Assessment of the Impact of Social Responsibility of Integrated Business Forms on Regional Development

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Abstract: Research has shown that the current entrepreneurial environment promotes the formation and growth of integrated interaction forms. These integrated relationships foster alignment among key stakeholders, including partners, consumers, employees, society, and government authorities, emphasizing the importance of social responsibility. A particularly pressing issue is the implementation of social responsibility through integrated forms as a community, necessitating further research to evaluate their impact on regional socio-economic development. Using statistical data and regression analysis, researchers developed a model to assess how regional employment and unemployment rates, alongside the inflation index, influence the effect of integration forms on socio-economic development. Normative fluctuations for unemployment (2%) and employment (7,5%) in the region were identified. The regression analysis resulted in the calculation of an indicator (*IF_avg)* - to measure the contribution of integrated forms to socio-economic development. This indicator enables the assessment of whether such forms positively impact regional development. Testing this approach on the construction company "Gefest" in the Odessa region demonstrated a positive impact, with a calculated result of 1,26%. While these findings provide initial insights, they are not without limitations. Future improvements could incorporate additional indicators such as investment volume, innovative activity levels, and labor productivity to refine the model and enhance its accuracy in evaluating the influence of integration forms.

1 INTRODUCTION

Trends in the entrepreneurial environment contribute to changes in the formation, management, and organization of interactions within partnerships. The specific conditions of the Ukrainian environment determine the particular responsibility of business leaders toward their partners, employees, consumers of products (and users of services), and society as a whole – this is social responsibility.

The social responsibility of integrated forms of business involves addressing social conflicts that arise in the process of interaction with other partners, without leading to negative consequences such as increased unemployment or worsening poverty. It also includes the preservation of ecology and various other aspects of responsibility, which entail not only the implementation of ideas but also the realization of innovative initiatives, interaction with partners, and other forms of accountability.

The role of integrated forms in modern society goes beyond merely creating jobs and generating profits; it requires setting new objectives. The more civilized the business environment in a country, the greater its impact on social life within cities, regions, and the nation as a whole. Consumers of products and society evaluate the activities of integrated forms not just based on production and financial outcomes but also on how

they conduct their operations: whether they care about their employees and how well they align with the interests of other market participants, residents of the area, and society as a whole. Therefore, the question of social responsibility among participants in partnership relations within integrated forms of cooperation and the assessment of the level of impact on the socio-economic development of the region becomes increasingly relevant.

2 LITERATURE REVIEW

Among the leading works dedicated to the assessment of social responsibility among participants in partnership relations within integrated forms of cooperation, the following scholars' contributions should be highlighted [1... 5].

In [1], it is stated that social responsibility is an ethical focus for individuals and companies whereby they seek to take action and be accountable for practices that benefit society. Social responsibility means that individuals and companies must act in the best interests of their environment and society as a whole.

The concept of CSR in [2] is defined as a business's commitment to responsibly managing its operations' social, environmental, and economic effects in line with public expectations.

According to [3], corporate social responsibility is a mechanism for businesses to assess the impact they have on society and put responsible, ethical policies in place to support individuals, the local community, the marketplace, and the environment.

In [4], CSR is described as a business model that ensures companies operate in a manner that is ethical and beneficial for society at large. This involves taking into account the social, economic, and environmental impacts of business operations. By adopting CSR, companies voluntarily commit to contributing positively to societal goals.

The discussion in [5] revolves around CSR implementation, which can involve a 'built-in' and 'bolt-on' approach. The former is strategic, incorporating socially responsible behaviours into companies' operations, processes, and decision-making.

It should be noted that social responsibility is studied in some works as an element of moral duty [6; 7], a company's development strategy that guarantees the effective formation of sustainable development of the company [8-11], the formation of corporate culture [12] and partnerships [13]. Today, it is clear that the business environment has a better chance of success than its competitors focused solely on economic gain through the formation and development of integrated forms. However, the participants of integrated forms of cooperation face new characteristics of social responsibility.

