

## IV Quantitative analysis: the results of measurements and their interpretation

The quantitative analysis comprised 60 communes of the Opolskie province: 25 urban-rural ones and 35 rural ones. The communes constituting towns being simultaneously the seats of district authorities, i.e. the communes of Opole, Brzeg, Głubczyce Kędzierzyn-Koźle, Kluczbork, Krapkowice, Namysłów, Nysa, Olesno, Prudnik, Strzelce Opolskie, were excluded from the analysis because of the possible influence of other variables on research results. The selected information on the demographic, economic and political situation of the communes under examination is presented in Tab. 10. Since we assume that the quality of governance can be also influenced by other factors such as the size or urbanization level of a commune, at the stage of the statistical analysis we examined the hypothetical potential of the dependence of the quality of governance as related to several independent variables and calculated partial correlations between the ethnic fractionalization index and the quality of governance, taking into consideration the influence of other factors. Because a statistical analysis was not an aim in itself, but rather a method making it possible to observe relationships and to select a few cases for a further qualitative analysis, we decide to apply such measures as correlation and scatter plot analysis. In some cases we made additional use of such measures as coefficient of determination and partial correlation.

The research sample is dominated by the communes inhabited by from 5000 to 10000 people. The most populous is the commune of Głuchołazy – 26447 people; the commune of Świerczów has the fewest inhabitants – 3710. Głuchołazy is also the largest among the towns included in the research (13,700 inhabitants). Because of a large disproportion between the commune of Głuchołazy and the other communes, the decision was made not to include it in the qualitative analysis, irrespective of the result of governance quality measurement.

### 1 General characteristics of selected communes

With a few exceptions, the selected communes are characterized by a low level of industrialization, which is indirectly indicated by the percentage of people in employment (exclusive of agriculture and enterprises employing up to 9 persons)<sup>31</sup>. The commune of Skarbimierz can be regarded as industrialized (the

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31 The used indicator is the percentage of people in employment, monitored on a regular basis by the Central Statistical Office. It should be understood as the ratio of people in

percentage of people in employment: 37.9 %). With respect to political participation at the local level, what deserves attention is the higher percentage of electoral areas with one candidate per one seat in a council in the multi-ethnic communes. These relationships will be analyzed in detail in the further part of this chapter.

## 2 Results of the governance quality measurement

Tab. 11 presents the values of the governance quality index. The manners in which the measures are developed and data are obtained are described in Chapter 2. Detailed information on each of the 25 indexes is included in the attachment to the book. At this point we would only like to present a few pieces of information concerning the quantification of the quality of governance. Each of the 25 indexes was transformed to a 0–1 scale. In this way, the governance quality index was included in a scale from 0 to 25, and each of its sub-indexes (participation, equality, effectiveness, accountability, openness) in a scale from 0 to 5. In practice, it was impossible to score 25 points because each index was scaled to an “ideal” value, i.e. a value for which “1” indicates a desired state from the point of view of the idea of good governance.

The average value of the governance quality index for all 60 communes covered by the research was 11.09. The values of the particular sub-indexes equaled, respectively:

- the participation sub-index: 2.69;
- the equality sub-index: 1.87;
- the efficiency sub-index: 1.87;
- the accountability sub-index: 1.85;
- the openness sub-index: 2.82.

The geographic distribution of the communes in accordance with the governance quality index is presented in Fig. 4. A geographic analysis does not reveal any particular “pattern”. What draws attention is that the majority of the communes with the more than average GQI index (the colors red and brown) are located in the central and eastern parts of the province. Simultaneously, the communes

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employment to the total population, with the exception of people working in agriculture and employed in micro-enterprises with up to 9 employees. This indicator provides indirect information on the percentage of people employed in industrial enterprises: in small communes the majority of entities employing more than 9 persons are public institutions and industrial enterprises.

