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SOCIAL CAPITAL AND ECONOMIC GROWTH IN SOUTH AMERICA: A PANEL DATA ANALYSIS

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ABSTRACT. This research focused on determining the impact of social capital on economic growth in South American countries based on data associated with the prosperity index generated by the Legatum Institute from 2007 to 2023. The relationship was analysed by estimating both static and dynamic panel data models, considering aggregate social capital and its components. The results indicate that while the prosperity index at the aggregate level has a positive and significant effect on GDP per capita, this is not the case for all dimensions. In the static approach, all the components of the economic and people empowerment dimensions are significant, while in the institutional component, social capital was not statistically significant, which is corroborated by the dynamic results. While the disaggregation of social capital reveals some elements that have a positive effect on economic performance, such as personal and family relationships and personal trust, civic participation shows an inverse relationship with GDP per capita. These findings confirm the existence of strong bonding personal and family relationships that influence territorial performance yet require the strengthening of bridging and linking ties.

Introduction

The introduction should briefly place the study in a broad context and highlight why it is important. It should define the purpose of the work and its significance. The current state of the research field should be reviewed carefully and key publications cited. Please highlight controversial and diverging hypotheses when necessary. Finally, briefly mention the main aim

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of the work and highlight the principal conclusions. As far as possible, please keep the introduction comprehensible to scientists outside your particular field of research.

1. Literature review

The traditional approach to economic growth, centred on maximizing profit and consumption without considering the impact on nature, has led to great inequalities and social gaps, strong territorial imbalances and a profound deterioration of the environment and natural resources. This has prompted a rethinking of the aims of such development. Thus, in this context of inequality, sustainable development was initially conceived as an intergenerational and environmentally friendly approach (Brundtland, 1987). This conceptualization has evolved to reflect the 2030 Agenda and the Sustainable Development Goals (SDGs), recognizing the need for interrelation between the environmental, social, economic, and political-institutional dimensions that form it.

Social capital is a key factor in linking the social, economic, environmental, and institutional dimensions to promote sustainable development and reducing gaps and inequalities. For example, Carrillo (2019) has found that community social capital increases territorial development, the latter defined as the improvement of quality of life within a territory.

This study has adopted this assumption of a relationship between community social capital and the improvement of the population's living conditions in order to identify a possible relationship between both variables for South American countries and for Ecuador in particular.

The assumption of a relationship between social capital and gross domestic product per capita is based on the idea that, in general terms, social capital can be considered an additional factor of production that generates competitive advantages and effectively leads to greater aggregate productivity in a country's economy, which could in turn translate into better living conditions through an increase in per capita income.

In this way, we would expect to be able to identify a relationship between social capital and GDP per capita at the country level, considering a group of South American countries at different points in time, which allows us to combine time series and a cross-section in a panel data estimation.

The research aims to determine the impact of social capital on economic performance for a group of South American countries, contrasting the hypothesis of a positive relationship between both variables, as indicated in the literature.

Social capital can be approached from different perspectives: sociological, political, and economic. Sociology proposes a structural approach in the sense that it is a resource linked to networks, whether the appropriation of the benefits generated is individual (Coleman, 1990) or collective as a public good (Bourdieu, 1985). Meanwhile, the political perspective proposes a set of norms, social organization, and trust, which enables and empowers collective action, a concept linked to culture (Putnam, 1993).

Thus, social capital can be classified according to three perspectives: the social structure perspective (sources of social capital), the network perspective (functions) and the level perspective (role of social capital). In the first case, Nahapiet and Ghoshal (1998) propose three dimensions for their study: structural, relational, and cognitive dimensions. The first is linked to the connections between actors, the second to the resources that are generated from these relationships (friendship, trust, reciprocity, motivation, solidarity, cooperation, and influence of others' behaviour) and the third to the codes and languages for communication, which are linked to intellectual capital.

In the second case, Woolcock and Narayan (2000), Putnam (1993) and Stone and Hughes (2002) establish three types of social capital: bonding capital, associated with close

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relationships, family and friends whose ties are strong (horizontal); bridging capital for relationships with other similar groups or individuals who are not so close (horizontal); and ladder or linking capital for hierarchical relationships or relationships with groups or individuals with more power (vertical).

In the third perspective, Coleman (1990), Portes (1998), Putnam (1993) and Durston (2000; 2003) propose the micro or individual level, the meso or group level and the macro level of the society or country. In this perspective, formal and informal groupings, the community and even the country can be considered.

Therefore, social capital at the individual or collective level generates competitive advantages associated with the opportunity not only to generate alternatives but also to appropriate the benefits derived from them. Therefore, as Kliksberg (2002) argues, growth is not transformed into development, and even less so into social development, since human capital, social capital and culture must be considered.

Social capital could then contribute to poverty reduction in three ways. The first is that the poorest households would have access to resources through networks or relationships, which would not otherwise be viable; the second is related to the fact that these networks or groups provide empowerment, problem-solving capacity, political participation and community management; the third is the use of social capital, which is used for the satisfaction of essential needs, given that economic and human capital are limited (Portales, 2014).

