Natalia Simchenko[1]
Elena Piskun

CONTRIBUTION OF CORPORATE SOCIAL RESPONSIBILITY AND SOCIAL CAPITAL MANAGEMENT INTO QUALITY OF LIFE: MODELS OF EVALUATION

Abstract: The purpose of the paper is to develop the scientific and methodological provision for evaluating the contribution of corporate social responsibility and social capital management into provision of quality of life of the population of a modern territory. The authors also perform approbation of the developed scientific and methodological provision by the example (thematical research) of the city of Sevastopol (Russia, Southern Federal District). The authors determine structural components of quality of life of the population that are influenced by business's showing corporate social responsibility and social capital management. Then modeling is conducted and contribution of corporate social responsibility and social capital management into provision of quality of life of the population by the example of the city of Sevastopol is assessed with the help of the method of regression and correlation analysis. As a result, the target values of the indicators of contribution of corporate social responsibility and social capital management of business for achievement of the preferable quality of life of the population of the city of Sevastopol are determined with the help of the simplex method. The authors develop the scientific and methodological provision for evaluating the contribution of corporate social responsibility and social capital management into provision of quality of life of the population modern territory, which is universal – i.e., it could be used by any business structure at any modern territory (not only by business structures of the city of Sevastopol). By the example of the city of Sevastopol it is shown that corporate social responsibility and social capital management of a business could influence the provision of quality of life of the population of a modern territory under the condition of targeted management.

Keywords: Social capital, Urban social capital, CSR, Trust, Socio-economic constraints, Sevastopol.

1. Introduction

In the modern economic theory and practice, private (commercial) and public (non-commercial) interested are differentiated. Thus, the activities of business structures in the conditions of a market are traditionally oriented at obtaining profit. This does not envisage any efforts for solving socially important tasks of the territory on which business is done and could even contradict the social priorities of the territory. For example, reorganization of business (mergers, acquisitions, and liquidation) could lead to reduction of personnel, thus increasing social tension in the labor market

---

[1] Corresponding author: Natalia Simchenko
  Email: natalysimchenko@yandex.ru

of a territory.

The new business practice shows that under the influence of transformation processes in the market environment (in particular, increase of consciousness of consumers, growth of their requirements to business, dissemination of digital technologies, and improved exchange of information on business, which determines its reputation in the market) private and public interests often coincide. This is explained by the fact that the level of corporate social responsibility and social consequences of social capital management largely determine the business's competitiveness.

There are a lot of scientific studies in the sphere of social marketing that provide solid proofs of existence of sustainable and vivid connection between the level of corporate social responsibility, social consequences, and social capital management of business and its competitiveness in the target territorial market. However, this allowed only for actualization of the issue of development of the practice of manifestation of corporate social responsibility and social capital management of business, while the scientific and methodological provision of this process is poorly studied.

The most serious obstacle on the path of practical solution of this problem is uncertainty as to evaluation of the contribution of corporate social responsibility and social capital management into quality of life of the territory's population. Due to this, competitive advantages of business from manifestation of corporate social responsibility and social capital management are measured with the help of the indicators of expenditures – e.g., value or share of expenditures for manifestation of corporate social responsibility, salary fund, motivation fund, and stimulation of labor. That is, emphasis is made on the process of manifestation of corporate social responsibility and social capital management, and results are not taken into account.

It should be noted that the described approach is used not only by business structures but also by state regulators (during decision making on support for socially responsible business) and consumers (during decision making on purchases in the interests of market stimulation of business's social responsibility). We think that the existing approach is incorrect, as ineffective usage leads to the situation when expenditures for manifestation of corporate social responsibility and social capital management might not provide vivid results and thus are inexpedient – they lead to growth of prices (inflation) without increase of quality of life of the territory's population.

Therefore, there's a need for a new approach, which will allow determining precise and correct connection between manifestation of corporate social responsibility, management of social capital, and quality of life of the territory's population, as well as developing and implementing the managerial business practices so as to ensure achievement of targeted values of the indicators of quality of life – i.e., guaranteeing achievement of results that are of top-priority for the territory. The working hypothesis of the research is that business's manifesting corporate social responsibility and social capital management could influence the provision of quality of life of the population modern territory under the condition of targeted management.

The purpose of the paper is to develop the scientific and methodological provision for evaluating the contribution of corporate social responsibility and social capital management into provision of quality of life of the population of a modern territory. The research also envisages approbation of the developed scientific and methodological provision by the example of (thematical research) the city of Sevastopol (Russia, Southern Federal District). Achievement of the set goal determined the structure and setting of the research tasks:

N. Simchenko, E. Piskun

- Determining the structural components of quality of life of the population, on which business's manifesting corporate social responsibility and social capital management could have potential influence;
- Modeling and evaluating the contribution of corporate social responsibility and social capital management into provision of quality of life of the population by the example of the city of Sevastopol;
- Determining the target values of the indicators of contribution of corporate social responsibility and social capital management business for achieving preferable quality of life population of the city of Sevastopol.

2. Literature review

A lot of attention is paid to the issues of managing quality of life in the existing economic literature. Most authors pay attention to the fact that professional activities play the key role in provision of quality of life of a modern human (as a worker). In the work Cheng et al. (2019) the authors note that quality of life is largely determined by work conditions and perceived quality of work. Lopes et al. (2019) provide serious proofs of significant aggravation of conditions and reduction of wages under the influence of the recent financial crisis (2008) and in the post-crisis period (by the example of the EU countries) on quality of life of the population (in the aspect of its reduction).

