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Investigation of ESG spillovers for external stakeholders in Russian regions

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Abstract. Waves of recent global economic crises at the beginning of the 2000s gave a rise to an increased attention to external effects, or spillovers, of environmental, social and corporate governance (ESG) practices of companies. The paper aims to study the impact of ESG practices on regional economic and social development from the viewpoint of external stakeholders, considering the ability of local companies to retain key human capital. The theoretical framework of the research is corporate governance theory and the ESG concept. Correlation, factor, regression and path analyses are used in combination to determine the impact of individual ESG practices on regional development and place attachment. The empirical evidence comes from the 2023 survey of 359 respondents from two industrialized regions of Russia. The originality of the study is based on (1) a structured questionnaire developed by the authors to examine external stakeholders' opinions on ESG problems in the regions, and (2) the sociological concept of place attachment viewed as the most important indicator of human capital retention. Our findings show that practices of social responsibility and labour market growth primarily influence the perception of regional economic development. In turn, there is no significant relationship between ESG practices and people's attachment to the region of residence. Practical conclusions show that external stakeholders are mainly concerned about ESG labour market spillovers: creation of stable jobs, provision of career prospects and technological advantages in the region.

Keywords: ESG-practice; sustainable development; spillovers; external stakeholders; Russian regions.

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Исследование вторичных эффектов ESG-практик компаний для внешних стейкхолдеров в регионах России

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Аннотация. Волна глобальных экономических кризисов в начале 2000-х гг. вызвала повышенное внимание к внешним, или вторичным, эффектам экологического, социального и корпоративного управления (ESG). Статья посвящена изучению мнения внешних стейкхолдеров о влиянии ESG-практик на экономическое и социальное развитие регионов с учетом способности местных компаний удерживать ключевой человеческий капитал. Методология исследования основывается на теории корпоративного управления и ESG-концепции. Комбинирование корреляционного, факторного, регрессионного и путевого анализа позволило определить влияние отдельных практик ESG на региональное развитие и привязанность к региону проживания. Эмпирическую основу исследования составили данные опроса 359 респондентов из двух промышленно развитых регионов России, проведенного в 2023 г. Оригинальность исследования определяется применением: 1) разработанной авторами структурированной анкеты для изучения мнений внешних стейкхолдеров относительно проблем ESG в регионах; 2) социологической концепции привязанности к региону проживания как важнейшему показателю удержания человеческого капитала. Согласно полученным результатам, практика социальной ответственности и рост рынка труда влияют на восприятие регионального экономического развития. В свою очередь, между практиками ESG и привязанностью людей к региону проживания нет значимой связи. Сделан вывод о том, что внешние стейкхолдеры обеспокоены прежде всего вторичными эффектами ESG на рынке труда: созданием стабильных рабочих мест, наличием карьерных перспектив и предоставлением технологических преимуществ в регионе.

Ключевые слова: ESG-практики; устойчивое развитие; вторичные эффекты; внешние стейкхолдеры; регионы России.

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INTRODUCTION

Environmental, social, and corporate governance (ESG) has become one of the most widely discussed and practiced management approaches for integrated strategic planning in companies all over the world. ESG emerged as an auxiliary instrument to provide sustainable development and corporate social responsibility (CSR), which encourages companies to adopt environmentally concerned and socially responsible policies and to report on their progress [Barman, 2018, p. 292]. Sustainable development, on the one hand, is a global concept that aims to meet the needs of the present without compromising the ability of future generations to meet their own needs [Jamandi et al., 2019, p. 3]: it encompasses economic, social, and environmental aspects, and requires the participation of all sectors of society, including business, government, and civil society [Geissdoerfer et al., 2017, p. 758]. CSR, on the other hand, is always perceived as a broad concept that includes a company's commitment to ethical behaviour and the impact it has on society and the environment as it includes a wide range of activities, such as philanthropy, community engagement, and environmental stewardship [Tian, Liu, Fan, 2015]. In general, ESG practices are a subset of CSR and sustainable development strategies, and focus specifically on environmental, social, and corporate governance issues [Cagli, Mandaci, Taşkın, 2022; Chen, Lin, 2022].