3 METHODOLOGY

The entrepreneurial environment within integrated forms of cooperation fosters the development of new components that characterize social responsibility in integrated forms of cooperation (IF), which expand its role for participants in partnership relationships within integration (PRI). These components include commitments to employees, consumers of products (services, works), partners, and society. At the same time, the very existence of PRI depends on the external environment. The components of this environment include consumers, suppliers, local communities, media, and others. In other words, this is the public environment that actively influences the achievement of the PRI's goals. Therefore, PRI must balance purely economic objectives with the economic and social interests of the environment. This situation has become the basis for determining the main characteristics of IF: its role for all participants in these relationships; factors that influence the formation and development of IF, and the assessment of the level of IF's impact on the socio-economic development of the region. As a result, we will examine the identified components of IF in more detail.

An inevitable consequence of the formation and development of integration cooperation is the emergence of social responsibility. This responsibility is primarily placed on the PRI, as it seeks to create comfortable conditions for interaction for all participants. The authors have determined that each party involved in these relations, forming its own social responsibility in accordance with its own goals, is responsible for the social responsibility of all participants (Fig. 1).

From Figure 1, it is evident that participants in integrated forms of cooperation aim to create interconnected socially responsible actions that

consider the interests and outcomes of all parties involved: the entrepreneurial environment, employees, executive authorities, consumers, and society during the functioning and development of these relationships. Here are some key aspects of social responsibility in IF:

- Relations between PRI and Employees: The aspiration to create proper working conditions, ensuring safety and a decent standard of living.
- Relations between PRI and Consumers: The provision of high-quality products (services, works).
- Relations between PRI and Executive Authorities: Contributing to the resolution of issues related to reducing unemployment and other social problems at both state and local levels.
- Relations between PRI and Society: Promoting sustainable economic development at various levels.

Therefore, we will analyze the factors that influence the formation and development of IF using the example of the Odessa region in the construction sector, with the aim of forecasting the level of influence of IF on the socio-economic development of the region.

The justification of the factors influencing the formation and development of IF allows for the reflection of existing trends in the development of integration forms, the identification of problematic aspects, and subsequently, the adoption of managerial decisions aimed at the development of enterprises in the construction sector, thereby improving the socio-economic situation of the Odessa region as a component of a united country.

A significant number of researchers have dedicated studies to examining the relationship between various factors based on statistical reliability regarding the strength of correlation, its adjustment accounting for the selection of functionally dependent parameters, and selecting basic technical parameters for deriving a normative formula, which can be implemented through regression analysis.

Today, according to the authors, the use of regression analysis allows for the establishment of a theoretical expression of the relationship between characteristics, that is, the form of this relationship, through the construction of a regression equation. The results of this analysis help identify priority directions and, based on the primary factors, enable forecasting, planning their development, and making managerial decisions. Regression analysis is closely related to correlation analysis, which studies the direction and strength of the connection between independent variables, as well as the form of dependency between them, embodied in the regression function [14-16].