Importance of non-material motivation and stimulation of labor (by the example of emotional perception of work conditions) for provision of quality of life is noted in the works Alrawadieh et al. (2019), Dhamija et al. (2019), and Uysal and Sirgy (2019). The differences in the perceived quality of labor in various professions and organizations are emphasized in the work Freitas and Maciel (2019). Importance and necessity for consideration of the consequences for quality of life during development and implementation of the strategies of managing social capital in the modern organizations are outlines in the works Bratu and Cioca. (2019).

Sex differences in perception of quality of life and influence of human resources management on quality of life of workers (by the example of female workers) are determined in Netto (2018). The necessity for manifesting corporate social responsibility by the modern universities as to employees and consumers (students) is emphasized in Grabowski et al. (2019). New opportunities for manifesting corporate social responsibility and managing social capital in the interests of increasing quality of life of interesting parties (e.g., digital social marketing) are outlined in Bravi et al. (2018) and Bogoviz et al. (2019).

The scientific and methodological provision of measuring and standardization of quality of life of the population is offered in the work Schmeleva (2019) with specifying the necessity for connection to a specific region of person's residence. According to Radošević et al. (2018), quality of life correlates with important socio-personal values of students and employees and their attitude towards changes (susceptibility to innovations). Institutionalization of the practices of manifestation of corporate social responsibility and managing social capital of the modern organizations (by the example of medical establishments of Bulgaria) as an important factor of increasing the quality of their life is analyzed in Kundurzhiev et al. (2018).

The necessity for manifesting the increased flexibility in the process of manifesting corporate social responsibility and managing social capital of modern organizations for increasing the quality of life of their employees is noted in the works Popkova et al. (2017a) and Popkova et al. (2017b).

Importance of financial motivation and stimulation of labor for creation of highly-efficient jobs as a manifestation of increase of quality of life of employees (and population on the whole) is emphasized in the publication Bogoviz et al. (2018a). The necessity for provision of educational stimuli (e.g., corporate training) for creating highly-efficient jobs as manifestations of increase of quality of life of employees (and population on the whole) is noted in the work Bogoviz et al. (2018b).

Thus, as a result of literature overview it is possible to conclude that the issue of manifestation of corporate and social responsibility and management of social capital of the modern organizations for increasing the quality of life is thoroughly studied in multiple publications. However, most of them dwell on separate components of this problem. We think that during manifestation of corporate social responsibility and management of social capital of the modern organizations for increasing the quality of life it is necessary to take into account the whole totality of the factors, including sex and age characteristics of employees, their individual preferences (values), specifics of the company's activities, connection to a specific region, etc.

Most works of the modern scholars and experts study management of social capital of modern organizations primarily from the positions of the organization, and their influence on quality of life of interested parties (employees, consumers, and society on the whole) is an indirect manifestation (a positive external externality). We think that increase of quality of life should be a goal in itself of the studied corporate practices. That's why the existing scientific and methodological provision of measuring and evaluation of the practice of managing the modern organizations' social capital from the positions of increase of quality of life requires specification and development - which is done in this paper.

3. Materials and method

The following structural components of quality of life of the population on which business's manifesting corporate social responsibility and social capital management could have potential influence were determined:

- Opportunities of employment and career building: the higher the perspectives of self-realization of a modern employee, the higher the quality of his life. For measuring this component it is possible to use the generally accessible indicator of the official statistics – coefficient of tension in the labor market, which shows ratio of number of the unemployed to the number of jobs (the lower its value, the more opportunities for employment);
- Living standards: qualitative indicator that is measured by specialized export and analytical organizations and reflects the value of real disposable incomes of the population in view of the territory's specifics;
- Level of infrastructure and quality of environment: complex indicator, qualitative indicator that is measured by specialized export and analytical organizations and reflects the conditions of living on the region's territory (e.g., quality and accessibility of communal services, state of the environment, level of education and healthcare);
- Perceived quality of life: qualitative indicator that is measured by specialized export and analytical organizations and reflects subjective assessment of quality of life by the residents of the territory (e.g., with the help of the happiness index).

The following authors' formula was developed for integral evaluation of quality

of life of the population of a modern territory:

$$I_{QL}=(1/T_{LM}+LL+QL+HN)/4, \quad (1)$$

where I_{QL} – integral indicator of quality of life of the population of a modern territory, measured in shares of 1 (cannot exceed 1);

T_{LM} – coefficient of tension in the labor market, measured in shares of 1 (can exceed 1);

LL – human development index, measured in shares of 1 (cannot exceed 1);

QL – index of quality of life, measured in shares of 1 (cannot exceed 1);

HN – index of happiness, measured in shares of 1 (cannot exceed 1).

Based on studying the existing statistical and analytical information in the sphere of quality of life of the population on the territories of modern Russia, we developed a scale for qualitative treatment of the values of the above indicators (Table 1).

Table 1. The scale for qualitative treatment of the values of components and the integral indicator of quality of life of the modern territory's population.