From here, two visions of social capital have been generated: the expansionist and the minimalist. The first "is interested in identifying the way in which relationships of trust, reciprocity, social networks, community participation and the following of norms of behaviour common to a given collectively improve their living conditions" (Portales, 2014, p. 43). The second focuses "on the study of the benefits or detriments that social capital produces in specific actors due to the fact of having a certain social relationship or belonging to a certain social network and not on the benefits that it generates for the collective" (Portales, 2014, p. 43).

In the minimalist vision, then, not only the economic advantages offered by social capital are considered but also those such as the reduction of crime, the optimization of the work carried out by the government through citizen participation, the protection of rights, social organizations, and community relations.

This relationship between social capital and development is also based on the rootedness derived from bonding relationships and autonomy in bridging and linking relationships. In the first case, rootedness determines social relationships, and its form is given by culture, while autonomy is related to external networks but without these dominating the internal relationships of the community or group.

This combination of the three types of relationships, as proposed by Woolcock (1998) and analysed by Esparcia et al. (2016), makes it possible to classify communities depending on the stock of bonding and bridging/linking-type social capital. Those with a low level of both capitals are considered local communities with little cohesion or isolation (amoral individualism); those with a high level of external relations are local communities with little cohesion but with a tendency to create individual relations with the outside world (amoral familism); those with a high level of bonding-type social capital but with few external relations are very cohesive local communities and the number of external relations will determine whether they tend to isolate from or open themselves to the outside; whilst those with high levels of bonding and bridging/linking-type social capital are very cohesive communities, articulated with other communities and collectives (social opportunity).

The more cohesive and connected a community is with the outside world, the greater the chances of achieving improvements in the area's quality of life and development. Therefore, when analysing development processes, "in the initial phases a relatively large endowment of

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intra-community capital is the necessary condition for their implementation; however, this would be possible with a low endowment of bridging and linking social capital" (Esparcia et al., 2016, p. 63).

In this way, social capital can act positively or negatively on development, as McShane et al. (2016) find in their study on social capital and agricultural sustainability as an input to development. This positive or negative contribution, as Esparcia et al. (2016) argue, depends on the state of development, so it is often said to be a curvilinear relationship. "Specifically, relational social capital (trust) is important for initiating growth and innovation, but as structural social capital increases, high relational capital inhibits engagement with connections", especially the bridging type (McShane et al., 2016, p. 159).

Additionally, social capital through trust, civic or organizational participation may be able to decrease information asymmetries and thereby enhance growth. Eroglu and Kangal (2016) state that "countries with a high level of trust have high humanitarian growth and high per capita income, it has been concluded that social capital can create a new dynamic of economic development" (p. 15).

Eroglu and Kangal (2016) recognize social capital as an additional factor of production that is complementary to the rest, such that growth requires not only physical, natural, and human capital but also social capital.

These benefits are also presented by Hanka and Engbers (2017), who indicate that there seems to be a relationship between social capital and development through networks that strengthen entrepreneurship, employment, and human capital, both at the micro level, through rootedness that provides resources, and at the macro level, with autonomy in terms of relations with the state that provides organization to the community.

Kim (2018) tries to clarify this relationship, focusing on networks (bonding, bridging, and linking) and community social capital through trust and its link to community development, confirming that "social networks are critical for the disadvantaged who lack opportunities for resource mobilization. However, the effect of social trust at the community level was small" (p. 1011).

Thus, as proposed by Esparcia et al. (2016), rootedness and autonomy favour growth (Woolcock, 1998), but it will depend on the stage of the process, since in the initial stages social cohesion based on bonding relationships is fundamental, but they are not sufficient to reach levels of development and sustainability.

The consolidation of development requires not only high levels of bonding relationships that generate social cohesion but also demands the generation of links through bridging and vertical relationships (bridging and linking) that strengthen extra-community social capital. In fact, if this is not achieved, "there is another risk that a high intra-community social capital may slow down or hinder not only the opening and development of solid and effective external connections but also the development processes themselves" (Esparcia et al., 2016, p. 64).

This relationship between development and the different dimensions of social capital (networks, trust, norms, values, attitudes, and institutional framework), regardless of the stages, involves considering mechanisms that facilitate the achievement of results such as learning and knowledge generation, innovation and increased economic activity, which translates into development. These mechanisms are linked to the reduction of information costs, access to this information, reduction of uncertainty, reduction of transaction costs, better collective decision-making, and an increase in joint actions (Rodríguez and Román, 2005).

In relation to studies on social capital and development, Robison et al. (2003), in particular, manage to identify in different studies: the importance of social capital in tackling poverty levels; the direct relationship between trust and the generation of economic advantages; the positive impact of civic participation and associativity; how social capital decreases income

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gaps; the positive relationship between national economic growth and trust; and the increase in income from the increase in the number of relationships a person has.

2. Methodological approach

To identify this relationship between community or macro social capital and development, two approaches were used: one for South American countries (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay and Venezuela) and another for just Ecuador. The prosperity index of the Legatum Institute and the gross domestic product per capita at constant prices were considered, using, the modelling of panel data, initially in a static way and then incorporating the dynamic component with instrumental variables for the lags of the dependent variable.