Tab. 10: Basic information concerning the communes covered by the research

Name of commune	Number of inhabitants	Percentage of Silesians	Percentage of Germans	Urbanization index (2017)	Percentage of people in employment*	Percentage of councillors from German minority (2014)	Percentage of one candidate per seat in council (2014)
Zębówce	4230	0.17	0.44	0.00	0.061	0.93	0.87
Cisek	7016	0.15	0.43	0.00	0.104	0.67	0.20
Biała	12145	0.09	0.43	0.23	0.089	0.40	0.07
Kolonowskie	6582	0.06	0.43	0.56	0.162	0.40	0.00
Strzeleczki	8224	0.17	0.42	0.00	0.086	0.53	0.20
Lasowice Wielkie	7320	0.14	0.38	0.00	0.065	0.60	0.13
Reńska Wieś	8805	0.27	0.35	0.00	0.109	0.53	0.07
Walce	6215	0.29	0.32	0.00	0.114	0.93	0.87
Murów	6312	0.07	0.32	0.00	0.176	0.47	0.00
Proszków	10097	0.12	0.31	0.29	0.171	0.87	0.53
Komprachcice	11063	0.13	0.31	0.00	0.065	0.33	0.00
Radłów	4634	0.24	0.28	0.00	0.052	0.47	0.00
Łubniany	9077	0.27	0.28	0.00	0.109	0.60	0.00
Leśnica	8952	0.17	0.28	0.34	0.104	0.73	0.67
Izbicko	5568	0.19	0.28	0.00	0.085	0.80	0.47
Chrzastowice	6639	0.19	0.27	0.00	0.122	0.53	0.00
Bierawa	7767	0.07	0.26	0.00	0.169	0.13	0.00
Dobrodzień	11045	0.17	0.25	0.38	0.213	0.40	0.00
Głogówek	15129	0.06	0.25	0.42	0.163	0.33	0.00
Ujazd	6387	0.13	0.25	0.28	0.261	0.27	0.00

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Tab. 10: Continued

Name of commune	Number of inhabitants	Percentage of Silesians	Percentage of Germans	Urbanization index (2017)	Percentage of people in employment*	Percentage of councillors from German minority (2014)	Percentage of electorals areas with one candidate per seat in council (2014)
Tarnów Opolski	10292	0.21	0.24	0.00	0.140	0.27	0.33
Jemielnica	7702	0.22	0.24	0.00	0.069	0.93	0.40
Polska Cerekiew	4944	0.18	0.22	0.00	0.170	0.60	0.00
Pawłowiczki	8700	0.18	0.21	0.00	0.094	0.13	0.07
Dobrzeń Wielki	14242	0.21	0.21	0.00	0.270	0.53	0.33
Turawa	9609	0.20	0.21	0.00	0.094	0.53	0.07
Popielów	8682	0.16	0.20	0.00	0.064	0.40	0.07
Ozimek	21641	0.11	0.19	0.45	0.217	0.27	0.00
Zawadzkie	13502	0.14	0.19	0.63	0.165	0.27	0.00
Gogolin	12336	0.24	0.17	0.53	0.278	0.67	0.00
Gorzów Śląski	7923	0.09	0.17	0.34	0.111	0.40	0.00
Dąbrowa	9423	0.11	0.17	0.00	0.097	0.27	0.73
Zdzieszowice	17909	0.19	0.10	0.73	0.256	0.20	0.00
Baborów	7050	0.04	0.09	0.49	0.088	0.00	0.20
Pokój	5594	0.07	0.08	0.00	0.150	0.00	0.33
Korfantów	9925	0.07	0.07	0.21	0.098	0.00	0.00
Lubrza	4575	0.01	0.06	0.00	0.082	0.00	0.00
Wolczyn	14742	0.02	0.02	0.43	0.114	0.00	0.07
Branice	8020	0.05	0.01	0.00	0.180	0.00	0.07
Byczyna	9943	0.03	0.01	0.39	0.090	0.00	0.00

