

Article

# Impact of Regional Disparities in Social Capital and Its Components on Quality of Life

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**Abstract:** According to the prevailing opinion, social capital is one of the most robust indicators of quality of life (QoL). We ask whether this insight applies to Slovakia, as well, on the basis of understanding social capital not as one holistic concept but as a set of interrelated components, which are trust, networks, and norms. The paper has two goals, the first of which is to determine the amount of social capital, its components, and QoL, as well as its spatial disparities, at a district level. In this case, the goal is to determine the quantity of the investigated variables. The data source is the World Value Survey, Round 7, in which Slovakia also participated. The second goal is to find out how social capital and its components affect the QoL in individual districts. In other words, we would like to determine the quality of the impact of social capital and its components on the QoL. The result is the knowledge that social capital as a whole reaches significantly lower values than the QoL and is not a predictor of the QoL in Slovakia. At the same time, however, disparities in the impact of social capital and its components on the QoL have high values. This knowledge challenges the understanding of holistic social capital as a robust indicator of QoL.

**Keywords:** social capital; trust; networks; norms; QoL; World Value Survey 7; Slovakia



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## 1. Introduction

Social capital and QoL have a prominent place among social concepts. Social capital is one of the intangible assets of man based on Aristotle's idea that "man is by nature a social animal" [1]. It can simply be described as a network of relationships between people contributing to the achievement of desired goals. In recent years, the need to acquire empirical knowledge has become evident in the study of social capital [2]. QoL is a cognitive assessment of satisfaction with one's life according to the idea that every person has a good life. When looking at social capital from a QoL perspective, there is a consensus of belief that it is a strong predictor of QoL. Bartolini and Sarracino [3] consider social capital to be the most important predictor of QoL in the long run. In terms of social capital and QoL, their research is based on the acquisition and analysis of available data. One of the respected sources of data in the social sciences used in QoL research is the World Value Survey [4,5]. Round 7 of the World Value Survey (hereinafter referred to as WVS 7) took place between 2017 and 2022 [6]. Slovakia also participated in the research; its survey took place in January and February 2022. A specific feature of WVS 7 in many countries, including Slovakia, was that the survey was carried out against the background of the COVID-19 pandemic. QoL is a philosophical and psychological concept [7]. These disciplines are concerned with "man as such". Although the QoL concerns the individual, man is a social being, so sociology enters into the study of the QoL. It deals with "society as such" [8]. The complexity of

the contemporary world makes it necessary to add a geographical dimension to the study of man and society “as such”, consisting of an orientation toward physical space. This dimension has its expression in the study of QoL in its objective dimension. In this paper, we respond to this idea by examining the effects of social capital on QoL at the level of Slovak districts in statistical terminology representing the level of LAU 1. In this paper, we focused on the effects of social capital and its parts on the QoL at two geographical levels—higher (Slovakia) and lower (districts). Thus, we speak of “regional social capital” and “regional QoL” [9]. The data from WVS 7 are in the form of “self-reported data”. The number of measurements using subjective data is increasing [10,11], despite the fact that some researchers rejected them in the past due to excessive subjectivity. Glatzer [12] pointed out that “The answers given by individuals have been found to be valid”.

### 1.1. Conceptual Framework

Investigating the connection of QoL and related concepts of well-being or happiness with social capital, or social relationships in general, receives less attention than the well-established relationship with health, education, age, or income [13,14]. Social capital and QoL have several elements in common. The basic premise is that every person has both. Social capital and QoL are social multidimensional concepts, and both are geographically differentiated. Both are considered important concepts in academia, and research on them is increasing. Both concepts are also identified with their most significant components, which are considered to be trust in social capital and well-being in QoL. At the same time, similar to QoL [15], social capital is considered an “umbrella term” [16]. On the other hand, social capital and QoL differ both in their history and conceptualization. The roots of studying the QoL go back to Aristotle. In the modern world, the term “QoL” was first used in the 1950s. Social capital has no roots in antiquity; it was popularized by Pierre Bourdieu in the 1980s. The main epistemological difference between the terms is that social capital can be considered an “input” (an input variable influencing other phenomena such as health, economic performance, QoL, and happiness), while QoL can be considered an “output” (an output variable influenced by gender, age, education, health, social ties and environment). QoL has the characteristic of an “outcome” because *sui generis* is an assessment of an individual’s satisfaction with his or her life. Social capital is therefore a predictor of health, economic performance, QoL, or happiness. It is an “independent variable” in the terminology of mathematical statistics. Gender, age, education, health, social ties, and environment are indicators of QoL. QoL is a “dependent variable” in the terminology of mathematical statistics. The growing trend toward identifying trust, networks, and norms as key components of social capital is another difference between social capital and QoL. In connection with the QoL, the orientation toward its key components is absent, even though the QoL is often equated with well-being. The absence of a key component is illustrated, among other ways, by the dispute over the validity or invalidity of Easterlin’s paradox. In other words, the dispute involves whether QoL improves with an increase in prosperity or not. The third difference is in the answer to the question of whether the value of social capital and QoL changes over time. Weiss et al. [17] explore this question in relation to social capital, and according to some opinions, it is decreasing. This is evidenced by the title of one of the most famous works devoted to social capital, *Bowling Alone* [18]. In the USA, the decline of social capital in the last three decades is reported by Bartolini et al. [19], and in Slovakia, the decline is reported between the years of 1991 and 2008 [20]. On the other hand, life satisfaction in developed countries is increasing, as documented by rankings such as the World Happiness Report [21]. Related to this is another disparity concerning growth. An individual can increase the mass of his social capital, and the growth of social capital is positive. The quality of an individual’s life can change qualitatively, but it cannot necessarily grow. Preserving or improving the QoL is positive. This can be illustrated by a trivial example. Every person has thirty-two teeth; his or her aspiration is to have teeth that are in good condition, not to have more teeth.