Consumers and investors are becoming increasingly aware of the impact of business on regional society and the environment, that is why companies are recognizing that sustainable business practices can lead to long-term competitive advantage and financial benefits [Belik, Dutsinin, Nikulina, 2022], such as cost savings, risk reduction, and improved reputation [Cadman, 2011; Li et al., 2023, p. 385]. ESG strategies are also becoming more popular as governments around the world are implementing regulations and policies to promote sustainable business practices and motivate companies to provide a comprehensive perspective on their future activities and ability to develop the local communities [Tang, 2022]. This includes, for example, regulations to reduce carbon emissions [Vinitskaia et al., 2021], promote renewable energy [Mohammed, Al-Bazi, 2021], and protect employees' rights. Though in previous studies significant attention was paid to financial aspects of ESG, such as its impact on cost of capital [Garzón Jiménez, Zorio-Grima, 2021; Kelchevskaya, Chernenko, Popova, 2017; Ng, Rezaee, 2015] and return on assets [Belik, Dutsinin, Nikulina, 2022; Duygun et al., 2022; Feng, Wu, 2021; Kamatra, Kartikaningdyah, 2015], in the current research we focus on ESG factors, that in recent years are crucial for *external stakeholders*, namely regional community and labour market agents. The COVID-19 pandemic, value chain disruptions, political fragmentation in 2022 and associated economic uncertainty have only intensified this trend [Singh, Patel, Singh, 2022], as stakeholders are increasingly focused on companies'

ability to navigate and respond to these challenges in a sustainable manner. This includes concerns about several spillovers: a company's impact on the environment, its treatment of employees and other stakeholders, and its overall governance practices. As a result, it is important to study the impact of ESG considerations in their operations and decision-making processes on the external perception of their ability to address these concerns and maintain the trust and confidence of stakeholders.

Therefore, there is a *research gap* in understanding the effects of ESG spillovers at the regional level: while a number of studies on the ESG impact on companies and industries proliferates, less is known about how these effects influence the quality of life and external stakeholders and attractiveness profiles of the regions [Chen et al., 2022; Li, Lian, Xu, 2023; Uddin et al., 2022]. One reason for this research gap is that ESG issues often have complex and interconnected impacts that can be difficult to measure and quantify. For example, the effects of a company's environmental practices on local air and water quality can be difficult to isolate and measure [Hsu, Chen, 2023]. Additionally, the effects of a company's ESG practices on local communities, such as job creation or increased tax revenue, can be difficult to quantify. Another reason for the research gap is that the effects of ESG issues on regional economies can be highly dependent on the *specific context*. For example, the effects of a company's ESG practices on a community in a developed country may be different than the effects on a community in a developing country [Jiang et al., 2022; Tang, 2022]. Despite these challenges, understanding ESG spillovers at the regional level is crucial for policymakers, companies, and investors to make informed decisions. Research in this area can help to identify opportunities for companies to create positive impacts and mitigate negative impacts on local communities and regions. Overall, there is a need for more research to understand the impact of ESG spillovers on regional economies and to identify best practices for companies to manage these effects.

The *purpose* of this paper is to study the impact of ESG practices on regional economic and social development from the viewpoint of external stakeholders, as well as the ability of local companies to retain key human capital. We propose that managers should consider ESG spillovers in corporate strategy because they can have a significant impact on a company's reputation, financial performance, and long-term sustainability. Environmental spillovers, such as pollution or resource depletion, can lead to increased regulatory scrutiny, fines, and damage to the company's brand. Social spillovers, such as labour practices or human rights violations, can also harm a company's reputation and lead to boycotts and divestment. Governance spillovers, such as bribery or corruption, can lead to legal and financial risks. By taking these ESG factors into account, managers can identify and miti-

gate potential risks and opportunities, and position their company for long-term success.

