the likelihood of negative externalities will depend on the change in the rate of economic growth. Also, increasing the well-being of people will have a positive impact on the level of citizens' personal safety, reducing the level of crime, increasing trust.

*Keywords:* social capital, economic growth, determinant, indices of social development.

*Abbreviation:*

ISD – Indices of Social Development.

УДК 316.323.65

JEL Codes: O10, Z13

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**Introduction.** Contemporary, the question of what factors of production are and how they affect economic development is still relevant, although the range of factors that are essential for economic growth is expanding significantly. “Moving from the proximate to fundamental causes of growth also shifts the focus of attention to the institutional framework of an economy, to its 'social capability'” by Hjerppe R. [13]. Indeed, social potential is increasingly seen as a fundamental factor in a long-term stable trajectory of development and growth. The idea of growth itself has been significantly rethought – the emergence of the concept of inclusive growth is currently changing the socio-economic policy, its priorities and instruments. The social determinants of development are in the focus of research in response to changing global development goals – the emergence of the Sustainable Development Goals and the Europe 2020 Development Strategy. The objective of improving the quality of the social environment is directly linked to the development of social capital.

**Problem statement.** Traditionally, social capital is explored as a result of the influence of social factors (level of trust, level of cooperation of people, etc.) only. There are also studies examining the impact of social capital on economic growth. However, there is an important

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<sup>i</sup> Ksenia V. Bagmet, C.Sc. (Economics), Doctoral Student, Sumy State University.

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<https://doi.org/10.21272/mer.2019.84.11>



research question unexplored so far, and how much social capital depends on the level of economic development of a country, particularly on growth indicators.

**The purpose** of the article is to investigate the link between economic growth and changes in social capital. Therefore, by testing the hypothesis that the economic growth rate of a country influences the change in its social capital, we will form an understanding of the opportunities for countries with different levels of development to increase their own social capital.

**Results of the research.** In order to empirically test the impact of economic development of the country on the level of social capital development, we will use panel data models. Panel data by their structure form an array of statistical information on a single array of objects for a number of consecutive periods of time. This helps to increase sample size under data constraints and thus increase the model parameter estimation efficiency, compensate for the disadvantages of separately spatial and dynamic models and identify individual effects for countries. In addition, the use of panel data is considered to be an excellent tool for overcoming the endogeneity of regressors, e.g. their correlation with random errors.

One of the key problems encountered in the study of social capital is the choice of an adequate indicator or group of indicators that fully describe the essence of social capital and make it tangible.

The choice of social capital indicators is complicated by the debate over its definition. Today, scientists are on the lookout for sources of its origin, history of formation and factors that determine its dynamics. Most authors agree that trust is key in the existence of social capital. However, researchers do not agree on what role trust plays.

Social capital was introduced into scientific research by R. Putnam in a work where a comparative analysis of the institutional and economic development of the northern and southern regions of Italy was carried out. The difference was explained by “features of social organization such as trust, social norms and networks that can enhance the effectiveness of society by promoting coordinated action”. Such ability to cooperate, in his opinion, determines social capital [1]. R. Putnam considers trust as a source of social capital, which is implemented through cooperation and coordination of people's actions and uses quality indicators of civil society development and civic engagement. He demonstrates social capital through the number of interactions between local people in the areas of community or organizational life, engagement in public affairs, community volunteerism, informal sociability, social trust [2].

Fukuyama equates social capital with trust, putting it on par with classical factors of production – physical capital and human capital. Arguing that trust increases the productive capacities of relationships between people, it is considered a form of social capital [2].

Some scholars emphasize the complex and, as a rule, abstract nature of the components of social capital and emphasize the complexity and even impossibility of measuring it. Therefore, they consider the need to evaluate social capital, not directly, but through the measuring and evaluation of its manifestations. Indeed, resources such as information, ideas and support relate to social capital, as opposed to education, skills related to human capital and, for example, technologies related to physical capital [3].

Exploring approaches to the definition of social capital, its sources of origin, forms of existence, leading Ukrainian scientists also come to the conclusion that traditional indicators used in statistical and sociological research in Ukraine (level of social tension, anomie demoralization index, cynicism index and national distance index) and in international practice (such as the Corruption Perceptions Index, the Government Index and the Economic Freedom Index) they cannot characterize it comprehensively. It is considered appropriate to ground the assessment of social capital on a measure of trust being measured by a set of indicators in two dimensions: overall trust between people and institutional trust.

In our opinion ISD offered by the International Institute of Social Studies are the most proper measures for social capital [4].

They meet the requirements of complexity, measurement simplicity, sustainability and ability to be used locally and nationally.

ISD consist of six integrated indicators of Civic Activism, Clubs and Associations, Intergroup Cohesion, Interpersonal Safety and Trust, Gender Equality, Inclusion of Minorities. Each of these indices was formed on the basis of the queries of scientists and their vision of the definition of social capital and its measurement.