Świerczów	3710	0.00	0.01	0.00	0.063	0.00	0.00	0.00
Łambinowice	8273	0.07	0.01	0.00	0.104	0.00	0.00	0.27
Tułowice	5572	0.03	0.01	0.00	0.161	0.00	0.00	0.00
Grodków	19724	0.02	0.00	0.45	0.146	0.00	0.00	0.00
Lewin Brzeski	13644	0.02	0.00	0.44	0.091	0.00	0.00	0.07
Lubsza	8484	0.02	0.00	0.00	0.063	0.00	0.00	0.00
Olszanka	4999	0.01	0.00	0.00	0.071	0.00	0.00	0.00
Skarbimierz	6983	0.01	0.00	0.00	0.379	0.00	0.00	0.07
Kietrz	12178	0.02	0.00	0.55	0.126	0.00	0.00	0.07
Domaszowice	3897	0.02	0.00	0.00	0.066	0.00	0.00	0.00
Wilków	4665	0.02	0.00	0.00	0.101	0.00	0.00	0.00
Głucholazy	26447	0.02	0.00	0.57	0.157	0.00	0.00	0.00
Otmuchów	14574	0.02	0.00	0.36	0.117	0.00	0.00	0.13
Paczków	13962	0.02	0.00	0.60	0.103	0.00	0.00	0.00
Kamiennik	3811	0.03	0.00	0.00	0.058	0.00	0.00	0.07
Pakosławice	3845	0.01	0.00	0.00	0.080	0.00	0.00	0.00
Skoroszyce	6621	0.01	0.00	0.00	0.079	0.00	0.00	0.00
Praszka	14079	0.01	0.00	0.57	0.208	0.00	0.00	0.00
Rudniki	8689	0.01	0.00	0.00	0.107	0.00	0.00	0.00
Niemodlin	13923	0.01	0.00	0.48	0.151	0.00	0.00	0.00

\* The ratio of people in employment to the total population of a commune, exclusive of individual agricultural farms and enterprises employing up to 9 persons; data for the year 2017.

Source: the authors' own work on the basis of data of the Local Data Bank, the Statistical Office of the Opolskie province, and the National Electoral Commission.

Tab. 11: The values of the governance quality index and the sub-indices in the communes participating in the research

Name of commune	Ethnic fractionalization index (EFI)	Governance quality index (GQI)	Participation sub-index	Equality sub-index	Efficiency sub-index	Accountability sub-index	Openness sub-index
Grodków	0.04	12.86	2.98	2.39	2.02	3.47	2
Lewin Brzeski	0.05	11.16	2.77	1.25	1.47	2.67	3
Lubsza	0.03	9.84	1.76	1.73	2.02	1.33	3
Olszanka	0.03	10.38	2.00	1.82	1.76	1.8	3
Skarbimierz	0.03	9.83	3.07	1.38	2.46	0.93	2
Baborów	0.23	8.66	2.03	2.05	1.85	1.73	1
Kietrz	0.04	10.11	1.58	2.06	1.64	2.33	2.5
Branice	0.11	11.92	3.01	2.10	1.68	2.13	3
Bierawa	0.49	12.17	3.07	1.44	2.63	1.53	3.5
Ćisek	0.62	12.01	2.98	2.52	2.04	0.47	4
Pawłowiczki	0.55	10.41	2.60	1.58	1.90	1.34	3
Polska Cerekiew	0.56	11.20	4.01	1.67	1.51	1	3
Renska Wieś	0.66	11.63	2.93	1.71	1.67	2.32	3
Byczyna	0.07	12.82	2.64	2.25	3.56	0.87	3.5
Wolczyn	0.08	11.26	2.31	1.46	1.77	1.73	4
Lasowice Wielkie	0.61	9.72	2.66	1.40	1.81	0.85	3
Gogolin	0.57	13.24	2.87	3.21	1.99	0.67	4.5
Zdzieszowice	0.45	13.96	3.32	3.96	1.68	2.00	3
Strzeleczki	0.63	11.06	2.91	1.92	2.42	1.80	2
Walce	0.66	8.73	3.53	1.54	2.46	0.20	1
Domaszowice	0.05	6.66	0.91	0.99	2.03	1.73	1
Pokój	0.26	10.45	2.97	3.60	1.55	0.33	2