THEORETICAL BACKGROUND

Nature of environmental, social and governance spillovers

Spillovers refer to the positive or negative impacts that a company's ESG practices have on external stakeholders (local communities, other businesses, and the environment), which go beyond the direct impacts of a company's operations. An analysis of the literature over the past 10 years has shown a proliferation of studies related to the impact of CSR on external stakeholders, ESG spillovers, and its impact on regional development (Fig. 1). *Positive ESG spillovers* can include improving the quality of life for local communities through community development programmes, employment opportunities, and environmental protection measures, supporting other businesses through responsible supply chain management and procurement practices, contributing to the achievement of global sustainability goals, such as reducing carbon emissions and protecting biodiversity [Sushchenko et al., 2020, p. 5]. *Negative ESG spillovers* can embrace environmental degradation and health impacts on local communities from pollution and resource extraction, damage to the reputation of other businesses that are associated with a company with poor ESG practices. Some companies experience failure to contribute to global sustainability goals, such as by failing to reduce carbon emissions or engaging in illegal deforestation [Cadman, 2011, p. 21]. It is important to note that the ESG spillovers are not only perceived by external stakeholders but also can have a financial impact on the company [Jain, Sharma, Srivastava, 2019]. Bataeva, Kokurina, Karpov [2022] show that there is a significant positive relationship between ESG disclosure

rates and return on assets (ROA), equity (ROE), and invested capital (ROC) in Russian companies. Thus, companies should consider the ESG spillovers in their decision-making process in order to avoid negative impacts, enhance positive spillovers, and ultimately contribute to sustainable development.

External stakeholders are individuals or groups that are affected by or have an interest in a company's operations, such as regulators, government agencies and local communities [Yang, Basile, 2022, p. 502]. Companies often use adaptive ESG strategies to comply with regulations and avoid penalties related to environmental and social issues and minimize negative impacts on local communities by reducing pollution, investing in local development projects, and promoting fair and inclusive employment practices [Orbaningsih, 2023; Ye, Li, 2020]. However, Cadman [2011, p. 21] points out that third parties often have a peripheral role in ESG processes when it comes to decision-making related to the impacts of a company's operations on local communities and the environment. One reason for this is that these groups may not have the same level of resources and influence as the company itself, making it difficult for them to participate in decision-making on an equal footing [Hsu, Chen, 2023; Tian, Liu, Fan, 2015]. Additionally, companies may be more focused on achieving short-term financial goals rather than considering the long-term impact of their actions on local communities and the environment, also external stakeholders influence changes over strategic life-cycle of the company [Lin et al., 2019]. According to the literature review, internal effects and spillovers for different groups of stakeholders can be organized as follows (Table 1).

Recent literature emphasizes economic spillovers of the ESG strategies at the *regional level*. For instance, a company's commitment to reducing its carbon footprint