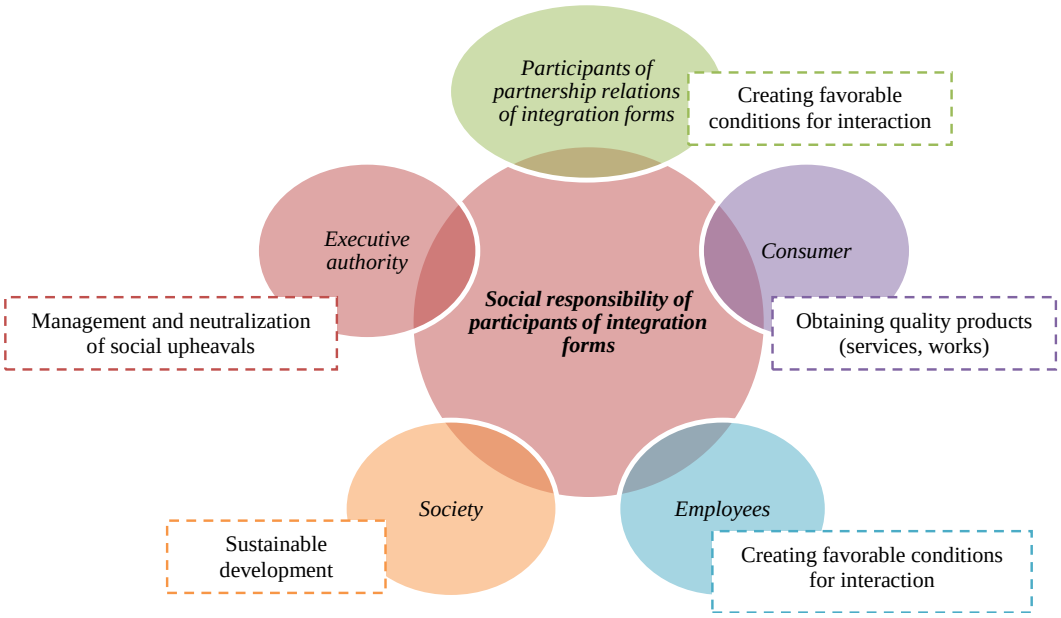

Figure 1: Social responsibility in integrated forms of cooperation.

4 RESULTS AND DISCUSSION

Particular attention is drawn to evaluating the social responsibility of integrated forms of cooperation concerning their interactions with society. This is linked to expenditures on social activities, which are regarded not merely as simple costs but as vital assets that should be properly utilized. Currently, the human factor significantly influences the competitiveness and effectiveness of a company's operations, primarily through interactions between the company's employees and the consumers of its products.

Integrated forms of cooperation encompass complex economic interactions, where integrated enterprises jointly share revenues, bear responsibility for losses and risks, manage all stages of production and product realization collaboratively, and respond swiftly to changes in the country's political situation, among other factors.

Considering integrated forms as a distinct economic behavior style, their functioning is based on pursuing new business development opportunities, focusing on innovation, effectively utilizing limited resources from various sources, and delivering high-quality products. These aspects are crucial for achieving economic and social development at the regional level. Integrated forms play a significant role in the region's socio-economic development by investing in regional programs, creating jobs, and enhancing product accessibility for society.

When assessing the contribution of integrated forms to the socio-economic development of the region, one potential indicator is the employment rate of employees within the enterprise. Thus, when determining the level of contribution of integrated forms to the socio-economic development of the region, the ratio of employed workers to the total number of employees in the industry (*E)* is considered.

To determine the contribution of integrated forms *(IF)* to the socio-economic development of the region *(IF_avg)*, it is recommended to consider the unemployment rate *(U)* and inflation rate *(I)*. This recommendation is justified for several reasons. First, an increase in unemployment reduces the number of consumers and, consequently, the consumption of goods. Second, a decrease in employment within the industry complicates consumer access to products due to a reduction in the number of enterprises or their branches (Table 1) [17-19].

Table 1: Indicators influencing the level of contribution of integrated forms to the socio-economic development of the region selected for research.

Year	Employed in Odessa region, thousand people	Employed in the construction industry, thousand people	Thousand people Unemployment in Odessa region, %	Inflation index, %
2014	1009,4	24,0	7,0	124,9
2015	1016,2	41,0	6,7	143,3
2016	100,6	40,2	6,9	112,4
2017	986,6	39,5	7,4	113,7
2018	1001,9	42,6	6,6	109,
2019	1020,1	45,1	6,1	104,1
2020	1028,4	45,6	6,7	105,0
2021	1052,1	46,4	7,2	110,0
2022	*	*	*	126,6
2023	*	*	*	105,1

* Information is unavailable due to the state of war in Ukraine.

Table 1 presents data on employment in the construction industry and the unemployment rate in the Odessa region. The data in Table 1 allows for the determination of the dependence of *IF_avg* and the normative values for establishing the boundaries of the impact of unemployment and inflation.