### 1.2. Social Capital

Chetty et al. [22] assume that social capital can play a central role in shaping significant social phenomena. One of its most important characteristics is that social capital is a public good [23]. The conceptualization of social capital, the role of Pierre Bourdieu and other “founding fathers”, and the division in bridging, bonding, and linking social capital are presented by many authors dealing with social capital. The works of Robert Putnam have had the greatest influence on the study of the spatial aspect of social capital among the founding personalities. According to this work, a political scientist is a social capital created by people through their mutual interactions and participation in a geographical space, which, in turn, influences the interactions through its characteristics [23]. In this paper, there are many definitions of social capital, but we start with the following one: “Social capital can be defined as features of social organisation, such as networks, norms and trust that facilitate coordination and cooperation for mutual benefit” [24]. There is no consensus among researchers about whether social capital is individual, collective, or individual–collective. Some scientists identify social capital with one of its parts, most often with trust. However, this approach is questioned because it is based on the belief that social capital is not unitary [25]. For this reason, this paper is based on the understanding of social capital not as one holistic complex but as a set of several equivalent components [26]. These components are (i) trust, (ii) networks, and (iii) norms. Other authors do not consider the components of social capital to be equivalent; they consider trust to be the most important component [27,28]. Trust is a key element of the social world and the first prerequisite for a well-functioning society. It is a fundamental component of social capital, conditioning its other components—networks and norms [29]. The importance of trust in the public sphere is evidenced by the fact that Pope Francis, after two encyclicals on environmental issues, wrote an encyclical on trust [30]. We divided it as a component of social capital into the following parts regarding the description of trust: (ia) generalized trust, (ib) individualized trust, and (ic) institutionalized trust. Social capital is spatially differentiated [31]; this finding is closely related to the focus of our paper.

### 1.3. Quality of Life

QoL is one of the concepts with which contemporary late modern society wants to grasp and express the socioeconomic complexity of the period in which we live [32]. QoL has become a central scientific topic in the social sciences [33]. Despite the significant increase in researchers’ interest in the study of QoL, which resulted in an upsurge in interest, and despite the fact that the term QoL has simultaneously become part of ordinary public discourse, there has been no agreement on its definition or on the variables that make it up (dimensions, domains, indicators) and thus on the methods of how to measure it [34–45]. A solution could be to accept the commonly known World Health Organization definition: “QoL is an individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns” [46]. One of the few is the agreement that the QoL has subjective and objective components, which are measured by subjective and objective indicators. These indicators are normally poorly correlated [47]. Essential in this context is the fact that QoL is a “psychological matter”, which implies the need to prioritize subjective indicators over objective ones. In this paper, we consider QoL as a subjective, cognitive, and emotional assessment of life satisfaction. Every person lives in a physical environment that affects life satisfaction, and, therefore, the QoL has an objective dimension as well as a subjective one. This makes it holistic. The objective, spatial dimension of the QoL is explored at the regional level [48,49] or at the level of settlements, usually cities [50]. The combination of both dimensions makes the QoL holistic. An important part of our understanding of the QoL is the belief that it is not directly proportional to its prosperity. QoL is often equated with well-being, happiness, or satisfaction with life, which some researchers reject. In terms of examining the impact of social capital on QoL, we will identify well-being, happiness, and life satisfaction with QoL. Gómez-Balcácer et al. [14] provide a review of

authors examining the impact of social capital, marital status, employment, income, and other indicators of happiness. They show that the authors report seemingly contradictory results. However, a closer look reveals that it makes a difference whether social capital is expressed as personal trust or electoral participation, whether cohabitation is associated with marriage or single life, or whether income is examined as absolute or relative, etc. In this paper, we are focused on the QoL at a regional level, which has received little attention compared to the QoL at a state level [51]. The dilemma of the approach also applies to the regional level—subjective or objective—and the measurement related to it. An objective approach with objective indicators already meant the existence of fifty-three well-being indices created in the USA, Canada, and Australia a decade ago [52]. It can be concluded that continuing in this way leads to a dead end.

#### 1.4. Literature Review

Researchers deal with the relationship between social capital and QoL [3,22,53–58] and, among others, social capital and happiness [14,25,59,60], social capital and well-being [61,62], and social capital and satisfaction with life [29]. According to Murgaš et al. [28], the correlation coefficient of the QoL and social capital in the Czech Republic is 0.09, disrupting the prevailing attitude that indicates accepting the strong impact of social capital on the QoL. Slovak authors paid minimal attention to the relationship between social capital and QoL. Bačová [63] explored this relationship from a psychological point of view. Mrva [64] explored the impact of social capital on subjective well-being at the level of Slovakia based on measurements of the European Values Study (hereafter EVS) in 1991, 1999, 2008, and 2017. Social capital was operationalized as social networks, social norms, and trust. Trust was divided into generalized trust and trust in state institutions. The result is the finding that trust in state institutions and household income is a strong predictor of QoL in all four measurements. Social capital, as well as QoL, are spatially differentiated. Mohan and Mohan [23] focus on the geography of social capital; Withers [29] and Tomaney [51], Faka et al. [61], and Murgaš and Petrovič [62] focus on the geography of the QoL.

#### 1.5. Goals

In this paper, we are focused on two circuits, which correspond to two goals. The first circuit is dedicated to the measurement of social capital in Slovakia, its components, and QoL. The goal is to determine the value of social capital, its components, QoL, and their geographical differentiation. The second circle concerns the impact of social capital and its components on the QoL. We are interested in whether the status of trust as the most important component of social capital will be confirmed in Slovakia. The second goal is to explore the impact of social capital and its components on the QoL in the districts of Slovakia.

## 2. Materials and Methods

### 2.1. Data

The WVS 7 global survey focuses not only on values but also on other social factors, including motivations, beliefs, religion, gender equality, social capital, and well-being. The whole questionnaire survey contains 290 questions grouped into logical units. A total of 1200 residents of Slovakia aged 18 and over took part in the survey between January and February 2022. The computer-assisted personal interviewing (CAPI) method, the essence of which is the recording of respondents' answers to questions on an electronic device, usually a tablet, was used in the survey. The survey is described in detail in the Technical Report, Slovakia, 2022 [65]. A total of 48 questions focusing on social capital (Table 1) and 1 question on QoL (Table 2) were selected from the 290 questions of the WVS7. The numbering of questions Q1–Q105 is identical to the original numbering of questions in the WVS7.