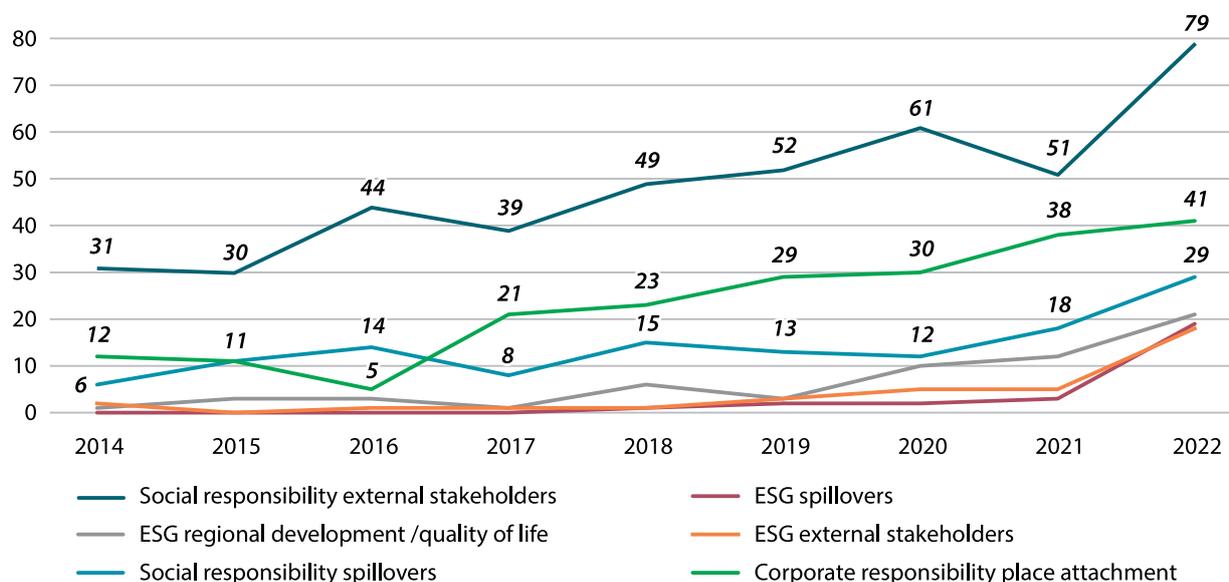


Fig. 1. The number of publications in Scopus by keywords related to ESG spillovers, 2014–2022

Рис. 1. Количество публикаций в базе Scopus, отобранных по ключевым словам, связанным с внешними эффектами ESG, 2014–2022

Table 1 – ESG internal effects and spillovers for different groups of stakeholders at the regional level
 Таблица 1 – Внутренние и внешние эффекты ESG для различных групп заинтересованных сторон на региональном уровне

Type of effect	Internal (employees, managers, etc.)	Connected (investors, partners, competitors, etc.)	External (local and global communities, government)
Environmental	Health and safety improvements, waste management, good working environment	Lowered environmental risks, increased retained earnings and dividends due to reduced cost of environmental payments and fines	Cleaner environment, green strategy support, sustainable environment for future generations, improved reputation
Social	Stable jobs, competitive wages and conditions, regional human capital retention	Lowered social risk, stable human resource relations, human capital retention	Human rights protection, gender equality, improved reputation, growing labour market
Governance	Operational efficiency, new technology introduction, long-term growth and decreased uncertainty	Lowered financial and legal risks, improved ROA, ROE and ROC for investors	Decreased levels of bribery and corruption, financially sustainable business-models and value chains, improved transparency and positive perception

could lead to the development of new technologies and business models that create jobs and economic growth in a particular region. Similarly, socio-cultural ESG practices, such as a company's focus on promoting diversity and inclusion in the workplace could lead to increased economic opportunities for underrepresented groups in a specific region. Wang et al. [2022] clarified that ESG practices strengthen the effect of state regulation in industries, reducing transaction costs associated with the interaction between the state and society, as companies take on part of the obligations to reallocate resources and strengthen social and environmental infrastructure. Additionally, companies that prioritize environmental sustainability can also help to mitigate the economic costs of environmental degradation or natural disasters in a particular region. Social aspects of ESG in some cases create sustainable *social capital*. Orekhova and Zarutskaya [2021, p. 37] show that the relational component of social capital impacts on business performance, it also acts as a resource that gives an optimization effect in relation to the organization's existing assets. On the other hand, implementing ESG strategies may also have negative social spillovers if they lead to higher costs for companies which may result in job losses or reduced investment in a particular region. Therefore, it's important to note that the impact of ESG strategies on regional economics is context-specific and depends on the specific measures being taken and the region in question. Therefore, we put forward the first hypothesis:

H1. ESG socio-cultural practices and local labour market development practices have a significant positive impact on external stakeholders' perception of regional economic and social development.

Russian manufacturing companies play a leading role in the national economy, as they are the vital suppliers of jobs on the labour market and key tax payers for local budgets [Popova, Strikh, 2021]. All these facts attract the attention of external stakeholders to their responsible behaviour and social performance of the business as they often face tight resource constraints, such as limited

financial resources and market competition, which can make it challenging to invest in sustainable development initiatives. National regulatory and fiscal policy frameworks are not always supportive of sustainable development, leading companies to focus on short-term gains rather than long-term sustainability [Stepanov, Makarov, 2021]. However, many companies are recognizing that sustainability is not only important for achieving environmental performance and responsible investing, but also for the long-term success of their businesses [Yakovleva et al., 2017]. Companies are finding ways to integrate sustainability into their business models and operations, such as by using renewable energy, reducing waste and emissions, and improving supply chain practices.