Indicator		Coefficient of tension in the labor market	Human development index	Index of quality of life	Index of happiness	Integral indicator quality of life
Unit of measuring of indicator		shares of 1 (can exceed 1)	shares of 1 (cannot exceed 1)	shares of 1 (cannot exceed 1)	shares of 1 (cannot exceed 1)	shares of 1 (cannot exceed 1)
Qualitative treatment of the essence of the indicator		opportunities of employment and career building	living standards	level of infrastructure and quality of environment	perceived quality of life	integral quality of life
Evaluation scale for qualitative treatment of the indicators' values	unsatisfactory	>1.5	<0.5	<0.5	<0.5	<0.5
	unfavorable	1.1-1.5	0.5-0.65	0.5-0.65	0.5-0.65	0.5-0.65
	satisfactory	1-1.1	0.65-0.80	0.65-0.80	0.65-0.80	0.65-0.80
	favorable	0.9-1	0.80-0.90	0.80-0.90	0.80-0.90	0.80-0.90
	optimal	<0.9	0.90-1	0.90-1	0.90-1	0.90-1

Source: compiled by the authors.

For empirical purposes of the research and verification of the offered hypothesis we use the practical experience of corporate social responsibility and social capital management and their influence on quality of life of the population of the city of Sevastopol. Modeling and evaluation of contribution of corporate social responsibility and social capital management into provision of quality of life of the population by the example of the city of Sevastopol are performed with the help of the method of regression and correlation analysis (all calculations are

performed automatically in Microsoft Excel). Timeframe of the research covers 2010-2019 (data at the beginning of a year are used).

We determine the influence of contribution of corporate social responsibility and social capital management on the opportunities of employment and career building. For this, we evaluate the dependence of the tension coefficient in the labor market (based on the data of the official statistics) on the attitude of employees (y_1), who are selected by the business structures via the employment

service, to the total number of hired employees; we performed a series of sociological surveys of the representatives of business structures of Sevastopol) (x_1) and the index of social fairness of business (reflects justice of material and non-material stimulation of labor; in order to determine it, we performed a series of sociological surveys of the representatives of business structures of Sevastopol and their employees) (x_2).

Secondly, the influence of the contribution of corporate social responsibility and social capital management on living standards is determined. For this, we evaluate the dependence of the human development index (for determining it we use the expert and analytical materials of the specialized rating agencies and perform a series of sociological surveys of residents of the city of Sevastopol) (y_2) on the ratio of average accrued wages to subsistence level, shares of 1 (based on the data of the official statistics) (x_3).

Thirdly, the influence of the contribution of corporate social responsibility and social capital management on the territory's infrastructure and the state of environment are determined. For this we evaluate dependence of the index of quality of life (we use the expert and analytical materials of the specialized rating agencies and perform a series of sociological surveys of residents of the city of Sevastopol) (y_3) on the ratio of expenditures for corporate social responsibility to aggregate expenditures (x_4) and ratio of expenditures for corporate ecological responsibility to aggregate expenditures (x_5) (for determining them, we performed a series of sociological surveys of residents of Sevastopol).

Fourthly, we determine the influence of the contribution of social responsibility and social capital management on the perceived quality of life. For this, we evaluate the dependence of the index of happiness (we use the expert and analytical materials of the specialized rating agencies and perform a series of sociological surveys of residents of Sevastopol) (y_4) on all the above dependent variables, namely x_1, x_2, x_3, x_4, x_5.

The initial data for regression analysis are given in Tables 2 and 3.

Table 2. Dynamics of the indicators for regression and correlation analysis of the opportunities for employment and career building and living standards in the city of Sevastopol in 2010-2019.

Year (beginning of the year)	Opportunities for employment and career building			Living standards	
	Ratio of employees who are selected via the employment service to the total number of hired employees, shares of 1	Index of social fairness of business, shares of 1	Coefficient of tension in the labor market (the lower the better), shares of 1	Ratio of monthly average accrued wages to subsistence level, shares of 1	Human development index, shares of 1
	x_1	x_2	y_1	x_3	y_2
2010	0.354	0.472	2.7	1.983	0.635
2011	0.356	0.474	2.7	1.984	0.635
2012	0.357	0.478	2.7	1.987	0.636
2013	0.344	0.460	2.6	1.988	0.636
2014	0.331	0.443	2.5	1.997	0.639
2015	0.304	0.407	2.3	2.013	0.644
2016	0.291	0.389	2.2	2.029	0.649
2017	0.278	0.372	2.1	2.038	0.652
2018	0.251	0.336	1.9	2.047	0.655
2019	0.212	0.283	1.6	2.063	0.660

Source: compiled by the authors based on Federal State Statistics Service (2019a), Federal State Statistics Service (2019b).

Table 3. Dynamics of the indicators for regression and correlation analysis of infrastructure and environment and perceived quality of life in the city of Sevastopol in 2010-2019.

Year (beginning of the year)	Infrastructure and environment			Perceived quality of life (index of happiness), shares of 1
	Ratio of expenditures for corporate social responsibility to aggregate expenditures, shares of 1	Ratio of expenditures for corporate ecological responsibility to aggregate expenditures, shares of 1	Index of quality of life, shares of 1	
	x_4	x_5	y_3	y_4
2010	0.054	0.012	0.72	0.68
2011	0.055	0.013	0.72	0.68
2012	0.055	0.013	0.72	0.68
2013	0.056	0.013	0.73	0.68
2014	0.057	0.014	0.75	0.69
2015	0.059	0.014	0.77	0.70
2016	0.060	0.014	0.78	0.71
2017	0.060	0.014	0.79	0.72
2018	0.063	0.015	0.83	0.74
2019	0.066	0.016	0.86	0.76

Source: compiled by the authors based on Domofond (2019), NewsEffector (2019), Medialogia (2019).