As for the prosperity index prepared by the Legatum Institute, it is a tool that has been employed since 2007 that contributes to the identification of opportunities for improvement in twelve basic pillars. This allows the 167 countries that are part of the study to move towards a path of greater well-being and progress; the index incorporates three domains: social inclusion, an open economy and the empowerment of people (Legatum Institute, 2021).

In each domain, there are several pillars in the inclusive pillar, society's safety and security, personal freedom, governance and social capital are considered. Environmental development, business conditions, infrastructure and access to markets and economic quality belong to the domain of economic openness. Lastly, in the domain of empowerment of the population, we find living conditions, health, education and the environment. In turn, each of the pillars is made up of a series of indicators.

The index is reported through the position occupied by the country in global terms, as well as for each of its components, where one represents the country with the highest prosperity index and the last place is occupied by the country with the lowest results. Additionally, a score expressed between 0 and 100 is generated, which indicates the value in each indicator, element, pillar or domain, with zero signifying the lowest and one hundred the highest performance.

The approach assumed by the index for the analysis of social capital is related to the perspective of social structure in the sense that it consults on personal relationships, networks, civic and social participation (structural element), and personal and institutional trust (relational element).

We tried to identify a relationship with gross domestic product per capita using panel data modelling for ten South American countries (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay and Venezuela), initially statically and then incorporating the dynamic component with instrumental variables for the lags of the dependent variable:

$$GDPperc_{it} = \alpha_1 + \alpha_2 p1_{it} + \alpha_3 p2_{it} + \cdots + \alpha_{13} p12_{it} + W_{it} \qquad (1)$$

where each of the explanatory variables corresponds to the pillars of each of the domains: social capital (p1), safety and security (p2), personal freedom (p3), governance (p4), investment in the environment (p5), business conditions (p6), infrastructure and access to markets (p7), economic quality (p8), living conditions (p9), health (p10), education (p11) and environment (p12).

The estimation was conducted using panel data, as information is available for each of the countries indicated for a period from 2007 to 2023, which is why time series analysis is combined with cross-sectional analysis. For this reason, it is not recommended to estimate grouped data as it does not consider the unobserved heterogeneity both countries and over time;

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the differences or heterogeneity between individuals are included in the estimates called "between", while those analysed for everyone over time are called "within" (Arellano, 2003).

For such heterogeneity to be considered in the estimation, fixed effects or random effects must be considered. In the first case, the covariance between the residuals from the individuals (countries) with the explanatory variables is non-zero, so that heterogeneity is given by the differences between countries. The estimation of random effects, on the other hand, considers that heterogeneity is the result of chance and does not come from dissimilar behaviour between individuals.

Fixed effects thus provide an estimate for each country by its own characteristics, while random effects group countries into one estimate, assuming that the covariance of individual heterogeneity with respect to the set of explanatory variables is zero.

The choice between fixed and random effects is made through the Hausman test, whose null hypothesis is associated with a preference for random effects. In case of rejecting the null hypothesis and selecting the fixed effects model it is necessary to validate the absence of autocorrelation and heteroscedasticity (Arellano, 2003).

In the first case, the Wooldridge test is used for autocorrelation and in the second, the modified Wald test for heteroscedasticity, under the null hypothesis of existence of problems. When rejecting both hypotheses or at least one of them, it is necessary to correct for robust errors in the estimation of the fixed-effects panel data, ensuring unbiased and minimum variance estimators.

Since it is a time series by country, it is possible to incorporate the dynamic component through the lags of the dependent variable. The limitation is that this variable is correlated with the error term of the regression and not only with the residual of the individual differences. To eliminate this correlation, it is necessary to use instrumental variables that are highly correlated with the dependent variable, but not with the error term.

For the case of panel data, there are two proposals. Anderson and Hsiao advise using the lags of the difference of the dependent variable as instruments, while Arellano and Bond recommend not only using this instrument but also the lags of the difference of the explanatory variables. In the first case, the model is estimated as a panel for instrumental variables and in the second by generalised least squares (Arellano, 2003).

Given that the phenomenon analysed in this research is economic performance, it is important to incorporate the past of the dependent variable, as its behaviour is largely the result of its lags. To this end, the Arellano-Bond methodology was used, which is based on the use of instrumental variables that help to eliminate endogeneity. Specifically, a difference transformation (first-order differences) is used, where the current values of the dependent variable are subtracted from the past values to eliminate time-invariant effects (fixed effects). Then, past values of the dependent variable are used as instruments. The idea is that older values of the variable are valid as instruments because they are correlated with the current dependent variable, but not with current errors.

Once the model has been estimated using the Arellano-Bond method, it is important to check whether the instruments used are valid, for which the Sargan test is used. This test assesses whether the selected instruments are appropriate and uncorrelated with the error term of the model, i.e. whether the instruments are exogenous, with the null hypothesis indicating the validity of the instruments.