ESG practices can improve the environmental performance of a region by promoting *sustainable business practices* and reducing negative environmental impacts [Hadj, 2020]. For example, companies may adopt energy-efficient technologies such as green energy [Babu et al., 2022, p. 51], reduce waste and emissions, and engage in environmentally friendly operations implementing concept of green innovations [Li, Lian, Xu, 2023]. This can lead to a reduction in environmental risks and improved environmental outcomes, such as cleaner air and water, preservation of natural habitats, and reduced greenhouse gas emissions. In environmental context ESG practices serve as a catalyst for sustainable business operations, promoting environmental stewardship, economic development, and community engagement. External stakeholders can benefit from the environmental investments of manufacturing companies from improved health outcomes, new jobs in innovative areas such as renewable energy and specific energy-related environmental management practices [Inglesi-Lotz, 2016; Rahbauer et al., 2016]. A region with a strong commitment to sustainability and environmental protection can be more attractive to potential investors, boosting local economic development. Chen et al. [2022] on the data of Chinese companies show that green financial reform provides inflow of investments into responsible manufacturing sector, resulting

in higher ESG scores among companies. Enterprises that promote environmental agenda among local communities and take their concerns into account can build trust and enhance their reputation, leading to greater investor support and engagement. Therefore, we put forward the second hypothesis:

H2. ESG environmental practices have a significant positive impact on external stakeholders' perception of regional economic and social development.

ESG, regional development and place attachment

Recent literature shows that the climate created by ESG practices in companies also affects the attractiveness of living in the regions, people's attachment to the place and local community [Wen et al., 2022]. *Place attachment* refers to the emotional bond that individuals have with a specific location, such as a neighbourhood or specific community [Finocchiaro, 2022, p. 264]. As responsible behaviour of economic agents refers to a company's commitment to initiatives related to the environment, community development, and employee well-being, there is a connection between place attachment and ESG in that companies that are socially responsible and engaged in the community in which they operate. Certain CSR or ESG-practices may foster stronger place attachment among employees and local residents [Finocchiaro, 2022]. Additionally, companies that are sensitive to the impact of their operations on the community and work to minimize negative impact may be viewed more positively by local residents, leading to increased place attachment.

One of the key ways in which ESG practices can enhance regional attractiveness is by promoting a higher quality of life for residents [Wen et al., 2022]. This can include improving the health and well-being of local communities by reducing environmental pollution and enhancing environmental quality. It can also involve providing economic opportunities through job creation in regions, improving quality of jobs and work-life balance [Zheng, 2022]. Another important aspect of ESG practices is their impact on community engagement and stakeholder involvement [Hauser, 2016; Tian, Liu, Fan, 2015]. Companies that engage with local communities and take their concerns into account can build trust and enhance their reputation, leading to greater stakeholder self-identification, loyalty, support and engagement [Finocchiaro, 2022, p. 264]. This can contribute to the overall sustainability of the local economy and help to ensure long-term social outcomes, and lead to an influx of investment and economic growth in the region. Finally, ESG practices can contribute to the development of place attachment due to technological advantage, high-quality living and working conditions, fostering a sense of pride and connection among residents, leading to stronger communities.

Kosinskiy et al. [2020] use the concept of comfortable living to explore the strategies for development of the mining region in Russia. Comfortable living criteria also closely related to ESG practices in companies; at the me-

soeconomic level, they are associated with long-term indicators of regional development – the birth rate, life expectancy, and the amount of social investment. Akimova, Volkov, Efimov [2021] identify a number of factors of the regional development that affect the attachment to the place and the attractiveness of the territory, among them are geographical, socio-economic, cultural, leisure, technological and political factors. In general, the young population, which is associated with the future development of the regions, is more inclined to change their place of residence, and key attractiveness factor in this case is the economic development of the regions. The level of wages and the degree of its differentiation are critical criteria for appeal of Russian cities, the presence of large employers in the region is also an additional factor contributing to the retention of human capital. To a lesser extent, attachment to a place is influenced by external effects of ESG practices related to cultural and leisure activities and political influence in the regions of presence [Akimova, Volkov, Efimov, 2021, p. 394]. Therefore, we put forward the third hypothesis:

H3. ESG practices have a significant direct and indirect positive impact on external stakeholders' place attachment.