**Table 1.** Descriptive statistics of social capital and quality of life.

Demographic Characteristics	Social Capital			Quality of Life		
	N	Mean	Std. Dev	N	Mean	Std. Dev
Whole Sample	1200	4.76	1.18	1200	6.78	1.93
Males	552	4.67	1.17	552	6.77	1.90
Females	648	4.83	1.18	648	6.79	1.97
Age						
18–30	127	4.83	1.22	127	7.16	1.71
31–45	290	4.81	1.23	290	7.21	1.79
46–60	347	4.68	1.20	347	6.66	1.95
61–75	361	4.73	1.11	361	6.50	1.99
76+	75	4.91	1.10	75	6.37	2.08
Place						
Urban	690	4.79	1.17	690	6.77	0.98
Rural	510	4.70	1.18	510	6.70	1.20
Education						
No education and primary education	72	4.56	1.50	72	5.27	2.07
Lower secondary education	359	4.56	1.08	359	6.27	2.01
Upper secondary education	500	4.82	1.21	500	6.83	1.86
Post-secondary education	46	4.75	1.19	46	7.33	1.49
Short-cycle tertiary education	11	4.82	1.46	11	7.09	1.04
Bachelor or equivalent	40	5.13	1.22	40	7.53	1.84
Master or equivalent	153	4.98	1.18	153	7.82	1.41
Doctoral or equivalent	19	5.15	1.35	19	7.32	2.03

Source: Own research using WVS 7 data.

**Table 2.** Average value of social capital and quality of life.

Variables	Social Capital	QoL
Value	4.8	6.8
Range of values	2.1–8.3	1–10

Source: Own research using WVS 7 data.

## 2.2. Methods

The answers to 49 relevant questions on social capital and QoL were selected from the answers to all questions for Slovakia in WVS 7. In the questionnaire, research participants on social capital are offered a different number of answers—two (generalized trust), three (networks), and four (individualized trust, institutionalized trust, norms)—which makes their mutual comparison impossible. For that reason, the answers (Table 1) are transformed to the same base 1–10, which is the same in Table 2. The principle values are as follows: 1 = the lowest value is used, or “don’t belong” for networks, 10 = the highest value, or “active member” at networks. “Generalised trust” (question Q7) does not correspond to this. The authors did not use the scale of “10—All people can be trusted” and “1—Nobody can be trusted” but the middle scale, as follows: 1—Most people can be trusted, 2—Need to be very careful. In terms of content, grades 7 and 3 would correspond to the middle scale, but we used the principle values: 1 = the lowest value, 10 = the highest value. Answers of “I don’t know” or “No answer” were not included in the processing. The range from 1 to 10 cannot be divided evenly into three or four integers, so we arbitrarily decided that the highest value of the four possible answers would be the number 10, the second highest value would be the number 7, the second lowest would be the number 4, and the lowest value would be the number 1. With three possible answers, the highest value would correspond to the number 10, the middle value would correspond to the number 5, and the lowest value would correspond to the number 1. The QoL (Table 2) is determined by one question, Q49, as satisfaction with life on a scale of 1–10, where the value 1 expresses complete dissatisfaction with life and the value 10 represents complete satisfaction with life.



Life satisfaction is synonymous with QoL because when we measure QoL, we measure the degree of satisfaction with it [65,66]. The answers to 49 questions were then grouped using codes indicating the residences of the research participants. In the next step, the data for the settlements were grouped into selected districts using codes. We use the term “selected districts” and not “districts” because the participants of WVS 7 were from most districts of Slovakia, but not from all. The data for the districts became the basic data that were processed using selected mathematical statistical methods, especially the Bravais–Pearson correlation coefficient and regression [67].

### 2.3. Measurement

Social capital is measured in different ways. The British Office for National Statistics [68] measures social capital with six dimensions—social participation (networks), social networks and social support (networks), reciprocity and trust (shared norms and values), civic participation (cooperation), and views of the local area (shared norms and values). The World Bank responded to the need to measure social capital by constructing a similarly structured “Integrated Questionnaire for the Measurement of Social Capital” with six dimensions, including trust and networks [2]. Chetty et al. [22] focused on users of the Facebook social network in US counties. In this paper, we explore the disparity of the impact of regional social capital and its three components on the regional QoL in the districts of Slovakia, not using their own index of social capital but according to the answers of individuals participating in WVS 7. All values of social capital, its components, and QoL used in the measurements are average values obtained from 1200 participants transformed to a scale of 1–10. In measuring values by selected districts, values were first counted by residence of the 1200 WVS 7 participants, and in the second step, residences were counted by individual districts (in statistical terminology, LAU 2). In measuring the aforementioned impact, we were first interested in whether there is a relationship among observed characteristics 1 to 8 (generalized trust, personal trust, institutional trust, trust, networks, norms, and social capital, QoL), specifically whether any of the observed characteristics 1–7 correlate with observed characteristic 8, the QoL feature. Given that all observed characteristics have a normal distribution, we used the Bravais–Pearson correlation coefficient [68] to calculate the correlation between the two corresponding characteristics,  $X$  and  $Y$ , which is defined as follows:

$$r = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2} \sqrt{\sum_{i=1}^n (y_i - \bar{y})^2}}.$$

The correlation coefficient takes values from the interval  $\langle -1, 1 \rangle$ . If the value of  $r$  is close to 1, then there is a positive linear relationship between characteristics  $X$  and  $Y$ , i.e., large values of characteristic  $X$  correspond to large values of characteristic  $Y$  and vice versa. If the value of  $r$  is close to  $-1$ , then there is a negative correlation (significantly inverse relationship) between characteristics  $X$  and  $Y$ . Large values of the  $X$  characteristic correspond to small values of the  $Y$  characteristic and vice versa.

Regression analysis is another statistical method that was used in the analysis of the research results. If the correlation coefficient between the examined quantitative features  $X$  and  $Y$  is statistically significant, we will be interested in the connection between them from the point of view of regression. Our effort will be to estimate the values of characteristic  $Y$  (the so-called dependent variable) based on the given values of characteristic  $X$  (the so-called independent variable).

Assume that there is a linear dependence between  $X$  and  $Y$ . The points  $(x_i, y_i)$  of the correlation diagram need to be placed alongside the so-called balancing or regression line, which is given by the following relation (9.6):

$$\hat{y}_i = b_1 \cdot x_i + b_0, \quad i = 1, 2, \dots, n,$$

where  $\hat{y}_i$  is the expected (estimated) value of characteristic  $Y$  for the  $i$ th measurement,  $x_i$  is the value of characteristic  $X$  for the  $i$ th measurement,  $b_0$  is the value  $\hat{y}_i$  if  $x_i = 0$ , and  $b_1$  is the directivity of the line, which determines how much  $\hat{y}_i$  will change if  $x_i$  changes by 1 measurement unit.