Based on the data in Table 1, the following model has been obtained (1):

$$IF\_avg = f(E; U; I), \quad (1)$$

where E is the employment level in the industry in the region, %; *U* – is the unemployment rate in the region, %; *I* - is the inflation index, %.

The authors recommend normative values for determining the boundaries of the impact of unemployment and inflation based on statistical research:

- the normative value for the fluctuation of the unemployment percentage in the region (KU) is 2%;
- the normative value for the fluctuation of the employment percentage in the industry in the region (KE) is 7,5%.

At the same time, the level of inflation significantly affects the effectiveness of integrated forms, as it reflects changes in the overall price level of goods and services purchased by the population for consumption.

The inflation index can have three conditions: $I > 100\%$, $I < 100\%$, and $I = 100\%$.

Considering the dynamics of changes in the inflation index, it is important to analyze the impact of IF on the socio-economic development of the region. To achieve this goal, we will transform the inflation index to ensure stable results within certain values. In practical applications, we can use the mathematical function arctg, with the formula $y = \text{arctg}(x)$.

Thus, when the argument of the function (x) changes from 0 to ∞, the value of the function (y) changes in the range from 0 to $\frac{\pi}{2}$. As a result, we note that for results when I = 100%, the contribution of the multiplier associated with the inflation index in determining the level of impact of IF on the socio-economic development of the region will be minimal. For this:

1) We integrate the value of the inflation index from percentage to a relative unit: I/100. Therefore, when I = 100%, the following actions occur: I = 100 / 100 = 1.
2) The value of arctg when I = 100% equals $\frac{\pi}{4}$, and as a result, these actions take the form of: $\text{arctg}\frac{I}{100}$.
3) The contribution of the multiplier, which characterizes the inflation index in the context of determining the impact of IF on the socio-economic development of the region when I = 100%, will decrease (if the value of this multiplier is -1). As can be observed, the implementation of the second point is already occurring. As a result, the value of this multiplier equals $\frac{\pi}{4}$, thus we will normalize it as a coefficient, which will equal $\frac{4}{\pi}$.

As a result, we obtain: the inflation index can range from $0 < I < \infty$, with its transformed range from 0 to 1 when determining the level of impact of the Integrated Forms (IF) on the socio-economic development of the region. If *I > 100 %* – the inflation index decreases the overall value of IF_avg; if *I < 100 %* – the inflation index increases the overall value of IF_avg. To fulfill this condition, we carry out the actions described previously. We integrate the multiplier from $\frac{4}{\pi}\text{arctg}\left(\frac{1}{100}\right)$ one form to another $\frac{1}{\frac{4}{\pi}\text{arctg}\left(\frac{1}{100}\right)}$, with the results provided in Table 2.

Table 2: Calculations of the Integrated Inflation Index.

Inflation index (*I*), %	$f(I)=\frac{1}{\frac{4}{\pi}\text{arctg}\left(\frac{1}{100}\right)}$
110	0,942876
99	1,006439
100	1

Based on the conducted observations, we can determine the level of impact of the IF on the socio-economic development of the region, which is based on employment levels, unemployment rates, and the inflation index. Consequently, the level of impact of IF on the socio-economic development of the region is defined by the following expression:

$$IF_{\_avg} = \left(\left(\frac{K_U}{U}\right)\cdot\left(\frac{E`}{K_E}\right)\cdot\left[\frac{1}{\frac{4}{\pi}\text{arctg}\left(\frac{I}{100}\right)}\right]\right)\cdot 100, \quad (2)$$

where:

- IF_avg – the level of impact of the integrated forms on the socio-economic development of the region;
- KU – normative value for the fluctuation of the unemployment percentage in the region – 2%;
- KE – normative value for the fluctuation of the employment percentage in the industry in the region – 7,5%;
- U – unemployment percentage in the region (%);
- I – inflation index in the country (%).
- E' – the level of employed workers in the enterprise relative to the total number of employees in the industry in the region (%).