*Table 1*

Indices of Social Development (compiled by authors based on [5])

Index	Meaning	Theoretical approach	Benefits for social welfare
Civic Activism	measuring use of media and protest behaviour	Putnam et al.'s [1] Inglehart and Welzel [6]	Civic activism is capable of promoting collective action aimed at ensuring better governance
Clubs and Associations	defined as membership in local voluntary associations	Woolcock and Narayan [7] Robert Putnam [8]	The ability of people to voluntarily join associations reduces corruption and other risks and ensures efficient use of funds
Intergroup Cohesion	which measures ethnic and sectarian tensions, and discrimination	Schuster et al [9]	Increasing cohesion provides a reduction in transaction costs and negative externalities
Interpersonal Safety and Trust	focusing on perceptions and incidences of crime and personal transgressions	Fukuyama [10] Knack and Keefer [11]	Increasing cohesion and reducing transaction costs related to contract fulfilment and property rights provision
Gender Equality	reflecting gender discrimination in home, work and public life.	Schultz [12]	Gender equality ensures growth and equity in distribution of individual and group income, promotes human development
Inclusion of Minorities	measures levels of discrimination against vulnerable groups such as indigenous peoples, migrants, refugees, or lower caste groups		Reducing discrimination contributes to a more even distribution of income, reduced crime and increased trust

In order to complete an empirical analysis, we have built a panel that includes data for 20 countries divided into four groups according to the level of economic development. The first group of countries includes economically developed countries that are G7 members (France, Germany, Italy, United Kingdom); to the second group – economically developed countries, members of the EU except Turkey (Austria, Belgium, Denmark, Finland, Netherlands, Portugal, Sweden, Turkey); to the third group of countries – new EU member states (Estonia, Latvia, Lithuania, Romania); to the fourth group – post-Soviet republics (Armenia, Georgia, Russian Federation, Ukraine).

The ISD database contains calculated indicators for 1990, 1995, 2000, 2005 and 2010 years. Therefore, in constructing the regression, we use the values of the average annual

growth rates for the periods 1990–1995, 1995–2000, 2000–2005, 2005–2010 as the dependent variable. We use the annual average GDP per capita growth rate based on purchasing power parity (PPP) as an independent variable. As a result, we plan to answer the question of whether the dynamics of economic development is a determinant of social capital change.

Variables and descriptive statistics are listed in the Table 2.

Table 2

Variables and panel descriptive statistics

Variables	Abbreviation	N	mean	sd	min	max
GDP per capita based on purchasing power parity (PPP)	dgdg	77	0.0234	0.0589	-0.265	0.163
Civic Activism	civact	80	-0.00538	0.0233	-0.0803	0.0425
Clubs and Associations	intergroup	45	0.0198	0.0304	-0.0535	0.0781
Intergroup Cohesion	clubsassoc	75	0.000871	0.0285	-0.0649	0.0962
Interpersonal Safety and Trust	safetytrust	76	-0.00129	0.0260	-0.0706	0.0426
Gender Equality	gender	80	0.0113	0.0223	-0.0257	0.0654
Inclusion of Minorities	inclusion	53	-0.00179	0.0344	-0.0950	0.127

Thus, the models we will be evaluating are as follows:

$$civact_{it} = \alpha + \beta \, dgdg_{it} + e_{it} \quad (1)$$

$$intergroup_{it} = \alpha + \beta \, dgdg_{it} + e_{it} \quad (2)$$

$$clubsassoc_{it} = \alpha + \beta \, dgdg_{it} + e_{it} \quad (3)$$

$$safetytrust_{it} = \alpha + \beta \, dgdg_{it} + e_{it} \quad (4)$$

$$gender_{it} = \alpha + \beta \, dgdg_{it} + e_{it} \quad (5)$$

$$inclusion_{it} = \alpha + \beta \, dgdg_{it} + e_{it} \quad (6)$$

where  $civact_{it}$ ,  $intergroup_{it}$ ,  $clubsassoc_{it}$ ,  $safetytrust_{it}$ ,  $gender_{it}$ ,  $inclusion_{it}$  – average annual growth rates Civic Activism, Intergroup Cohesion, Clubs and Associations, Interpersonal Safety and Trust, Gender Equality, Inclusion of Minorities, in country  $i$  ( $i = 1..20$ ) for year  $t$  ( $t = 1..4$ );  $dgdg_{it}$  – annual average GDP per capita growth rate based on purchasing power parity (PPP) in country  $i$  ( $i = 1..20$ ) for year  $t$  ( $t = 1..4$ ).