Differences  $e_i = y_i - \hat{y}_i$  for  $i = 1, 2, \dots, n$  are called residuals of the regression line, we interpret them as point estimates of random errors  $\varepsilon_i$  of model (9.5). Our goal is to choose the regression line so that the differences  $e_i = y_i - \hat{y}_i$  between the measured  $y_i$  and estimated  $\hat{y}_i$  values are minimal.

The method of least squares is one of the most widely used methods for estimating the unknown parameters of a regression function (straight line), while the appropriateness of the selected regression model can be measured, among other things, using the coefficient of determination, which is referred to as  $R^2$ . The coefficient of determination  $R^2$  is given by the following relation:

$$R^2 = 1 - \frac{\sum_{i=1}^n (y_i - \hat{y}_i)^2}{\sum_{i=1}^n (y_i - \bar{y})^2},$$

where  $y_i$  ( $i = 1, \dots, n$ ) are the observed values and  $\hat{y}_i$  is the expected value of the time series at time  $i$ , and  $\bar{y}$  is the arithmetic mean. The coefficient of determination acquires values from the interval  $\langle 0-1 \rangle$  while explaining what part of the total variability is determined by the selected regression model.

In the paper, we were also interested in whether the relationship between social capital and QoL in districts can be expressed using a suitable mathematical function. If so, we aimed to determine what type of regression would describe that dependence.

We first illustrated the situation graphically (Figures 1 and 2) based on the images and the calculated value of the coefficient of determination ( $= 0.071$ ). Using an F-test of linear regression ( $F = 2.683$ ,  $p = 0.082$ ), we can conclude that there is no regression relationship between social capital and QoL. We followed an analogous approach to answer the question of whether the relationship between generalized trust and QoL (trust and QoL; networks and QoL; and values and QoL) in districts can be expressed using an appropriate mathematical function. If so, we wanted to determine what type of regression would describe the abovementioned dependence.

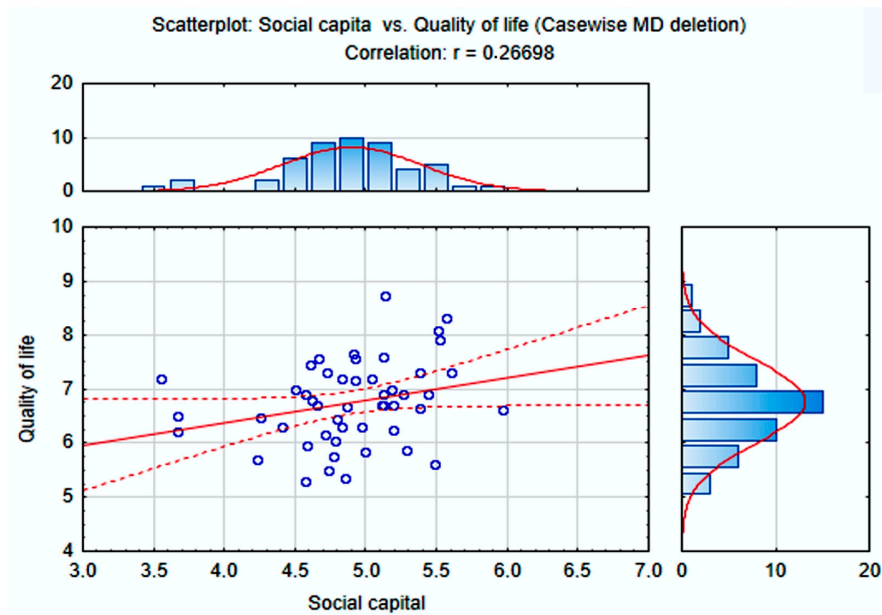


Figure 1. Scatterplot of QoL and social capital.

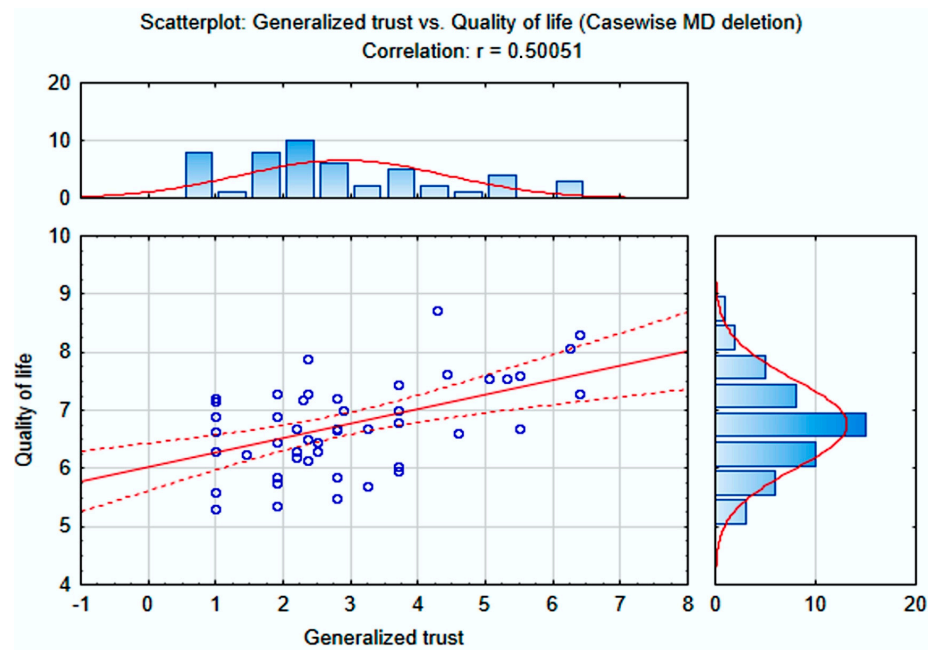


Figure 2. Scatterplot of generalized trust and QoL.