Once the static and dynamic estimation has been carried out, economic performance will be modelled following the same methodology, considering the social capital indicators, to identify which elements of social capital (personal relationships, personal trust, institutional trust, networks and civic participation) have a significant effect on economic performance.

3. Conducting research and results

Characterisation of economic performance and social capital

The behaviour of the constant gross domestic product per capita has been very uneven in the region, with an average value of USD 8536.32, but with maximum values of USD 19830 and minimum values of USD 1795. As shown in Table 1, countries such as Argentina, Chile and Uruguay have reached levels above USD 10,000 per capita, even in the case of Uruguay for the last few years slightly exceeding USD 20,000.

Table 1. Average GDP per capita values for the region and per country (constant USD)

	Mean	**Standard deviation**	**Min.**	**Max.**
Global	8536.32	4578.07	1795	19830
Argentina	11931.94	633.64	10248	12762
Bolivia	3118.29	356.07	2495	3577
Brazil	9234.41	406.99	8463	9861
Chile	14801.18	1225.07	12662	16268
Colombia	6369.47	656.15	5300	7351
Ecuador	6060.47	394.58	5340	6577
Paraguay	5237.41	646.28	4145	6321
Perú	6234.35	747.89	4698	7000
Uruguay	17334.65	1960.54	13115	19830
Venezuela	5041.05	2047.27	1795	7076

Source: CEPAL (2023).

Despite this, countries such as Bolivia with the lowest incomes in the region can be identified, or cases such as Venezuela, where the drop experienced in the study years exceeded 50%, placing it at the lowest level of performance among the countries covered by this study for the year 2023.

In addition, it is important to highlight that most of the countries recorded considerable increases in the period analysed, although some showed high variability, as in the case of Chile and Uruguay, while others maintained a behaviour with moderate growth, such as Ecuador and Bolivia.

If the explanatory variables are analysed, the results of the prosperity index for the countries analysed between 2007 and 2023 show that Chile and Uruguay are the highest-ranking countries; for the year 2023, Uruguay ranked 38th and Chile 36th. Venezuela is the worst country in terms of prosperity, ranking 145th. In the middle of the table are Argentina, Brazil, Colombia, Paraguay, Ecuador and Bolivia, as shown in Figure 1.

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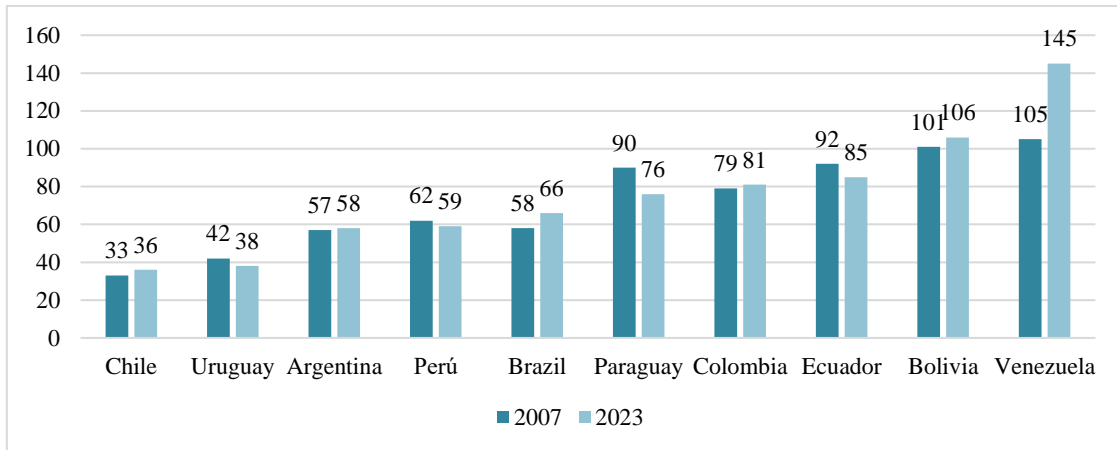RECENT ISSUES IN ECONOMIC DEVELOPMENT

Figure 1. Comparison of the ranking of the countries in the Legatum Prosperity Index (2007-2023)
Source: Legatum Institute (2023)

Uruguay, Peru, Paraguay and Ecuador are the countries that have improved their position among the 167 countries analysed by the Prosperity Index. Chile, despite being in the best position of the countries under study, its ranking worsens in 2023 with respect to 2007.