To obtain the regressor estimates, we will use Pooled OLS estimator, which ignores the panel nature of the data and does not take into account the individual characteristics of the objects being evaluated. Next, we estimate the regression with a random individual effect (Random effects estimator) and a fixed individual effect (Fixed effects or within estimator). We will compare these three models to understand which one is more relevant to our data. The best model can be selected using the Breusch and Pagan Lagrangian Multiplier Random Effect Test and the Hausman Test for Fixed versus Random Effect Model. Model parameters are estimated using STATA 13.0.

The results of the evaluation are presented in the Table 3.

Table 3

Estimation results of economic growth and social capital

VARIABLES	Pooled OLS civictact	Fixed effects civictact	Random effects civictact	Pooled OLS clubsassoc	Fixed effects clubsassoc	Random effects clubsassoc	Pooled OLS gender	Fixed effects gender	Random effects gender
dgdp	-0.03517 (0.0451)	-0.05954 (0.0498)	-0.03517 (0.0451)	-0.163*** (0.05922)	0.15348** (0.06767)	0.16367*** (0.05922)	0.02380 (0.04413)	0.00991 (0.05186)	0.02380 (0.04413)
Constant	-0.00449 (0.0028)	-0.00392 (0.0030)	-0.00449 (0.0028)	0.00384 (0.00352)	0.00361 (0.00379)	0.00384 (0.00352)	0.0111*** (0.00278)	0.0115*** (0.00312)	0.0111*** (0.00278)
Observations	77	77	77	72	72	72	77	77	77
R-squared	0.00801	0.02488		0.09838	0.09003		0.00386	0.00065	
Number of country		20	20		19	19		20	20

  

VARIABLES	Pooled OLS inclusion	Fixed effects inclusion	Random effects inclusion	Pooled OLS intergroup	Fixed effects intergroup	Random effects intergroup	Pooled OLS safetytrust	Fixed effects safetytrust	Random effects safetytrust
dgdp	0.251** (0.121)	0.19217 (0.137)	0.251** (0.121)	0.12088 (0.11496)	-0.00647 (0.15556)	0.12088 (0.11496)	0.12290** (0.05809)	-0.12385* (0.07270)	0.12290** (0.05809)
Constant	-0.00804 (0.0056)	-0.00654 (0.0057)	-0.00804 (0.0056)	0.016*** (0.00544)	0.0199*** (0.00659)	0.0166*** (0.00544)	0.00207 (0.00344)	0.00209 (0.00399)	0.00207 (0.00344)
Observations	51	51	51	45	45	45	73	73	73
R-squared	0.08059	0.05720		0.02507	0.00007		0.05930	0.05285	
Number of country		18	18		20	20		20	20

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Based on the Breusch and Pagan and Hausman test, Pooled OLS estimator fits the best for evaluating models. This means that the findings on our issue are equal to all countries in the sample analyzed. The Pooled OLS estimator quality assessment is similar to usual regression and is based on the determination ratio and Fisher's test scores.

The analysis of the results of the F-test show that the models obtained by 5 indicators out of 6 are qualitative. According to Gender Equality, we cannot reject the null hypothesis and, accordingly, provide instrumentally validated conclusions.

Model determination coefficients are small as being expected. Thus, the dynamics of economic indicators can explain only 0.8 percent of variation in Civic Activism, for Intergroup Cohesion – 2.5 %, Clubs and Associations – 9.8 %, Interpersonal Safety and Trust – 5.9 %, Inclusion of Minorities – 8 %. At the same time, the coefficients in the models for estimating the relationship between changes in economic development parameters and changes in Clubs and Associations, Inclusion of Minorities, Interpersonal Safety and Trust can be considered statistically significant.

**Conclusions and prospects of further research.** In this study we tried to understand whether the dynamics of social capital is determined by the economic growth of the country. Modern theory of social capital defines social capital through social interactions based on trust, a set of formal and informal institutes formed and perceived, and cooperation networks that allow for additional socio-economic effects. As a result of the analysis, we have concluded that the parameters of the economic development of countries cannot be completely excluded from the determinants of social capital.

Indicators show that the slowdown in economic growth leads to greater cohesion among people in communities, social control over the efficiency of distribution and use of funds, and enforcement of property rights. The level of tolerance to racial diversity and the likelihood of negative externalities will depend on the change in the rate of economic growth. Also, increasing the well-being of people will have a positive impact on the level of

personal security of citizens, reducing crime rates, and increasing confidence. As a result, transaction costs associated with contract execution and property rights will decrease.