Świerczów	0.02	9.44	1.94	1.60	0.98	1.92	3
Wilków	0.04	8.31	1.33	1.44	1.42	1.13	3
Głucholazy	0.05	16.77	2.89	3.27	2.94	4.17	3.5
Korfantów	0.26	11.12	2.46	1.52	1.54	1.60	4
Otmuchów	0.04	8.61	2.06	1.11	1.84	0.60	3
Paczków	0.04	15.32	2.60	3.54	1.85	3.32	4
Kamiennik	0.06	10.17	1.96	1.43	1.45	2.33	3
Łambinowice	0.16	7.47	2.26	1.28	1.46	1.47	1
Pakosławice	0.02	9.39	1.98	1.19	1.22	2.00	3
Skoroszyce	0.03	8.13	1.60	1.84	1.77	0.93	2
Dobrodzień	0.57	12.55	3.64	2.36	1.95	1.60	3
Gorzów Śląski	0.42	7.03	2.59	1.20	1.57	0.67	1
Praszka	0.02	10.15	3.39	1.16	2.03	1.58	2
Radłów	0.64	10.64	3.35	1.65	1.31	2.33	2
Rudniki	0.01	10.37	2.85	1.75	2.05	1.72	2
Zębowice	0.63	9.59	3.12	1.71	2.31	0.45	2
Niemodlin	0.03	14.77	2.79	3.70	1.61	2.67	4
Ozimek	0.46	13.36	3.23	1.57	1.64	2.93	4
Prószków	0.57	10.49	3.01	2.20	1.95	1.33	2
Chrzastowice	0.60	11.66	2.47	1.77	1.35	4.07	2
Dąbrowa	0.44	10.90	2.39	1.28	1.59	1.65	4
Dobrzeń Wielki	0.58	10.47	2.77	2.76	2.43	1.52	1
Komprachcice	0.57	12.15	2.88	1.18	1.41	2.68	4
Łubniany	0.65	10.99	2.03	1.61	2.35	2.00	3
Murów	0.52	11.81	2.36	1.69	2.29	1.47	4
Popielów	0.53	10.96	2.64	1.65	2.34	2.33	2

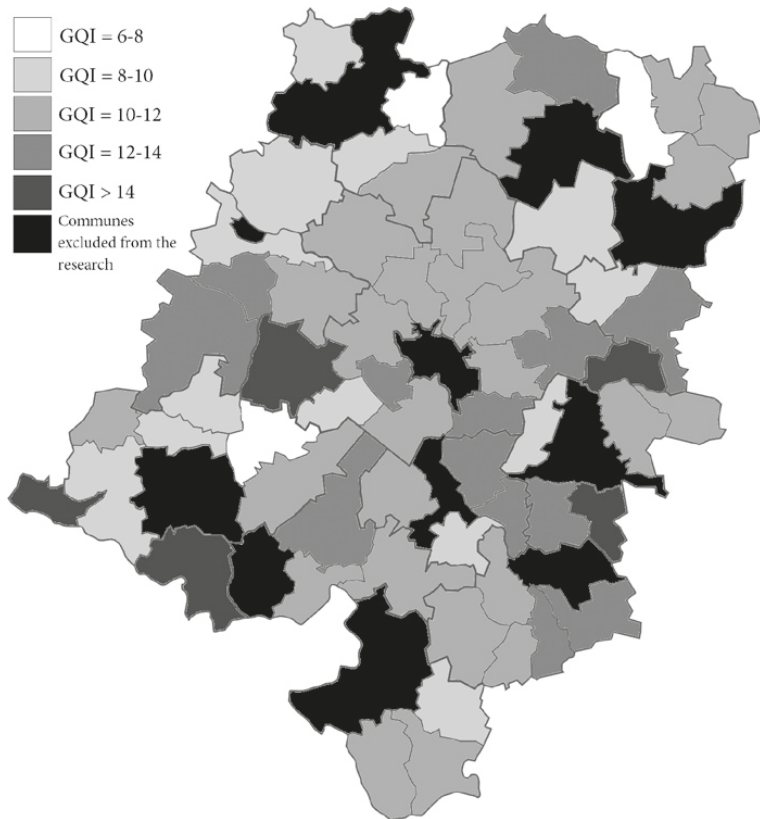
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Tab. 11: Continued