With respect specifically to the pillar of social capital, the best results in terms of position with respect to the sample is that of Uruguay in 17th place, followed by Argentina in 26th place, Paraguay in 32nd place and Brazil in 35th place, while Peru occupies 90th place, followed by Bolivia in 74th place and Ecuador in 66th place (Figure 2).
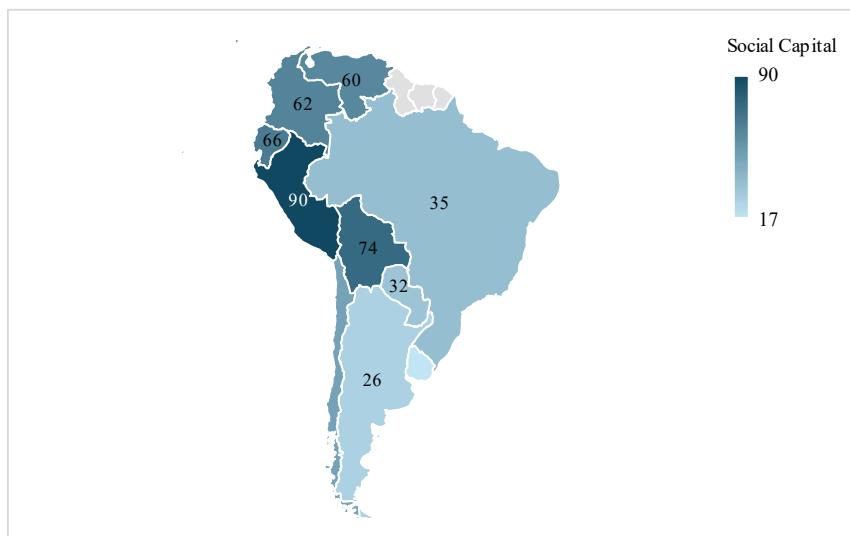
Figure 2. Ranking of the countries with respect to the results of the social capital pillar (2023)
Source: Legatum Institute (2023)

The countries that show the best positions tend to strengthen relationships and personal trust, while networks and institutional trust are in intermediate positions, with civic and social participation being the indicator that shows the least development.

A panel data analysis for South American countries

The relationship between social capital and gross domestic product per capita is based on the idea that in general terms, social capital can be considered an additional factor of

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production. This generates competitive advantages and effectively leads to higher aggregate productivity in terms of a country's economy, which could translate into better living conditions through increased per capita income.

In this way, we would expect to be able to identify a relationship between social capital and GDP per capita at the country level by considering a group of South American countries at different points in time, which allows us to combine time series and cross-section in a panel data estimation.

The estimation of the relationship between capital stock and GDP per capita was approached through a panel data structure linked to unobserved heterogeneity. This heterogeneity is captured by fixed or random effects estimations, starting from considering the aggregate prosperity index (model 1) and then incorporating the detail of each of the three dimensions. In model 2 we analyse the pillars of the inclusive societies dimension (social capital, security, personal freedoms and governance), adding in model 3 the open economy dimension (investment environment, business conditions, infrastructure and access to markets, and economic quality), while in model 4 we also incorporate the people empowerment dimension (health, education, environment and living conditions), as detailed in table 2.

Table 2. Estimation of the logarithm of GDP per capita considering a static analysis

	Model 1 RE	Model 2 FE robust	Model 3 FE robust	Model 4 FE robust
Prosperity Index	0.0905***			
	(0.0056)			
Social capital		0.0072**	0.0045	0.0016
		(0.0035)	(0.0035)	(0.0028)
Safety and security		-0.0008	-0.0044**	0.0010
		(0.0018)	(0.0018)	(0.0015)
Personal freedom		0.0129**	0.0218***	0.0137***
		(0.0058)	(0.0052)	(0.0040)
Governance		0.0207***	0.0235***	0.0122***
		(0.0039)	(0.0055)	(0.0047)
Investment Environment			-0.0156**	-0.0107**
			(0.0064)	(0.0049)
Enterprise Conditions			-0.0236***	-0.0077*
			(0.0051)	(0.0044)
Infrastructure and market access			0.0303***	0.0143***
			(0.0041)	(0.0036)
Economic quality			0.0184***	0.0143**
			(0.0048)	(0.0036)
Living conditions				0.0168***
				(0.0038)
Health				0.0393***
				(0.0060)
Education				0.0126**
				(0.0051)
Natural environment				0.0127**
				(0.0054)
Constant	3.6314***	6.6901***	5.7913***	1.4072**
	(0.3417)	(0.3123)	(0.3803)	(0.5688)
Test F / wald	254.34***	129.89***	454.17***	1127.59***
R2 global	0.7591	0.9866	0.9891	0.9939
R2 between	0.7829			
R2 within	0.5911			
Rho	0.8375	0.8043	0.7445	0.7438
Hausman	2.42	10.92**	47.10***	97.48***

Note: Significant at 1% (***), 5% (**) and 10% (*). Standard errors in parentheses.
Source: own calculation

In the first model that considers only the overall prosperity index, it turned out to be statistically significant in the random effects estimation that was selected through the Hausman test in which the null hypothesis was accepted. Thus, an improvement in the global prosperity of countries generates an increase in per capita income, in line with the literature.

Models 2, 3 and 4 are fixed effects estimates, since the null hypothesis of the Hausman test was rejected. By validating the absence of autocorrelation and heteroscedasticity, the null hypotheses of both tests are rejected, requiring correction for robust errors.

These models were constructed using the stepwise forward methodology, starting with the inclusion of the inclusive society dimension, which considers social capital, and then adding the dimensions of open economy (model 3) and people empowerment (model 4), to assess consistency in the behaviour of social capital, in terms of significance and sign.