Based on the results of modeling, we determine the target values of the indicators of contribution of corporate social responsibility and social capital management of business for achieving the preferable quality of life of the population of Sevastopol with the help of the simplex method (method of optimization that envisages automatized selection of the values of the indicators according to the set criteria of optimality).

4. Results

4.1. Modeling of quality of life in the city of Sevastopol and the influence of corporate social responsibility and social capital management of business on it

The structural components of quality of life on the territory the city of Sevastopol in 2019 are shown in Figure 1.

As is seen from Figure 1, quality of life on the territory of Sevastopol is rather high. The highest level is the level of infrastructure and environment (0.86 - favorable) and perceived quality of life (0.76, satisfactory), and the lowest level is the level of living standards (0.660, unsatisfactory) and opportunities for employment and career building (coefficient of tension in the labor market=1.6, unsatisfactory). Calculation of the integral indicator of quality of life of the population of Sevastopol in 2019 is performed in the following way: I_{QL}=(0.625+0.660+0.86+0.76)/4=0.7263 – satisfactory. The results that are obtained in the course of regression and correlation analysis are presented in Tables 4-7.

The data of Table 4 allow compiling the following model of multiple linear regression:

y_1=-0.0022+15.0051*x_1+5.5518*x_2.

This means that increase of the ratio of employees who are selected via the employment services to the total number of hired employees by 0.1 raises the tension in the labor market by 1.5. At the same time, increase of the value of the index of social fairness of business by 0.1 leads to reduction of the tension coefficient in the labor market by 0.5518.
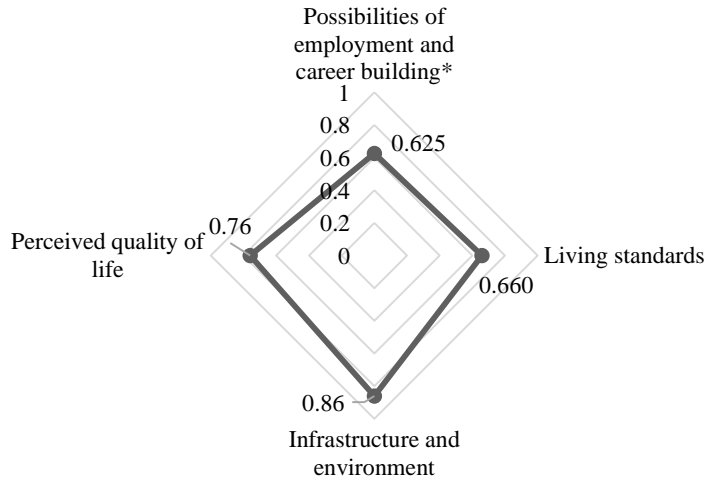
Figure 1. Structural components of quality of life on the territory of Sevastopol in 2019.
*Calculated in the following way: 1/coefficient of tension in the labor market
Source: compiled by the authors.

Table 4. Results of regression and correlation analysis of the opportunities for employment and career building.

Regression statistics						
Multiple R	0.9999					
R-square	0.9999					
Adjusted R-square	0.9998					
Standard error	0.0051					
Observations	10					
Dispersion analysis						
	df	SS	MS	F	Significance F	
Regression	2	1.3008	0.6504	24645.5377	3.41144E-14	
Residue	7	0.0002	0.0000			
Total	9	1.3010				
	Coefficients	Standard error	t-Stat	P-value	Lower 95%	Upper 95%
Intercept	-0.0022	0.0118	-0.1859	0.8578	-0.0302	0.0258
x_1	15.0051	2.6411	5.6813	0.0007	8.7598	21.2504
x_2	-5.5518	1.9870	-2.7940	0.0268	-10.2503	-0.8532

Source: calculated by the authors.

The obtained value of significance F (3.41144E-14) does not exceed 0.05 – therefore, the regression model is authentic at the significance level α=0.05. P-values of estimate coefficients with both independent variables do not exceed 0.05 and constitute 0.0007 and 0.0268. The calculated value of multiple R=0.9999 shows strong and stable connection between the studied indicators – the change of the tension coefficient in the labor market of Sevastopol in 2010-2019 by 99.99% is explained by the change of the ratio of employees who are selected via the employment service to the total number of hired employees and the level of social fairness of business. Adjusted R (0.9998) almost coincides with the determination coefficient R^2 (0.9999), which is confirmed by high quality of the regression model.

The observed value of F-test (24645) does not exceed the table value, which, with $\alpha=0.05$, $k_1=m=2$ and $k_2=n-m-1=10-1-1=8$, constitutes 4.46 – which shows statistical significance of the obtained regression equation. This is confirmed by verification with the help of t-test, which value (5.68 for x_1 and 2.79 – according to the module – for x_2) exceeds the table value, which, with $p=0.05$ and $n-2=10-1=8$, constitutes 2.306. Therefore, for expanding the opportunities for employment and career building in the city of Sevastopol it is necessary to increase of the level of social fairness of business.