(a) The relationship between trust and QoL

In the previous section of this paper, we described the position of trust as an important element of social capital. Therefore, we followed an analogous approach to determine the appropriate model to best characterize the relationship between trust and QoL. In the same way, for the description of the development of the assessment of the QoL based on the assessment of trust, we chose a non-linear dependence (parabola) as a suitable mathematical function. We calculated the value of the F-test, which we evaluated using the calculated probability value of  $p = 0.00084$ .

Since the probability value  $p$  in our case is less than 0.01, we reject the tested hypothesis  $H_0$  that the selected model is not statistically significant at the level of significance  $\alpha = 0.01$  and accept the alternative hypothesis  $H_1$  that the selected model is statistically significant. Based on the calculated value of the coefficient of determination (multiple  $R$  is 0.22), we see that the chosen mathematical function—the parabola—explains 22% of the variability of the QoL values.

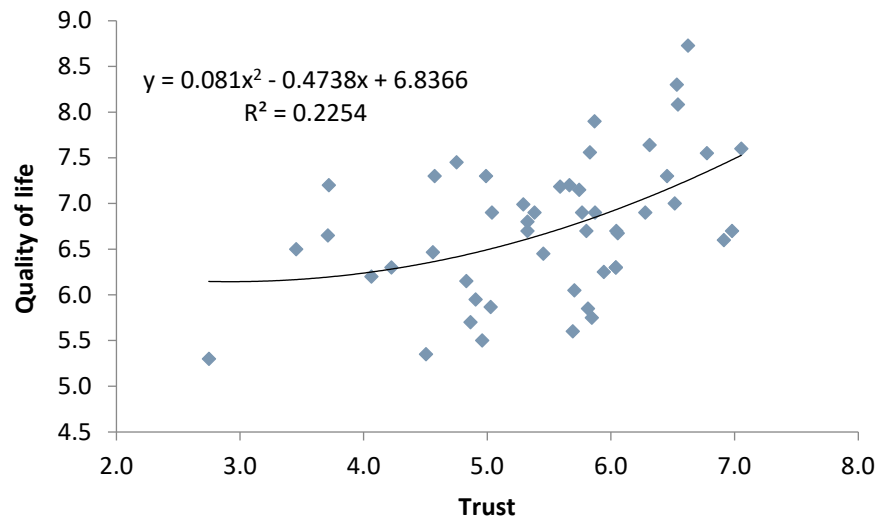
The equation of the parabola for estimating the development trend of the QoL assessment based on the trust assessment has the following form:

$$\hat{y}_t = 0.081x^2 - 0.4738x + 6.8366. \quad (1)$$

The estimate of the development trend of the QoL assessment based on the trust assessment is shown in the following figure (Figure 3).

We can see from Figure 3 and from the calculated value of the coefficient of determination ( $R^2 = 0.22$ ) that there is a regression relationship between trust and QoL, i.e., based on the trust values, we can use the mathematical function (1) to estimate the QoL scores. At the same time, there is no regression relationship between networks and QoL based on the calculated value of the coefficient of determination ( $R^2 = 0.002$ ) and the F-test of the chosen regression ( $F = 0.106$ ,  $p = 0.745$ ), just as it is not possible to find a suitable mathematical function to describe the regression relationship between norms and QoL with the coefficient of determination ( $R^2 = 0.071$ ) and the F-test of the chosen regression ( $F = 2.683$ ,  $p = 0.060$ ).

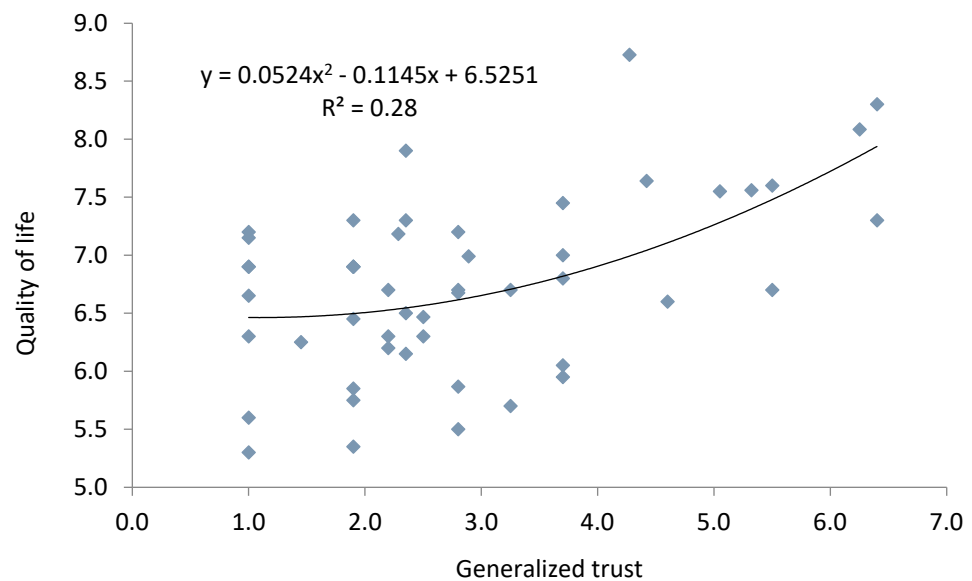




**Figure 3.** Estimation of the development trend of the assessment of QoL based on the assessment of trust in selected districts of Slovakia.

(b) The relationship between generalized trust and QoL

Our aim was to determine the appropriate model that best describes the relationship between generalized trust and QoL. We used the graphical representation of the correlation coefficient ( $r = 0.50$ ) between generalized trust and QoL (Figure 4) to select a mathematical function describing the relationship between QoL scores and generalized trust.



**Figure 4.** Estimation of the development trend of the assessment of QoL based on the assessment of generalized trust in the districts of Slovakia.

In our case, we chose a non-linear dependence (parabola) as a suitable mathematical function to describe the development of the QoL assessment based on the assessment of generalized trust. We calculated the value of the F-test, which we evaluated using the calculated probability value of  $p = 0.00021$ . The  $p$ -value is the probability of the error we make when we reject the hypothesis being tested,  $H_0$ , in favor of the alternative hypothesis,  $H_1$ . If this probability is less than 0.05 or 0.01, we reject the hypothesis tested,  $H_0$ , at a level of significance of  $\alpha = 0.05$  or  $\alpha = 0.01$ . Otherwise, we do not reject  $H_0$ , the hypothesis being tested.