Name of commune	Ethnic fractionalization index (EFI)	Governance quality index (GQI)	Participation sub-index	Equality sub-index	Efficiency sub-index	Accountability sub-index	Openness sub-index
Tarnów Opolski	0.61	12.50	2.82	2.44	1.52	2.72	3
Tułowice	0.08	9.85	2.06	1.26	1.74	1.80	3
Turawa	0.57	10.74	2.44	2.58	1.99	1.73	2
Biała	0.58	12.73	2.69	1.93	1.56	2.05	4,5
Głogówek	0.46	11.38	3.53	1.64	1.76	2.45	2
Lubrza	0.14	10.27	3.22	1.54	1.87	0.92	3
Kolonowskie	0.55	14.91	3.57	1.69	2.98	3.67	3
Leśnica	0.59	12.66	4.21	1.42	1.63	2.4	3
Ujazd	0.54	11.99	2.18	1.52	2.24	2.05	4
Zawadzkie	0.49	14.47	3.18	1.67	1.60	4.02	4
Izbicko	0.61	9.19	2.85	1.76	1.44	1.13	2
Jemielnica	0.61	11.94	2.86	1.32	1.29	2.47	4

Source: the authors' own work.





**Fig. 4:** The governance quality index in the communes of the Opolskie province.  
Source: the authors' own work

with the highest GQI index are located in the south-western part of the province. The common feature is that the five communes with the highest GQI index are urban-rural communes. Among the five communes with the lowest values of the index, only one is an urban-rural commune. No impact of the sub-regional level (district) on the quality of governance was observed. In only one district (the Namysłowski district), all communes had similar values of the index (all of them below the average for the whole province). In the other districts, considerable differences among particular communes could be observed. The conurbation effect does not influence the quality of governance, either: the communes around the city of Opole are characterized by the level of governance close to the average for the whole province.

### 3 Correlation analysis

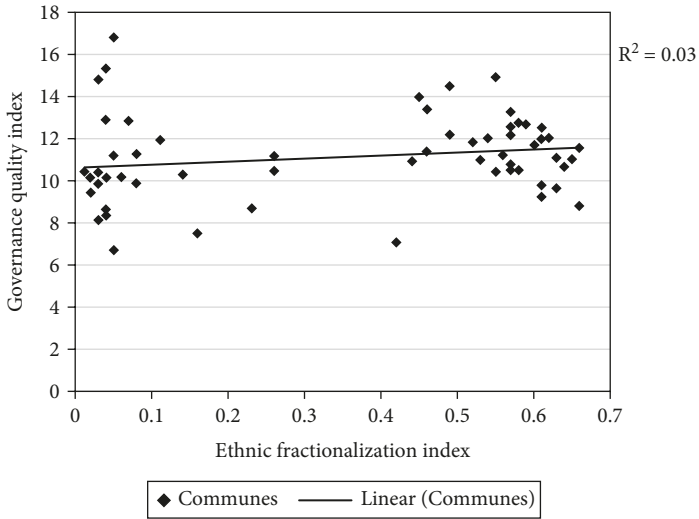
Tab. 12 presents the values of the correlations under examination. As far as the interdependence between ethnic diversity and government quality is concerned, these variables poorly correlated with each other (the correlation is statistically insignificant, and the coefficient of determination equals 0.03). Fig. 5 present a scatter plot for these variables. Testing the other independent variables, we observed a statistically significant relationship between the number of inhabitants in a commune (0.589) plus the urbanization index (0.531) and the quality of governance. These relationships are shown in Figures 6–7. There occurs a poor, but statistically significant interdependence between the percentage of people in employment and the quality of governance.