Table 5. Results of the regression and correlation analysis opportunities for employment and career building

Regression statistics						
Multiple R	0.9998					
R-square	0.9997					
Adjusted R-square	0.9997					
Standard error	0.0002					
Observations	10					
Dispersion analysis						
	df	SS	MS	F	Significance F	
Regression	1	0.0008	0.0008	25992.6481	2.45095E-15	
Residue	8	2.40271E-07	3.00339E-08			
Total	9	0.0008				
	Coefficients	Standard error	t-Stat	P-value	Lower 95%	Upper 95%
Intercept	0.0087	0.0039	2.1999	0.0590	-0.0004	0.0178
x_3	0.3157	0.0020	161.2224	2.45095E-15	0.3112	0.3202

Source: calculated by the authors.

The data of Table 5 allow compiling the following model of multiple linear regression: $y_2=0.0087+0.3157*x_3$. This means that increase of the ratio of monthly average accrued wages to subsistence level by 0.1 leads to increase of the human development index in Sevastopol by 0.316. The obtained value of significance F (2.45095E-15) does not exceed 0.05 – therefore, the regression model is authentic at the significance level $\alpha=0.05$. P-value of the estimate coefficient with independent variable does not exceed 0.05.

The calculated value of multiple R=0.9998 shows strong and stable connection between the studied indicators – change of the living standards of Sevastopol in 2010-2019 by 99.98% is explained by the change of ratio of monthly average accrued wages to subsistence level. Adjusted R (0.9997) almost coincides with the determination coefficient R^2 (0.9997), which is confirmed by high value of the regression model.

The observed value of F-test (25992) does not exceed the table value, which, with $\alpha=0.05$, $k_1=m=1$ and $k_2=n-m-1=10-1-1=8$, constitutes 5.32, which shows statistical significance of the obtained regression equation. This is confirmed by verification with the help of t-test, which observed value (161) exceeds the table value, which, with $p=0.05$ and $n-2=10-1=8$, constitutes 2.306. Therefore, for increasing the living standards of the residents of Sevastopol it is necessary to raise the ratio of monthly average accrued wages to subsistence level.

The data of Table 6 allow compiling the following model of multiple linear regression: $y_3=-5.55112E-16+17.1429*x_4-17.1429*x_5$. This means that increase of the ratio of expenditures for corporate social responsibility to aggregate expenditures by 0.1 leads to growth of the value of the index of quality of life by 0.1714. At the same time, increase of the ratio for corporate ecological responsibility to aggregate expenditures leads to reduction of the value of the index of quality of life by 0.1714.

Table 6. Results of the regression and correlation analysis of the opportunities for employment and career building.

Regression statistics					
Multiple R	0.9999				
R-square	0.9998				
Adjusted R-square	0.9997				
Standard error	4.25794E-17				
Observations	10				
Dispersion analysis					
	df	SS	MS	F	Significance F
Regression	2	0.0216	0.0108	5.9597	1.5522E-106
Residue	7	1.2691E-32	1.813E-33		
Total	9	0.0216			
	Coefficients	Standard error	t-Stat	P-value	Lower 95%	Upper 95%
Intercept	-5.55112E-16	2.37995E-16	-2.3325	0.0524	-1.11788E-15	0.0178
x_4	17.1429	1.72624E-14	9.9307	2.7727E-103	17.1429	0.3202
x_5	-17.1429	6.43959E-14	-2.6621	2.7874E-99	-17.1429	-17.1429

Source: calculated by the authors.

The obtained value of significance F (1.5522E-106) does not exceed 0.05 – therefore, the regression model is authentic at the significance level $\alpha=0.05$. P-values of estimate coefficients with both independent variables do not exceed 0.05 and constitute 2.7727E-103 and 2.7874E-99.

The calculated value of multiple R=0.9999 shows strong and stable connection between the studied indicators – change of quality of life in the city of Sevastopol in 2010-2019 by 99.99% is explained by the change of the ratio of expenditures for corporate social responsibility to aggregate expenditures and ratio of expenditures for corporate ecological responsibility to aggregate expenditures. Adjusted R (0.9998) almost coincides with the determination coefficient R^2 (0.9997), which is confirmed by high quality of the regression model.

The observed value of F-test (5.9597) does not exceed the table value, which, with $\alpha=0.05$, $k_1=m=2$ and $k_2=n–m–1=10–1–1=8$ constitutes 4.46, which shows statistical significance of the obtained regression equation. This is confirmed by verification with the help of t-test, which observed value (9.9307 for x_4 and 2.6621 – according to the module – for x_5) exceeds the table value,

which, with p=0,05 and n-2=10-1=8 constitutes 2.306. Therefore, in order to increase the quality of life in the city of Sevastopol it is necessary to increase the ratio of expenditures for corporate social responsibility to aggregate expenditures of business.

The data of Table 7 allow compiling the following model of multiple linear regression: $y_4=-0.1734-2.8533*x_1+2.1090*x_2+0.2466*x_3+8.8317*x_4-10.5668*x_5$. This means that increase of ratio of employees who are selected via the employment service to the aggregate number of hires employees by 0.1 leads to growth of the happiness index by 0.2853. Increase of the value of the index of social fairness of business by 0.1 leads to growth of the happiness index by 0.2109. Increase of ratio of monthly average accrued wags to subsistence level by 0.1 leads to growth of the happiness index by 0.2466. Increase of ratio of expenditures for corporate social responsibility to aggregate expenditures by 0.1 leads to growth of the happiness index by 0.8832. Increase of ratio of expenditures for corporate ecological responsibility to aggregate expenditures by 0.1 leads to reduction of the happiness index by 1.0567.