Since the probability p-value in our case is less than 0.01, we reject the tested hypothesis,  $H_0$ , that the chosen model is not statistically significant at a significance level of  $\alpha = 0.01$  and accept the alternative hypothesis,  $H_1$ , that the chosen model is statistically significant. Based on the calculated value of the coefficient of determination (multiple  $R$  is 0.28), we see that the chosen mathematical function—the parabola—explains 28% of the variability of the QoL values. The equation of the parabola for the estimation of the development trend of the assessment of the QoL based on the assessment of generalized trust has the following form:

$$\hat{y}_t = 0.0524x^2 - 0.1145x + 6.5251. \quad (2)$$

The estimate of the development trend of the QoL assessment based on the generalized trust assessment is shown in Figure 4.

From the figure, and also on the basis of the calculated value of the coefficient of determination ( $R^2 = 0.28$ ), we can see that there is a regression relationship between generalized trust and QoL. On the basis of the values of generalized trust, we can use the mathematical function (2) to estimate the assessment of the QoL.

### 3. Results and Discussion

We present the values of descriptive statistics of social capital and QoL according to demographic characteristics (Table 1) at the beginning of the measurement analysis.

One important finding related to the first goal of the paper is presented in Table 1. The mean value of social capital is 4.76, which is significantly lower than the mean value of QoL (6.78). It is a realistic assumption that the value of the QoL was also negatively affected by the ongoing COVID-19 pandemic. This means that the value of QoL that can be described as good is achieved in Slovakia despite the low value of social capital.

The value of social capital is almost the same for men and women and varies slightly depending on the place of residence. The range of values is given by the range of values according to education 4.56–5.15. Knowledge of the complementarity of social capital and education confirms this [16]. According to age, the values of social capital have the shape of the letter V. They decrease with age but increase from the age of 61.

On a scale of 1–10, the difference between the value of social capital and the value of QoL in Slovakia is 2, as can be seen in Table 2. The value of the Bravais–Pearson correlation coefficient of social capital and QoL is 0.27 according to Tables 3 and 4 below. This means that social capital in Slovakia has a weak impact on the QoL and is not its predictor.

**Table 3.** Components of social capital.

Components of Social Capital	Trust	Networks	Norms
Value	5.5	1.9	7.2

Source: Own research using WVS 7 data.

**Table 4.** Bravais–Pearson correlation coefficient of social capital, its components, and parts of trust with quality of life.

Variables	Trust			I. Trust	II. Networks	III. Norms	Social Capital	QoL
	I.a Generalized	I.b Personal	I.c Institutionalized					
1.a	1							
1.b	0.36 *	1						
1.c	0.52 *	0.32 *	1					
I.	0.58 *	0.44 *	0.99 *	1				
II.	0.01	−0.11	0.06	0.04	1			
III.	−0.16	0.20 *	−0.12	−0.10	0.02	1		
Soc. capital	0.30 *	0.32 *	0.61 *	0.63 *	0.62 *	0.46 *	1	
QoL	0.50 *	0.17	0.45 *	0.46 *	0.05	−0.11	0.27 *	1

\* Statistically significant value.

Out of all 1200 participants, the lowest social capital value of 2.1 was measured once, and the highest value of 8.3 was also measured once. The lowest QoL value of 1 was measured once, and the highest value of 10 was reported by 79 participants, of which 21 were from the Prešov District (with 60 research participants) and 7 were from the Prievidza District (with 50 research participants). On the other hand, only 4 out of 100 participants gave a value of 10 from the capital city of Bratislava.

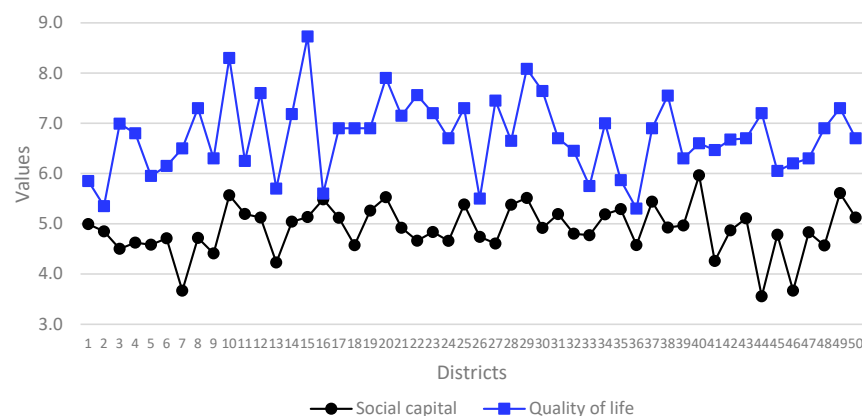
As discussed in Section 2.1, we understand social capital as a set of components of trust, networks, and norms [26]. Part of the first goal was to determine their value. Table 3, with their values, can be interpreted so that trust is slightly higher than social capital, the values of networks, measured as membership and activity in voluntary organizations, are extremely low, and the values of norms are significantly higher than the values of social capital in Table 2.

We present the calculated values of the Bravais–Pearson correlation coefficient between the components of social capital and QoL and the components of trust and QoL in Table 4. The correlation matrix shows a large range of calculated values of the correlation coefficient on the positive side (0.05–0.50); the correlation of QoL and standards is negative (−0.11). The knowledge of the large dispersion of correlation values corresponds to the considerable dispersion of values, including negative values of correlations of QoL and components of social capital, which is stated by Bjørnskov [25]. This fact documents the necessity to measure social capital with more than one parameter, even though trust is a very important component of social capital.

The Bravais–Pearson correlation coefficient confirms institutionalized trust as a strong predictor of QoL in Slovakia [63]; in contrast to these findings, we also observe generalized trust as a strong predictor.

There is also a large range of calculated values between the components of social capital and the parts of trust.

Part of the first goal of the paper is to explore the geographical differentiation of social capital at the district level. Therefore, we first calculated the average values of the observed characteristics from 1 to 8 in individual selected districts of Slovakia. The measured values are illustrated in Figure 5. It shows that with the exception of one district, the average QoL values are higher than the social capital values. In that one district, the values of both are the same.