Summing up, we did not identify a simple relationship between ethnic diversity and the quality of governance. Thus, the hypothesis put forward at the beginning of the book was proven wrong. The quality of governance at the communal level is strongly influenced by the other variables which despite the formulated preliminary assumptions (e.g. the exclusion of district towns in order to eliminate the impact of the size of a commune) influenced our sample. For the purpose of an additional verification, we calculated partial correlations between ethnic diversity and governance quality, taking into consideration the impact of the other tested independent variables (see Tab. 13). Taking into account the level of urbanization, we notice a significant correlation between ethnic diversity and governance quality. Thus, our hypothesis may be true exclusively for the rural communes, i.e. in the ethnically diversified rural communes, the quality

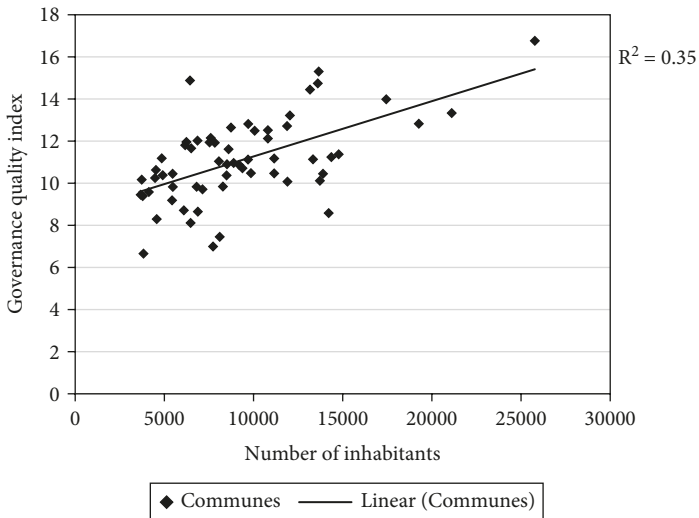
**Tab. 12:** The correlations between the selected variables (n=60)

	Governance quality index	Participation sub-index	Equality sub-index	Efficiency sub-index	Accountability sub-index	Openness sub-index
Ethnic fractionalization index (EFI)	0.180	0.488	0.013	0.056	-0.029	0.043
Number of inhabitants	0.589	0.246	0.416	0.179	0.456	0.240
Urbanization index	0.531	0.237	0.382	0.153	0.391	0.225
Percentage of people in employment	0.315	0.340	0.310	0.272	0.008	0.071

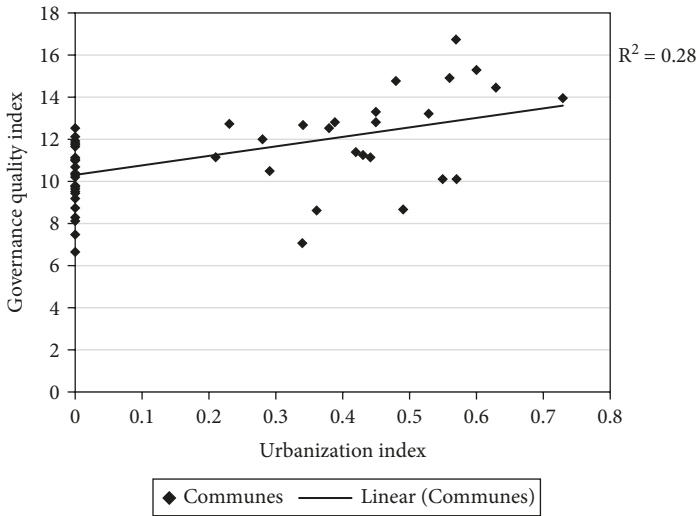
Source: the authors' own work.