Thus, a significant increase in the indicator *(IF_avg)* occurs with a marked increase in the percentage of employees in the enterprise compared to the total number of employed in the industry *(E')* and a significant decrease in the unemployment percentage *(U)* and inflation index *(I)*. Therefore, if the values of K_E are less than the normative level, it indicates the potential for development in the industry.

At the same time, if *IF_avg > 1*, it characterizes the presence of the contribution of *IF* to the socio-economic development of the region, and the higher the value, the more significant its role through employment. If *IF_avg* < 1, it indicates the absence of its contribution to the region.

The reliability of using the evaluation of the level of impact of IF on the socio-economic

development of the Odessa region is confirmed by the corresponding calculations of the construction company “Gefest” which started its activities in the Ukrainian market in 1997 in Odessa. Today, “Gefest” is associated with quality, stability, elegant taste, and rapid development [20, 21].

According to the statistical data of the Odessa region and the financial and consolidated reports of the construction company "Gefest", we note that in 2021: The unemployment rate in the Odessa region was 7,2%; the inflation index was 110%; the number of employed workers in the construction company "Gefest" was 620; the level of employed workers in the construction company "Gefest" relative to the total number of employees in the construction industry in the Odessa region was 1,33%.

The calculation of the recommended approach to determining the level of impact of the activities of the construction company "Gefest" on the socio-economic development of the Odessa region for 2021 is as follows:

$$IF_{-\text{avg}} = \left(\left(\frac{2}{7{,}2}\right)\cdot\left(\frac{1{,}33}{7{,}5}\right)\cdot\left[\frac{1}{\frac{4}{\pi}\operatorname{arctg}\left(\frac{110}{100}\right)}\right]\right)\cdot 100 =$$

$$=(0{,}27\cdot 0{,}1775\cdot 0{,}942876)\cdot 100=4{,}75\%$$

In the context of this study, it is determined that in these relations there is a synergistic effect and a positive result (1,26 %) of its contribution to the development of Odessa.

When determining the efficiency of IF functioning, it should be noted that intensive interaction of the PRI is necessary. Thus, intensification of the production of each PRI is essential to counteract unfavorable trends in economic development, characterized by rising inflation, unstable economic and political situation, etc. The intensive activity of the PRI in the formation and development of IF will allow to counteract these negative phenomena and give the development of relations the proper dynamism. At the same time, there are comprehensive opportunities for the PRI 's creativity to develop these relations.

5 CONCLUSIONS

It is important to note that for an accurate and comprehensive assessment of the contribution of integration forms to the socio-economic development of a region, it is necessary to consider not only basic factors such as employment levels, unemployment rates, or the inflation index but also a significantly broader range of indicators. Among these factors, the following stand out:

- Investment volume – analyzing the volume of domestic and foreign investments attracted to the region can indicate the attractiveness of integration forms for businesses and their ability to create new opportunities for economic development;
- Level of innovative activity – assessing the implementation of new technologies, developments, patent activity, and other indicators of innovation in the region can demonstrate how integration forms contribute to modernization and the competitiveness of the regional economy;
- Labor productivity – analyzing the efficiency of labor resource utilization, including productivity at both the enterprise and regional levels, can serve as an important indicator of the impact of integration forms on development;
- Environmental activity – integration forms that take into account environmental aspects (reducing emissions, implementing eco-friendly technologies, waste management) ensure not only economic but also social benefits, improving the quality of life for the population.
- Infrastructure development – integration forms can facilitate the development of transportation, industrial, educational, and other types of infrastructure, which directly influence the socio-economic growth of the region;
- Level of public involvement – the participation of public organizations, residents, and other stakeholders in decision-making processes related to the implementation of integration forms serves as an indicator of their impact on the democratization of regional development processes.

A comprehensive analysis of these factors will provide a more objective and multidimensional assessment of the effectiveness of integration forms. This will contribute to the creation of strategies that not only consider economic impacts but also incorporate social, environmental, and innovative aspects. Such an approach will help ensure the sustainable development of the region, taking into account its specific characteristics, needs, and potential.

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