**Figure 5.** Average values of social capital and QoL in selected districts of Slovakia. Note: Numbering of districts: 1 Banská Bystrica, 2 Bardejov, 3 Bratislava, 4 Brezno, 5 Čadca, 6 Dunajská Streda, 7 Galanta, 8 Gelnica, 9 Hlohovec, 10 Humenné, 11 Ilava, 12 Kežmarok, 13 Komárno, 14 Košice, 15 Košice-okolie, 16 Krupina, 17 Kysucké Nové Mesto, 18 Liptovský Mikuláš, 19 Malacky, 20 Martin, 21 Michalovce, 22 Nitra, 23 Nové Mesto nad Váhom, 24 Nové Zámky, 25 Partizánske, 26 Pezinok, 27 Piešťany, 28 Poprad, 29 Prešov, 30 Prievidza, 31 Púchov, 32 Rimavská Sobota, 33 Rožňava, 34 Ružomberok, 35 Senec, 36 Senica, 37 Spišská Nová Ves, 38 Stará Ľubovňa, 39 Stropkov, 40 Šaľa, 41 Topoľčany, 42 Trebišov, 43 Trenčín, 44 Trnava, 45 Tvrdošín, 46 Veľký Krτίš, 47 Vranov nad Topľou, 48 Zvolen, 49 Žarnovica, 50 Žilina.

The following tables show the measured values of social capital (Table 5) and components of social capital (Tables 6 and 7) in selected districts of Slovakia. The social capital values of the districts on a scale of 1–10 range from 3.76 to 5.97. The values of social capital components range from 1.0 (networks) to 9.6 (norms).

**Table 5.** Selected districts with the highest and lowest social capital values.

Selected Districts with Social Capital			
Highest		Lowest	
District	Value	District	Value
Šaľa	5.97	Hlohovec	4.41
Humenné	5.58	Komárno	4.23
Martin	5.53	Trnava	3.56
Prešov	5.51	Veľký Krtíš	3.67
Krupina	5.49	Galanta	3.76

Source: Own research using WVS 7 data.

**Table 6.** Selected districts with the highest values of social capital components.

Selected Districts with Highest Values of Trust, Networks, and Norms					
Trust (Average 5.5)		Networks (Average 1.9)		Norms (Average 7.2)	
District	Value	District	Value	District	Value
Kežmarok	7.1	Partizánske	4.5	Senica	9.6
Púchov	7.0	Poprad	4.5	Martin	8.5
Šaľa	6.9	Šaľa	4.4	Kysucké N. Mesto	8.4
Stará Ľubovňa	6.8	Malacky	4.2	Trenčín	8.2
Košice-okolie	6.6	Žarnovica	2.9	Pezinok	8.0

Source: Own research using WVS 7 data.

**Table 7.** Selected districts with the lowest values of social capital components.

Selected Districts with Lowest Values of Trust, Networks, and Norms					
Trust (Average 5.5)		Networks (Average 1.9)		Norms (Average 7.2)	
District	Value	District	Value	District	Value
Veľký Krtíš	4.1	Pezinok	1.2	Galanta	6.33
Trnava	3.7	Galanta	1.2	Komárno	6.30
Poprad	3.7	Kežmarok	1.2	Trnava	5.94
Galanta	3.5	Stará Ľubovňa	1.1	Malacky	5.85
Senica	2.7	Trnava	1.0	Veľký Krtíš	5.57

Source: Own research using WVS 7 data.

Slovakia is traditionally divided into four macro-regions—Bratislava, Western Slovakia, Central Slovakia, and Eastern Slovakia. The districts with the highest values of social capital (Table 5) are from all parts. The most developed district from a socioeconomic point of view (Prešov) and the least developed district (Krupina) are among them. The district city of Prešov, which is also the seat of the region, with 85,000 inhabitants, is one of the most populous cities in Slovakia. The district town of Krupina, with 8000 inhabitants, belongs to the group of small towns. The districts in Western Slovakia are among the districts with the lowest values of social capital (Table 5), as well as the districts with the highest values of social capital, including the district of Trnava. Its district city, with 63,000 inhabitants, is one of the large Slovak cities and is also the seat of the region. The district of Veľký Krtíš is also among the districts with the lowest values of social capital; the town of Veľký Krtíš, with 11,000 inhabitants, belongs to the group of small towns. The abovementioned facts can be interpreted in such a way that the value of social capital in Slovak districts is not related to either the size of the district city, which is usually associated with the achieved

socioeconomic level, or to the geographical location of the district. It is surprising to know that the Šal'a District, with the highest value of social capital (5.97), and the Galanta District, with its lowest value (3.76), are two neighboring districts.

The same statements regarding the differentiation of districts by social capital apply to the characterization of the geographical differentiation of the selected districts with the highest (Table 6) and lowest (Table 7) values of the social capital components.

In this paper, we focused on differentiating the impact of social capital and its components on QoL at the geographic level. Selected districts with the highest and lowest QoL values are presented in Table 8.

**Table 8.** Selected districts with the highest and lowest quality of life values.

Selected Districts with QoL			
Highest		Lowest	
District	Value	District	Value
Košice-okolie	8.73	Rožňava	5.75
Humenné	8.30	Krupina	5.60
Prešov	8.08	Pezinok	5.50
Martin	7.90	Bardejov	5.34
Prievidza	7.64	Senica	5.31

Source: Own research using WVS 7 data.

The highest QoL values are in the eastern and central districts of Slovakia, while the lowest values are in districts in all parts of Slovakia. Surprisingly, the district of Pezinok, which belongs to the agglomeration of the capital city Bratislava, demonstrated the third-lowest QoL value.

In the previous tables, we presented the geographical differentiation of social capital values, social capital components, and QoL. In the next part of the paper, we delve into its essence—the answer to the question of how social capital and its components affect quality in selected districts. First, we will focus on the impact of social capital as a whole on the QoL. This impact is quantified using the Bravais–Pearson correlation coefficient (Table 9), and the range of values is from  $-0.48$  to  $0.74$ . Not a single district with a city that is also the seat of the region is among the districts with the highest correlation values. On the other hand, among the districts with the lowest correlation values is the urban district of Košice. Košice is also the seat of the region.