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Manuscript received 02 March 2019

### Рост и социальный капитал: эмпирический анализ взаимосвязи

#### КСЕНИЯ ВИКТОРОВНА БАГМЕТ\*

\* кандидат экономических наук, докторант Сумского государственного университета,  
ул. Римского-Корсакова, 2, г. Сумы, 40007, Украина,  
тел.: 00-380-542-665042, e-mail: kbagmet2017@gmail.com,

Социальный потенциал все больше рассматривается как фундаментальный фактор долгосрочного развития и роста. Социальные детерминанты приобрели актуальность в результате появления концепта инклюзивного роста, изменились приоритеты и инструменты политики. В статье проведено эмпирическую проверку гипотезы о существовании влияния уровня экономического развития страны на уровень развития ее социального капитала на основе анализа панельных данных. В этом исследовании в качестве индикатора развития социального капитала использованы Индексы социального развития, предложенные Международным институтом социальных дисциплин, поскольку они максимально соответствуют требованиям комплексности (включают шесть интегрированных показателей (Гражданская активность, Клубы и ассоциации, Межгрупповая сплоченность, Межличностная безопасность и доверие, Гендерное равенство, Инклюзия меньшинств), простоте измерения, устойчивости и могут быть использованы как для локального, так и для национального уровня. В статье построена панель, которая включает данные по 20 странам, разделенных на четыре группы, в соответствии с уровнем экономического развития. Первая группа – страны, входящие в состав G7 (Франция, Германия, Италия, Великобритания) вторая группа – экономически развитые страны, члены ЕС

и Турция, третья группы – страны новые члены ЕС (Эстония, Латвия, Литва, Румыния) в четвертой группе – постсоветские республики (Армения, Грузия, Российская Федерация, Украина). В результате проведенного анализа доказано, что параметры экономического развития стран нельзя полностью исключить из числа детерминант социального капитала. Полученные показатели свидетельствуют, что снижение темпов экономического роста приводит к усилению сплоченности людей в сообществах, социальному контролю за эффективностью распределения и использования средств, обеспечению соблюдения прав собственности. От изменения темпов экономического роста напрямую зависит уровень толерантности к расовому разнообразию и соответственно вероятность усиления негативных экстерналий. Также рост благосостояния людей положительно будет влиять на уровень личной безопасности граждан, уменьшение уровня криминала, рост доверия.

*Ключевые слова:* социальный капитал, экономический рост, детерминант, индекс социального развития.

*Mechanism of Economic Regulation, 2019, No 2, 128–134  
ISSN 1726-8699 (print)*

**Зростання та соціальний капітал: емпіричний аналіз взаємозв'язку**

**КСЕНІЯ ВІКТОРІВНА БАГМЕТ\***

*\* кандидат економічних наук, докторант Сумського державного університету,  
вул. Римського-Корсакова, 2, м. Суми, 40007, Україна,  
тел.: 00-380-542-665042, e-mail: kbagmet2017@gmail.com*

Соціальний потенціал усе більше розглядається як фундаментальний фактор довгострокової розвитку та зростання. Соціальні детермінанти набули актуальності в результаті появи концепту інклюзивного зростання, змінилися пріоритети та інструменти політики. У статті проведено емпіричну перевірку гіпотези існування впливу рівня економічного розвитку країни на рівень розвитку її соціального капіталу на основі аналізу панельних даних. У цьому дослідженні як індикатор розвитку соціального капіталу використано Індекси соціального розвитку, запропоновані Міжнародним інститутом соціальних дисциплін, оскільки вони максимально відповідають вимогам щодо комплексності (включають шість інтегрованих показників Громадянська активність, Клуби та асоціації, Міжгрупова згуртованість, Міжособистісна безпека і довіра, Гендерна рівність, Інклюзія меншин), простоті вимірювання, стійкості та можуть бути використані як для локальному так і на національному рівнях. У статті побудовано панель, що включає дані за 20 країнами, поділених на чотири групи, відповідно до рівня економічного розвитку. Перша група країни, які входять до складу G7 (Франція, Німеччина, Італія, Великобританія); друга група – економічно розвинуті країни, члени EU та Туреччина, третя група – країни нові члени EU (Естонія, Латвія, Литва, Румунія); до четвертої групи – пострадянські республіки (Вірменія, Грузія, Російська Федерація, Україна). В результаті проведеного аналізу доведено, що параметри економічного розвитку країн не можна повністю виключити з числа детермінант соціального капіталу. Отримані показники свідчать, що зниження темпів економічного зростання призводить до посилення згуртованості людей у громадах, соціального контролю за ефективністю розподілу та використання коштів, забезпечення дотримання прав власності. Від зміни темпів економічного зростання напряму залежить рівень толерантності до расового розмаїття та відповідно ймовірність посилення негативних екстерналий. Також зростання добробуту людей позитивно буде впливати на рівень особистої безпеки громадян, зменшенню рівня криміналу, зростанню довіри.

*Ключові слова:* соціальний капітал, економічне зростання, детермінант, індекс соціального розвитку.

*JEL Codes:* O10, Z13

*Formulas: 6; Tables: 3; References: 13*

*Language of the article:* English