Table 7. Results of the regression and correlation analysis of opportunities for employment and career building.

Regression statistics						
Multiple R	0.9961					
R-square	0.9922					
Adjusted R-square	0.9823					
Standard error	0.0038					
Observations	10					
Dispersion analysis						
	df	SS	MS	F	Significance F	
Regression	5	0.0072	0.0014	101.1754	0.0003	
Residue	4	5.7E-05	1.41995E-05			
Total	9	0.0072				
	Coefficients	Standard error	t-Stat	P-value	Lower 95%	Upper 95%
Intercept	-0.1737	0.8808	-0.1972	0.8533	-2.6193	2.2718
x1	-2.8533	2.2850	3.2487	0.0280	-3.4909	9.1975
x2	2.1090	1.6550	-4.2743	0.0272	-6.7041	2.4861
x3	0.2466	0.3175	5.7767	0.0481	-0.6349	1.1281
x4	8.8317	6.1440	3.4374	0.0224	-8.2269	25.8903
x5	-10.5668	9.3258	-4.1331	0.0320	-36.4593	15.3257

Source: calculated by the authors.

The obtained value of significance F (0.0003) does not exceed 0.05 – therefore, the regression model is authentic at the significance level α=0.05. P-values of estimate coefficients with both independent variables do not exceed 0.05 and constitute 0.0280, 0.0272, 0.0481, 0.0224, and 0.0320.

The calculated value of multiple R=0.9961 shows strong and stable connection between the studied indicators – change of the happiness index of Sevastopol in 2010-2019 by 99.61% is explained by the change of the values of variables x_1, x_2, x_3, x_4, x_5. Adjusted R (0.9922) almost coincides with the determination coefficient R^2 (0.9823), which confirms high quality of the regression model.

The observed value of F-test (101) does not exceed the table value, which, with α=0.05, k_1=m=5 and k_2=n–m–1=10–1–1=8 constitutes 3.69 – which shows statistical significance of the obtained regression equation. This is confirmed by verification with the help of t-test, which observed value (3.25 for x_1, 4.27 – as to the module – for x_2, 5.77 for x_3, 3.43 for x_4, 4.13 – as to the module – for x_5) exceeds the table value, which, with p=0.05 and n-2=10-1=8,

constitutes 2.306. Therefore, for increasing the index of happiness in Sevastopol it is necessary to increase the level of social fairness of business, increase the ratio of monthly average accrued wages to subsistence level, and to increase the ratio of expenditures for corporate social responsibility to aggregate expenditures.

4.2. Perspectives of improvement of the practice of manifestation of corporate social responsibility and social capital management of business in Sevastopol for increasing the quality of life

According to the offered scale, the optimal quality of life of the population of Sevastopol (value of the indicator I_{QL}) is its value in the interval 0.9 - 1. Let us determine the preferable value of this indicator at the level of the minimum limit of the optimal interval – i.e., 0.91. By automatic selection of the values with the help of the simplex method in Excel we determine the target values of the indicators of contribution of corporate social responsibility and social capital management of business for achieving I_{QL}=0.91:

- coefficient of tension in labor market (T_{LM}) should constitute 0.94, reducing by 41.25% as compared to the 2019 level;
- human development index (LL) should constitute 0.90, increasing by 36.36% as compared to the 2019 level;
- index of quality of life (QL) should constitute 0.90, increasing by 4.65% as compared to the 2019 level;

- index of happiness (HN) should constitute, increasing by 18.42% as compared to the 2019 level.

Verification: $(0.94+0.90+0.90+0.90)/4=0.91$ – the performed calculations are correct. With the help of automatized selection of the values with the simplex method we determine the necessary values of variables x_1, x_2, x_3, x_4, x_5 for achieving the calculated target values of indicators T_{LM}, LL, QL and HN. The formulated optimization task has the following mathematical form:

$y_1=-0.0022+15.0051*x_1+5.5518*x_2 \geq 0.94;$
$y_2=0.0087+0.3157*x_3 \geq 0.90;$
$y_1=-5.55112E-16+17.1429*x_4-17.1429*x_5 \geq 0.90;$
$y_4=-0.1734-2.8533*x_1+2.1090*x_2+0.2466*x_3+8.8317*x_4-10.5668*x_5 \geq 0.90.$
$x_1=0.21=const; x_5=0.02=const; x_4 \leq 1.$

The solution of this task, which was found automatically with the help of the simplex method, has the following form: $x_2=0.40207$, $x_3=3.2555$, $x_4=0.0769$. Let us put use the obtained values of the variables as target functions:

- $y1=-0.0022+15.0051*0.21+5.5518*0.40207=0.94$
- $y2=0.0087+0.3157*3.2555=1.04$ (we use 1 as the maximum possible value);
- $y1=-5.55112E-16+17.1429*0.0769-17.1429*0.02=1.05$ (we use 1 as the maximum possible value);
- $y4=-0.1734-2.8533*0.21+2.1090*0.40207+0.2466*3,2555+8.8317*0.0769-$
- $-10.5668*0.02=0.90.$

The equations are correct – therefore, the performed calculations are correct. This allows offering practical recommendations for maximizing the contribution of corporate social responsibility and social capital management of business into achievement of the preferable quality of life population of Sevastopol:

- increase of the value of the index of social fairness of business (x2) to 0.4021 – i.e., by 41.94% as

compared to the 2019 level. This requires formation of more transparent systems of motivation and stimulation of labor, containing the sets of clear quantitative (labor efficiency) and qualitative (quality of manufactured products and performed services, timeliness of their provision) indicators for precise evaluation of efficiency of each employees and reward for his work (money or promotion);

- increase of the ratio of monthly average accrued wages to subsistence level (x3) to 3.2555 – i.e., by 57.81% as compared to the 2019 level. Growth of the level of wages should be accompanied by the measures on control and regulation of prices in Sevastopol by the state (e.g., establishment of the upper pricing limits for housing and utilities services and essential products) for preventing inflation (and growth of subsistence level);

- increase of the ratio of expenditures for corporate social responsibility to aggregate expenditures (x4) to 0.068 – i.e., by 17.09% as compared to the 2019 level. This envisages increase of the budget of

corporate social responsibility of business. The following perspective directions of manifestation of corporate social responsibility by business structures of Sevastopol are offered: (1) corporate training and advanced training of employees for developing digital competencies, which will allow for digital modernization of business and increasing its competitiveness; (2) provision of the possibility to purchase the business's products on profitable terms, which will stimulate the production and sales; (3) flexible system of social support for employees depending on their priorities, which envisages co-financing of housing credits, medical services, tourist services, etc. This will allow increasing the loyalty of employees to business and will stimulate growth of labor efficiency and labor quality.

5. Conclusion

Thus, the offered hypothesis is proved. It is shown by the example of the city of Sevastopol that the corporate social responsibility and social capital management of business could influence the provision of quality of life of the population of a modern territory under the condition of targeted management. The scientific and methodological provision for evaluating the contribution of corporate social responsibility and social capital management into provision of quality of life of the population of a modern territory is developed. It is universal – i.e., it could be used by any business structure at any modern territory (not only business structures of the city of Sevastopol).

This provision includes, firstly, the set of indicators that reflect structural components of quality of life of the population on which business's manifestation of corporate social responsibility and social capital management

could have potential influence – the coefficient of tension in the labor market (possibilities of employment and career building), human development index (living standards), index of quality (level of infrastructure and quality of environment), and index of happiness (perceived quality of life). Secondly, the formula for integral evaluation of quality of life of the population of a modern territory is compiled. Thirdly, the authors offer a scale for qualitative treatment of the values of components and integral indicator of quality of life of the population of a modern territory.

As a result of approbation of the developed scientific and methodological provision for evaluating the contribution of corporate social responsibility and social capital management into provision of quality of life of the population modern territory by the example of the city of Sevastopol it is determined that ratio of employees who are selected via the employment service to the total number of hired employees does not influence the opportunities of employment and career building, and the ratio of expenditures for corporate ecological responsibility to aggregate expenditures does not influence the infrastructure and the state of environment. Therefore, managing these measures of corporate social responsibility is ineffective in Sevastopol, which shows inexpedience of their implementation (though these measures could be effective and popular in other territories).

The key factors of quality of life of the population of the city of Sevastopol, which are formed on the basis of corporate social responsibility and social capital management of business, are the index of social fairness of business, ratio of average monthly accrued wages to subsistence level, and ratio of expenditures for corporate social responsibility to aggregate expenditures. For maximizing the contribution of corporate social responsibility and social capital management into quality of life of the population of Sevastopol it is necessary to increase social fairness of business by

improvement of the systems of motivation and stimulation of labor, increase monthly average accrued wages (together with state anti-inflation measures), and increase expenditures for corporate social responsibility of business.

The practical implementation of the offered recommendations will allow achieving reduction of tension in the labor market in the city of Sevastopol by 41.25% (to 0.94); increasing living standards by 36.36% (to 0.90 or higher); increase of quality of life by 4.65% (to 0.90 and higher); increase index of happiness by 18.42% (to 0.90 or higher). This will ensure growth of the integral indicator of quality of life of the population of the city of Sevastopol by 25.29%, as compared to 2019 – to 0.91.

It is possible to conclude that unlike other existing studied on the topic of the scientific and methodological provision of measuring and evaluation of corporate social responsibility and management of a company's social capital, in this paper they are analyzed through their contribution into provision (and increase) of population's quality of life.

Thus, we offer a completely new approach to treatment and study of corporate social responsibility and management of a company's social capital – not through the prism of their role and value for the company (its commercial/marketing success, implementation of its mission) but through the prism of the social consequences for the interested parties – the company's employees and the society on the whole.

The new approach supplements and develops the existing scientific and methodological provision of measuring of corporate social responsibility and management of social capital of the company, allowing for systemic (the most complete, precise, and correct) assessment of its advantages and drawbacks for the company and for the interested parties (in the aspect of influence on quality of life).

The advantage of the offered approach and developed authors' recommendations for its application is balance of commercial interests of business and non-commercial interests of society (employees and consumer). For example, corporate training allows for simultaneous development of the potential of an employee (being a measure of corporate social responsibility) and stimulates the increase of effectiveness of business (being a measure of competitiveness management).

The obtained conclusions actualize the task of improving the existing practices of manifestation of corporate social responsibility and social capital management by bringing them in accordance with interests of business (connected to growth of effectiveness and competitiveness) and interests of interested parties (connected to increase of quality of life of the population of a territory). This should be studied in further scientific works in continuation of this paper.