**Table 9.** Correlation of social capital and quality of life in selected districts.

Correlation			
Highest		Lowest	
Districts	Value	Districts	Value
Nové Zámky	0.74	Senica	$-0.48$
Čadca	0.69	Liptovský Mikuláš	$-0.45$
Žarnovica	0.68	Humenné	$-0.33$
Veľký Krtíš	0.68	Malacky	$-0.28$
Kysucké N. Mesto	0.67	Galanta	$-0.26$
Bardejov	0.63	Partizánske	$-0.22$
Púchov	0.61	Komárno	$-0.11$
Tvrdošín	0.58	Stropkov	$-0.10$
Rožňava	0.56	Košice	$-0.01$
Šal'a	0.50	Senec	$-0.01$

In the second step, we focus on the impact of the components of social capital on QoL, again using the quantification of the Bravais–Pearson correlation coefficient. Norms have



the highest correlation of the components of social capital with QoL (Table 10); networks and trust also have high values.

**Table 10.** Selected districts with the highest correlation values of social capital components and quality of life.

Selected Districts with Highest Correlation Index Values					
Trust		Networks		Norms	
District	Value	District	Value	District	Value
Čadca	0.69	Spišská N. Ves	0.71	Žarnovica	0.82
Pezinok	0.65	Púchov	0.52	Nové Zámky	0.69
Ružomberok	0.65	Nové Zámky	0.50	Bardejov	0.63
Nové Zámky	0.64	Čadca	0.44	Kysucké N. M.	0.60
Nitra	0.63	Košice Surroundings	0.41	Šaľa	0.50

Source: Own research using WVS 7 data.

The districts in Table 11 have the lowest correlation values of the social capital and QoL components. Districts have the lowest values in the trust and network components.

**Table 11.** Selected districts with the lowest correlation values of social capital components and quality of life.

Selected Districts with Lowest Correlation Index Values					
Trust		Networks		Norms	
District	Value	District	Value	District	Value
Komárno	−0.31	Galanta	−0.20	Senec	−0.29
Vranov n. Topľou	−0.34	Hlohovec	−0.21	Nitra	−0.35
Liptovský Mikuláš	−0.34	Humenné	−0.32	Pezinok	−0.39
Stropkov	−0.41	Partizánske	−0.46	Liptov. Mikuláš	−0.42
Senica	−0.65	Pezinok	−0.64	Malacky	−0.45

Source: Own research using WVS 7 data.

Large disparities in the impact of all three components of social capital on the QoL are shown in Tables 10 and 11. Not one of the selected districts has high correlation indices for all three components (there are two districts—Čadca and Nové Zámky—with high correlation indices for two components). At the same time, none of them has low correlation indices for all three components (the districts of Liptovský Mikuláš and Pezinok have low correlation indices for two components). The peculiarity is that the Pezinok District is the district with the second highest correlation index of trust and QoL. The district of Nitra, which belongs to the districts with the highest values of the correlation index of trust and QoL, also belongs to the districts with the lowest value of the correlation index of standards and QoL.

In Section 1.2, we stated that from the basic understanding of social capital—Bourdieu’s, Coleman’s, and Putnam’s—Putnam’s approach [24] is appropriate for studying social capital’s geographical differentiation. This is also confirmed by our research.

In this paper, we present the empirical results of measuring the impact of the regional differentiation of social capital on the regional differentiation of QoL. However, social capital is only one of the intangible capitals of an individual; the others are mainly human and cultural capital. Murgaš [69] starts from the premise that QoL is culturally rooted [70] and investigates the impact of the cultural characteristics of nations on QoL.

#### 4. Conclusions

Two goals of the paper were formulated. The first goal was to determine the value of social capital and its components in Slovakia and their geographical differentiation. We

found that according to WVS 7 data, the value of social capital on a scale of 1–10 is low at 4.7, and the value of QoL is medium at 6.8. Trust, networks, and norms were explored as components of social capital. The value of trust on a scale of 1–10 is medium at 5.5, the value of networks is very low at 1.9, and the value of norms is high at 7.2. We have listed selected districts with the highest and lowest values of social capital and its components.

The second goal was to explore the impact of social capital and its components on the QoL in selected districts of Slovakia, and we measured this impact in the form of the Bravais–Pearson correlation coefficient between the mentioned variables. We found that social capital not only has a low correlation value at the national level but it also correlates with the QoL at a low level in the districts. As we stated in the introduction of the paper, we consider social capital not as one integral component but as a set of several components. This is also confirmed by the large disparities in its measured values on a scale of 1–10: trust has a value of 5.5, networks have a value of 1.9, and standards have a value of 7.2. The stated values represent the average values found for all 1200 research participants. In terms of the impact of the components of social capital on the QoL, we focused on their correlation at the level of selected districts. We found that norms with high values measured on a scale of 1–10 had a negligible and negative effect on QoL, and networks had the same negligible effect. At the same time, however, trust in the selected districts was correlated with QoL in the districts at the medium correlation level.

The finding of a large range of correlation coefficients of social capital and trust with QoL can be considered an added value of our research. The districts with the lowest values of the correlation coefficients for both measurements correlate negatively with the QoL. This finding is all the more surprising because the dispersion of QoL values in individual demographic characteristics is minimal.

These findings are subject to one objective limitation. The data are not compared with other data on the regional differentiation of social capital in relation to the differentiation of the QoL in Slovakia. The authors are not aware of any paper devoted to this topic. Therefore, it is desirable to continue this research in the future. Improving the QoL is understood to be a significant part of public policy in developed countries. At the same time, social capital is considered a strong predictor of QoL [71]. If this statement is not valid in Slovakia, it is the task of the scientific community to find out why this is and to propose ways to achieve the position of social capital as a significant predictor of the QoL in Slovakia.

In the introduction, we stated that one of the great challenges in contemporary science and public policy is the phenomenon of sustainability, which is also a topic in the study of QoL [72–74]. We assumed that the significant impact of social capital on the quality of life in the regions of Slovakia will be confirmed and we will find out how to make this impact sustainable. However, the expected assumption was not fulfilled, which puts sustainability in a different light. The stated fact that in developed countries comparable to Slovakia, social capital has a significant impact on quality of life is a key factor for the economic and non-economic tools of public policymakers, as well as for future research by Slovak social scientists and the psychological and sociological interventions proposed by them. Tools for improving networks as part of social capital are known [75,76]. Improving networks as components of social capital to achieve long-term sustainability will manifest itself in the form of the desired social development of Slovak society.

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