**Fig. 5:** The relationship between ethnic diversity and the quality of governance at the communal level. Source: the authors' own work



**Fig. 6:** The relationship between the number of inhabitants in a commune and the quality of governance at the communal level. Source: the authors' own work



**Fig. 7:** The relationship between the urbanization index and the quality of governance at the communal level. Source: the authors’ own work

**Tab. 13:** Partial correlations between EFI and the governance quality index adjusted for the impact of the selected variables

<b>A partial correlation between EFI and the governance quality index:</b>	<b>Value</b>	<b>Relevance level</b>
Adjusted for the impact of the number of inhabitants	0.297	0.022
Adjusted for the impact of the level of urbanization	0.332	0.010
Adjusted for the impact of the number of people in employment	0.170	0.198

Source: the authors’ own work.

of governance is higher than in the ethnically homogeneous rural communes. In order to verify this, we calculated additionally correlation coefficients for different sets of the communes included in our sample:

- for the communes with more than 10,000 inhabitants, no correlation between ethnic diversity and governance quality was identified;
- for the communes with fewer than 10,000 inhabitants, a statistically significant interdependence between the two examined variables was identified;

- for the urban-rural communes, a poor and statistically insignificant correlation was identified;
- for the rural communes, a strong and statistically significant interdependence between ethnic diversity and governance quality was identified (see Tab. 14).

We also calculated the correlation between the independent variables and the particular sub-indexed of the governance quality index (Tab. 3, Tab. 6). The obtained data indicate that the participation sub-index correlates the strongest with ethnic diversity, and in many cases it is the only sub-index correlating with ethnic diversity. This tendency is so clear that it can be concluded that only one of the dimensions of the quality of governance – participation – is interdependent with ethnic diversity. Figures 8 and 9 present scatter plots illustrating this interdependence for all communes covered by the research (Fig. 8) and for the rural communes only (Fig. 9).