The results indicate that while social capital is significant and shows a positive sign in model 1, as other variables related to the economic situation and living, and environmental conditions are incorporated. When only those associated with the dimension of inclusive societies are analysed as explanatory variables, it is evident that an improvement in social capital, personal freedoms and governance generate a positive and significant effect on per capita income. The last two variables, personal freedoms and governance, maintain this behaviour in all models, despite the incorporation of other variables, so that by showing consistent behaviour it could be considered that institutionalism affects economic performance.

Social capital, understood as the networks of trust, cooperation and civic participation among individuals and groups, may not have a significant impact on GDP per capita in Latin America due to several factors. First, while social capital can foster collaboration and social cohesion, it does not necessarily translate into immediate productivity gains or economic wealth generation. In the region, structural problems such as low investment in infrastructure, education and technology limit economic growth, regardless of the strength of social relations.

Moreover, in many Latin American countries, distrust of government institutions and high levels of corruption erode the potential of social capital to influence the economy. Although communities may have networks of mutual support, if the institutional environment is weak, these networks do not translate into increased investment or a substantial improvement in business conditions. Another factor is that much of the economic activity in the region occurs in informality, where social capital can be useful for livelihoods, but does not have the same impact as in formal economies with greater access to credit, technology and international markets.

As for the variables associated with the economic dimension, they maintain a consistent behaviour in both models 3 and 4, all are statistically significant, although only infrastructure and market access, as well as economic quality show a positive relationship with GDP per capita. In the case of the investment environment and business conditions the results are opposite to what is proposed by the literature.

One of the main problems is the political and economic uncertainty that prevails in many countries in the region, as abrupt changes in fiscal and regulatory policies can discourage foreign and local investment. Without stable investment, job creation and enterprise growth slow down, limiting productivity growth and per capita income.

Moreover, in many Latin American countries, bureaucratic barriers and the high costs of starting or maintaining a business hinder business development, discouraging innovation and the growth of small and medium-sized enterprises, which are key to economic dynamism. Lack of access to finance is also a crucial factor affecting both entrepreneurs and investors, restricting the expansion of productive activities. Finally, high labour informality and gaps in infrastructure, education and technology diminish the region's competitiveness on the global stage.

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Given the presence of autocorrelation problems and the dependence on the past behaviour of GDP per capita, it is possible to approach a dynamic panel data analysis using the Arellano-Bond methodology that involves incorporating the lags of the dependent variable as explanatory variables as well as instruments linked to the rest of the independent variables. The results of the dynamic estimations by incrementally aggregating the three dimensions, inclusive societies (model 1), open economy (model 2) and people's empowerment (model 3), are shown in table 3.

Table 3. Estimation of the logarithm of GDP per capita considering a dynamic analysis (Arellano-Bond)

	Model 1	Model 2	Model 3
Ln GDP per capita (-1)	1.221***	1.0918 ***	1.0486***
	(0.0982)	(0.1055)	(0.1058)
Ln GDP per capita (-2)	-0.5813***	-0.6299 ***	-0.5341***
	(0.1718)	(0.1736)	(0.1790)
Ln GDP per capita (-3)	0.3347**	0.2191	0.2766
	(0.1897)	(0.2066)	(0.2041)
Ln GDP per capita (-4)	-0.1635	0.0177	-0.1512
	(0.1535)	(0.2128)	(0.2170)
Social capital	0.0024	0.0024	0.0028
	(0.0028)	(0.0028)	(0.0028)
Safety and security	0.0020	0.0027	0.0001
	(0.0029)	(0.0029)	(0.0031)
Personal freedom	0.0039	0.0016	0.0006
	(0.0037)	(0.0039)	(0.0038)
Governance	0.0012	0.0029	0.0037
	(0.0046)	(0.0068)	(0.0069)
Investment Environment		0.0063	0.0048
		(0.0051)	(0.0052)
Enterprise Conditions		-0.0043	-0.0015
		(0.0053)	(0.0053)
Infrastructure and market access		0.0027	0.0033
		(0.0053)	(0.0054)
Economic quality		0.0105 ***	0.0090 **
		(0.0038)	(0.0041)
Living conditions			0.0051
			(0.0058)
Health			0.0102
			(0.0092)
Education			-0.0024
			(0.0088)
Natural environment			0.0152 **
			(0.0076)
Constant	1.0937**	1.3512 ***	0.1071
	(0.4713)	(0.5747)	(0.7532)
Test F / wald	684.91***	731.58***	810.34***
Sargan Test	110.481	103.819	102.628

Note: Significant at 1% (***), 5% (**) and 10% (*). Standard errors in parentheses.
Source: own calculation

Based on the verification that in all the estimated models the instruments used are valid and are not correlated with the error term, as the null hypothesis of the Sargan test is accepted, it is evident that social capital is not statistically significant in any case, as well as the variables

related to institutionality. As reported in the literature, GDP per capita is influenced by past understanding and by economic quality, which turns out to be significant in the estimates in which it is included.