References:

Alrawadieh, Z., Cetin, G., Dincer, M. Z., & Istanbullu Dincer, F. (2019). The impact of emotional dissonance on quality of work life and life satisfaction of tour guides. *Service Industries Journal*, *2*(1), 18-26.

Bogoviz, A. V., Chistov, I. V., Zakutnev, S. E., Shkodinsky, S. V., & Prodchenko, I. A. (2018a). Financial incentives for the creation of high-performance jobs. *Quality – Access to Success*, *19*(S2), 67-70.

N. Simchenko, E. Piskun

Bogoviz, A. V., Lobova, S. V., & Ragulina, J. V. (2019). The cost and value of human capital in the modern digital economy. *Lecture Notes in Networks and Systems*, *57*, 1224-1230.

Bogoviz, A. V., Lobova, S. V., Ragulina, J. V., Vypryazhkina, I. B., & Boldyreva, I. N. (2018b). Educational incentives for creating high-performance jobs. *Quality – Access to Success*, *19*(S2), 57-61.

Bratu, M. L., & Cioca, L.-I. (2019). Managerial strategies for optimizing ergonomics in organizations, tailored to the personality of engineers, to improve the quality of life and security of employees. *Quality – Access to Success*, *20*, 31-36.

Bravi, L., Murmura, F., & Santos, G. (2018). Manufacturing labs: Where new digital technologies help improve life quality. *International Journal for Quality Research*, *12*(4), 957-974.

Cheng, Z., Nielsen, I., & Cutler, H. (2019). Perceived job quality, work-life interference and intention to stay: Evidence from the aged care workforce in Australia. *International Journal of Manpower*, *40*(1), 17-35.

Dhamija, P., Gupta, S., & Bag, S. (2019). Measuring of job satisfaction: the use of quality of work life factors. *Benchmarking*, *2*(1), 34-49.

Domofond (2019). Full rating of 250 cities of Russia as to quality of life. Retrieved from https://www.domofond.ru/statya/polnyy_reyting_250_gorodov_rossii_po_kachestvu_zhizni/6764 (data accessed: 25.04.2019).

Federal State Statistics Service (2019a). *Regions of Russia. Socio-economic indicators - 2018.* Retrieved from http://www.gks.ru/bgd/regl/b18_14p/Main.htm (data accessed: 25.04.2019).

Federal State Statistics Service (2019b). *Regions of Russia. The main socio-economic indicators of cities - 2018.* Retrieved from http://www.gks.ru/bgd/regl/b18_14t/Main.htm (data accessed: 25.04.2019).

Freitas, A. L. P., & Maciel, F. R. (2019). Quality of work life of bank security guards in Brazil: a research note. *Security Journal*, *2*(1), 65-76.

Grabowski, M., Kovaleva, A., Wiśniewska, S., Szydło, R. (2019). Comparative analysis of students' quality of life in Poland and Russia. *International Journal for Quality Research, 13*(1), 45-156.

Kundurzhiev, T., Prodanova, Y., & Yancheva-Stoicheva, M., Tsacheva, N., Miteva, I., & Hristova, L. (2018). Ownership of medical institutions in Bulgaria - Impact on the quality of working life of workers. *International Journal for Quality Research*, *12*(3), 689-702.

Lopes, H., Lagoa, S., & Santos, A. C. (2019). Work conditions and financial difficulties in post-crisis Europe: Utility versus quality of working life. *Economic and Labour Relations Review*, *30*(1), 39-58.

Medialogia (2019). *Russia's happiest regions.* Retrieved from https://www.vestifinance.ru/articles/99907 (data accessed: 25.04.2019).

Netto, C. S. (2018). Quality of work life of women employees in private sector organizations in Ernakulam District of Kerala. *Prabandhan: Indian Journal of Management*, *11*(11), 51-62.

NewsEffector (2019). *Index of happiness of cities of Russia.* Retrieved from http://www.gosrf.ru/news/5927/ (data accessed: 25.04.2019).

Popkova, E. G., Bogoviz, A. V., & Lobova, S. V. (2017a). *Vacuum in the structure of human capital: A view from the position of the theory of vacuum.* Human Capital: Perspectives, Challenges and Future Directions, 163-181.

Popkova, E. G., Morozova, I. A., & Litvinova, T. N. (2017b). *New challenges for human capital from the positions of its infrastructural role in the system of entrepreneurship.* Human Capital: Perspectives, Challenges and Future Directions, 257-275.

Radošević, T., Bulatović, G., & Bulatović, L. (2018). Quality of life shown in correlations between significant socio-personal values of students and employees and their attitudes towards change. *International Journal for Quality Research*, *12*(3), 723-740.

Schmeleva, A. (2019). Backgrounds and principles of drafting a standard of life quality in Moscow. *Quality – Access to Success*, *20*(S2), 567-573.

Uysal, M., & Sirgy, M. J. (2019). Quality-of-life indicators as performance measures. *Annals of Tourism Research*, *2*(1), 47-54.

Nataliia Simchenko
V.I. Vernadsky Crimean
Federal University,
Simferopol,
Russian Federation
natalysimchenko@yandex.ru

Elena Piskun
Sevastopol State University,
Sevastopol,
Russian Federation
lenapiskun@mail.ru

N. Simchenko, E. Piskun