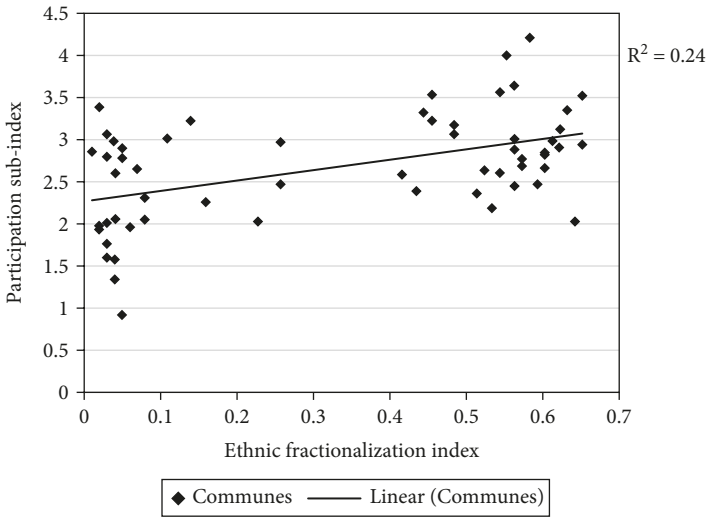
## 4 Interpretation

Summing up the results of the quantitative analysis, we should conclude that the hypothesis put forward at the beginning of the book was invalidated, although a picture of relationships between ethnic diversity and governance quality is more complicated, which was shown in the more detailed analysis. It is more important that while the quality of governance at the communal level does not correlate with ethnic diversity, we can observe a statistically significant and positive interdependence between the participation dimension of the quality of governance and ethnic diversity. In the multicultural communes of the Opolskie province, social participation, i.e. active citizenship and inhabitants' responsibility for the local community, is higher than in the ethnically homogeneous communes. Nevertheless, is it possible to draw conclusions about a better or worse governance quality in a given commune and the condition of the community of its inhabitants on the basis of the adopted participation indexes? For example, what is the significance of such an index as the number of non-governmental organizations per 10,000 inhabitants? According to the collected data, many more non-governmental organizations are active in the ethnically diversified communes. But does it prove a higher level of social capital in these communes in general (and a high level of bridging social capital in particular; cf. Putnam 2007; 2008, Opióła 2019; Ziółkowski 2012) or just the opposite, i.e. a lower level of normative and cultural integration within the community (because each ethnic group develops its own institutions, hence, statistically, their number is higher)?

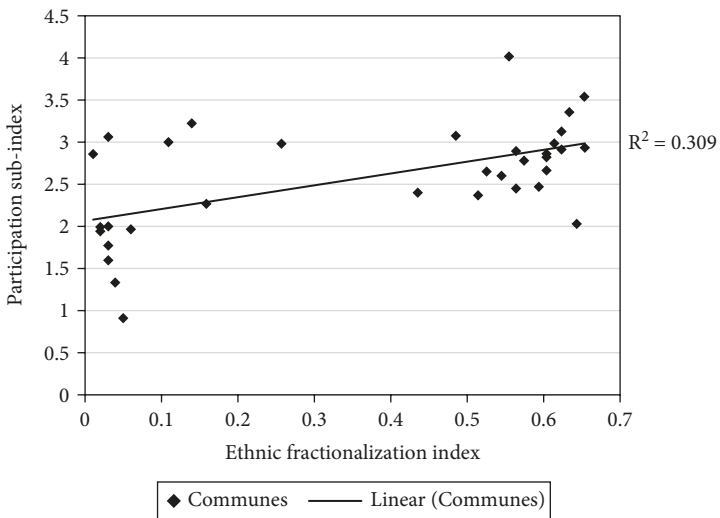
**Tab. 14:** Correlations between EFI and the governance quality index and its sub-indices in the selected categories of the communes

	<b>Governance quality index</b>	<b>Participation sub-index</b>	<b>Equality sub-index</b>	<b>Efficiency sub-index</b>	<b>Accountability sub-index</b>	<b>Openness sub-index</b>
Ethnic fractionalization index (EFI)	0.004	0.443	0.022	-0.171	-0.212	0.043
Communes with more than 10,000 inhabitants (n=20)	0.395	0.550	0.077	0.128	0.125	0.077
Communes with fewer than 10,000 inhabitants (n=40)	0.099	0.510	-0.059	-0.106	-0.074	0.097
Urban-rural communes (n=25)	0.513	0.556	0.179	0.217	0.104	0.088
Rural communes (n=35)						

Source: the authors' own work.



**Fig. 8:** The relationship between ethnic diversity and the sub-index of participation in all communes covered by the research. Source: the authors' own work



**Fig. 9:** The relationship between ethnic diversity and the sub-index of participation in the rural communes. Source: the authors' own work

Another important observation is the influence of the “urban” character of a commune on the obtained values of the governance quality index. Although the urban-rural communes included in the sample are small communes with up to 20,000 inhabitants, this particular factor – the level of urbanization –exerts a significant impact on the quality of governance in a commune. Nevertheless, we still do not know what this interdependence consists in, i.e. how the fact of the existence of a town in a commune’s settlement structure increases the quality of governance. Are the larger number of non-agricultural functions fulfilled by such communes and the larger percentage of people in non-agricultural employment the decisive factors? It should be remembered, however, that correlated with the governance quality index, the variable of the number of people in employment (including those employed outside agriculture) does not show any statistically significant interdependence (cf. Tables 12 and 14). The presence of a town may also influence the identity of the inhabitants of a commune, their attitudes, the frequency of interactions among them, and the existence of the cultural pattern of “center vs. periphery”. How this translates into a higher governance quality is the question requiring further research.