In addition, the findings indicate that the environment pillar is relevant in explaining GDP per capita. In many Latin American countries, the relationship between economic growth and environmental degradation follows a pattern like that of the environmental Kuznets curve. This model suggests that in the initial stages of growth, environmental degradation tends to increase; however, when a certain level of per capita income is reached, society demands higher environmental quality, leading to the implementation of policies and technologies that improve the environment.

In Latin America, as some countries reach higher levels of GDP per capita, the population becomes more aware of environmental problems, promoting policies that protect ecosystems and encourage sustainable development, which could explain the direct relationship between the two variables. Although it should be emphasised that this link is not automatic and depends on factors such as governance, education and investments in green technology and renewable energy. However, where conditions permit, higher GDP per capita can provide the resources and political will to protect the environment and move towards sustainable economic development.

These results raise the question that although social capital does not seem to show any effect, at least in the dynamic analysis, its disaggregation into different levels or perspectives, such as personal trust, networks, personal relationships, tolerance and civic participation, could show some effect on an individual basis. This approach is based on the idea initially proposed by Woolcock (1998) and developed by Esparcia et al. (2016) that it is necessary to achieve a process of rootedness, moving from strong personal relationships and consolidated community networks, to achieve some impact on development levels.

In this sense, the static (model 1) and dynamic (model 2) estimation disaggregating social capital into its different elements, keeping the rest of the explanatory variables, shows (table 4).

Table 4. Static and dynamic estimation of the logarithm of GDP per capita considering indicators of social capital.

	Model 1 RE - Static	Model 2 Dynamic
Ln GDP per capita (-1)		0.9199 ***
		(0.1110)
Ln GDP per capita (-2)		-0.3249 *
		(0.1768)
Ln GDP per capita (-3)		0.2661
		(0.1968)
Ln GDP per capita (-4)		-0.1517
		(0.2104)
Personal and Family Relationships	0.0071***	0.0070 **
	(0.0024)	(0.0026)
Social Networks	-0.0077***	0.0003
	(0.0026)	(0.0020)
Interpersonal Trust	0.0036**	0.0044 ***
	(0.0015)	(0.0013)
Institutional Trust	0.0003	0.0006
	0.0015	(0.0013)
Civic and Social Participation	-0.0061***	-0.0027 **
	(0.0015)	(0.0014)
Safety and security	0.0053***	-0.0010

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	(0.0015)	(0.0031)
Personal freedom	0.0081**	0.0018
	(0.0035)	(0.0037)
Governance	0.0129***	0.0015
	(0.0044)	(0.0065)
Investment	-0.0078	0.0068
Environment	(0.0053)	(0.0049)
Enterprise	-0.0141***	0.0046
Conditions	(0.0046)	(0.0053)
Infrastructure and market access	0.0095**	-0.0069
	(0.0042)	(0.0055)
Economic quality	0.0227***	0.0070 *
	(0.0027)	(0.0039)
Living conditions	0.0162***	0.0082
	(0.0040)	(0.0060)
Health	0.0442***	0.0090
	(0.0043)	(0.0092)
Education	0.0106**	0.0049
	(0.0044)	(0.0087)
Natural environment	0.0193***	0.0123*
	(0.0054)	(0.0074)
Constant	0.6041	0.0108
	(0.4492)	(0.7115)
Test F / wald	4376.37***	927.87***
R2 global	0.9662	-
R2 between	0.9961	-
R2 within	0.7264	-
Hausman	20.90	-
Sargan Test	-	92.66

Note: Significant at 1% (***), 5% (**) and 10% (*). Standard errors in parentheses
Source: own calculation

The results indicate that while in the static model most variables are statistically significant, in the dynamic model they lose significance, this may be because the dynamic model better controls for problems such as endogeneity, time effects and autocorrelation, which would indicate in the static model that significance may have been the product of biases or spurious relationships. Dynamic models, such as the Arellano-Bond model, offer a tighter and more accurate view of the relationships in the panel data, which may reveal that certain variables do not actually have the impact they appear to have in a static model.

Looking at the findings from the dynamic model, the personal and family relationships, interpersonal trust and civic and social participation explain the behaviour of GDP per capita, in addition to environment and economic quality, results that corroborate previous estimates. Strengthened personal relationships based on trust improve economic performance, characteristic of countries that are in the early stages of social capital development and require the consolidation of bridging and linking relationships to move towards better territorial performance.

With respect to civic and social participation, the results indicate an inverse relationship, which could be the result of the indicators considered in this component; these indicators relate to donations to charities, electoral participation and volunteering. The literature has shown that prosocial behaviour is linked to the income level of countries, considering that Latin America has strong inequalities and an average income, donations are low. With regard to political participation, except in countries where it is obligatory, such as Ecuador, abstention in electoral processes tends to be high, and this participation is also reduced in community contexts, where civil society is not very involved, sometimes due to the system itself and other times due to the existing interest of the population, for whom there are priorities related to the generation of their own income, family and household responsibilities. This behaviour is

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linked to weaknesses in terms of community social capital, which, as indicated, in Latin American countries needs to be strengthened, taking strong personal and family relationships as a starting point.

4. Discussion and conclusions

The evolution of the concept of development has brought with it the inclusion of new forms of capital and with them a broader and interdisciplinary vision that conceives an integrated process between economic, social, environmental and political-institutional dimensions (Sepulveda, 2008). Specifically, the social dimension includes elements associated with relationships, norms, trust and political and civic participation that led to improvements in living conditions and poverty reduction (Woolcock, 1998; Eroglu and Kangal, 2016; McShane et al., 2016; Kim, 2018).

This set of elements is grouped into so-called social capital approached from different disciplines: sociology (Bourdieu, 1985; Coleman, 1990), politics (Putnam, 1993) and economics (Knack and Keefer, 1997; Becker and Murphy, 2000; Pisani and Franceschetti, 2001; Sabatini, 2008), giving rise to at least three perspectives: structural, tiered and network.

In any case, regardless of the approach, social capital allows access to resources and the possibility of appropriating the benefits derived from them, from a micro (individuals or companies), macro or community (territories or countries) point of view. From the former, social capital is additional to the physical, natural or human capital that generates economic growth, whereas, in the second case, social capital is linked to economic development processes (Knack and Keefer, 1997; Sabatini, 2008), both at macro and community levels, framed in the territory (Pisani and Franceschetti, 2001).

This contributes to economic growth, living conditions and poverty reduction (Kliksberg, 2002; Portales, 2014). At the aggregate level, social capital goes through distinct stages that are usually called rooting, where intra-community relationships of trust must be consolidated through bridging and linking relationships. Thus, it is a long-term process, through which societies need to transition to enjoy these benefits and become cohesive and strongly linked to the outside.

The results of the analysis are largely in line with the literature reviewed, where authors such as Putnam (1993) and Coleman (1990) highlight that social capital can act as a resource that, by facilitating cooperation and trust, generates competitive advantages. In this study, social capital appears to boost productivity, but its impact on GDP per capita in the short run is limited. This can be attributed to structural factors, such as the lack of strong institutions and economic barriers, especially in developing economies such as those in South America.

According to Woolcock and Narayan (2000), social capital has the potential to reduce inequalities and improve living conditions by strengthening networks and building interpersonal and institutional trust. The findings in this research indicate that in South America, social capital does not always have a direct effect on short-term economic growth.

Disaggregated analysis of the Prosperity Index pillars shows that the investment, infrastructure and business conditions components are the most influential on economic growth, while social capital does not have a significant effect in all cases. This may be due to the reliance of the region's economies on infrastructure and sound market conditions to attract investment and improve competitiveness, as suggested by Knack and Keefer (1997). The literature also suggests that while social capital fosters an environment of cooperation and reduced transaction costs, its effect on GDP may be conditional on the degree of development of other economic dimensions, such as infrastructure and the quality of institutions.

The dynamic panel data models applied in this research reveal that social capital has a positive, though not significant, effect on GDP per capita. This is consistent with studies such

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as McShane et al. (2016), which show that social capital can contribute to sustainability and economic development through social cohesion and trust. However, these effects may be indirect and depend on other factors, such as institutional context and political stability. The literature reviewed suggests that, in early stages of development, social capital can promote cohesion, but for it to be a determining factor in economic growth, it is necessary to consolidate 'rootedness' and 'bridging' relationships, which allow for integration with other groups and tapping into external networks (Woolcock, 1998; Esparcia et al., 2016).

In the case of South America where inequalities are so notable, and Ecuador because of the existing cultural and multi-ethnic component, which determines a high quality and quantity of relationships, the strengthening of social capital could become the dynamic axis of the reduction of existing gaps. In this context, our research, based on the prosperity index, tried to identify the relationship between the average income level of the population, measured by GDP per capita and social capital from the macro and social structure perspective. To do so, we considered the elements of personal relationships, networks, social civic participation (structural element) and personal and institutional trust (relational element) to be part of social capital, as well as the other dimensions of the prosperity index.

This approach from the perspective of the social dimension of development allowed us to understand the cultural, ethnic, institutional and relational processes that are seldom analysed both from the macro and micro point of view, constituting a contribution to the explanation of the gaps that exist in South American countries.

In this way, the results show that for South America social capital is consolidated based on family and personal relationships, as well as individual networks, while civic, institutional and personal trust are the weakest elements, which could explain that societies, although they are cohesive, do not achieve the rooting that is the connection with the environment, limiting growth and the appropriation of profits.

This could allow us to understand the estimates of the dynamic panel, at least for the aggregate case of South American countries, since they show that social capital was not statistically significant in the explanation of GDP per capita.

Hence, it could be thought that in South America the process of consolidation of social capital involves strengthening institutions, trust and relations with the outside world to achieve rooting (Granovetter, 1985; Portes, 1998; Woolcock and Narayan, 2000; Lin, 2008; Casson and Giusta, 2007; Esparcia et al., 2016), even more so given that personal relationships, institutional trust and networks turned out to be statistically significant in the disaggregated estimate.

Thus, if we are to improve living conditions and reduce poverty in South America, it is necessary to evaluate the processes of formation and consolidation of social capital, particularly those that allow rooting, based on institutionality and the strengthening of trust and citizen participation in decision-making processes.

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