METHODS AND DATA

To test the hypotheses put forward, a questionnaire is developed, consisting of several closed-type questions, including the part that is necessary to measure variables in the factor analysis (the questionnaire is presented below in the section with the results of the study and discussion, the full version and primary data are available in Appendix). Exploratory factor analysis (EFA) is a statistical technique used to reduce a large number of variables into a smaller number of underlying factors or dimensions [Hair et al., 2018, p. 124]. The goal of EFA is to identify the underlying structure of a set of variables and to understand the relationships among them, applying cleaning procedures, formatting the data, checking for outliers, and ensuring that the data meets the assumptions of the analysis. We identify the underlying factors or dimensions in the data using principal component analysis and equimax rotation. Equimax orthogonal rotation improves the interpretability of the results and balances factor loadings, which are the correlation coefficients between each variable and each factor [Hair et al., 2018, p. 150]. After the rotation the reliability of factors are assessed by Cronbach's alpha (CA) and average variance extracted (EV, %). Factors are interpreted based on the variables according the factor loadings (FL > 0.5), which indicate the strength and direction of the relationship between the variables and the factors. It's important to note that EFA is considered as an exploratory technique, so it is followed by least-square regression of factor means and path analysis for validation of hypotheses.

In order to empirically test the proposed methods, a survey of respondents living in two large industrial regions of Russia is conducted (Table 2).

Table 2 – Distribution of respondents in the sample by gender, age and region of residence, %
Таблица 2 – Распределение респондентов в зависимости от пола, возраста и региона проживания, %

Age of respondents	Khanty-Mansiysk Autonomous Okrug - Yugra		Sverdlovsk oblast		Total
	Female	Male	Female	Male	
18 to 23 years	25.3	13.1	4.7	1.9	45.1
24 to 45 years	13.4	11.4	10.3	8.4	43.5
46 years and above	3.1	1.7	4.2	2.5	11.4
Total	41.8	26.2	19.2	12.8	100.0

The respondents are members of the associations of university graduates Khanty-Mansiysk Autonomous Okrug and Sverdlovsk Region, that is, all respondents have completed higher education. The initial sample included 1,250 respondents, as a result, 359 responses are received, which corresponds to a response rate of 28.7% and is considered an acceptable result. The structure of respondents is dominated by young people who are most interested in the long-term results of the activities of local manufacturing companies.

RESULTS AND DISCUSSION

At the first step of the study, in addition to answering questions to measure exploratory variables and test hypotheses, we also ask respondents to rate their level of knowledge in the field of socio-economic development concepts on a Likert scale from 1 to 7, where 1 – respondent is not at all familiar with the concept, 4 – there is a basic understanding of the concept, 7 – the respondent understands practical implications of the concept. The results obtained (Fig. 2) suggest that the concepts of green products, product lifecycle management and CSR are the most popular, while approaches to responsible investment and ESG remain less known. It is likely that this re-

sult is associated with the positioning of the environmental agenda in the media, which focuses on the possibility of recycling, reusing materials, as well as charitable activities of companies. Of much less interest are the sustainable development issues, which remain abstract and distant from reality for the majority of the people surveyed. In general, respondents showed above-average levels of knowledge, which is partly due to the characteristics of the sample, which were indicated earlier.

Respondents also answer which problems of regional development are most associated with the activities of local manufacturing companies. In the proposed list of 14 items, it is necessary to mark no more than five answer options, then a rating is made for each option depending on the number of answers received (Fig. 3). Significant attention of respondents obviously is focused on environmental problems associated with poor quality of tap water and drastic climatic changes in the region of residence. In addition, the presence of unauthorized accumulations of industrial waste and low air quality in cities became priority problems. In second place are problems of an economic nature related to socio-economic problems – inflation, rising cost of living, difficulties in finding work and low wages in the region of residence. It is obvious that the

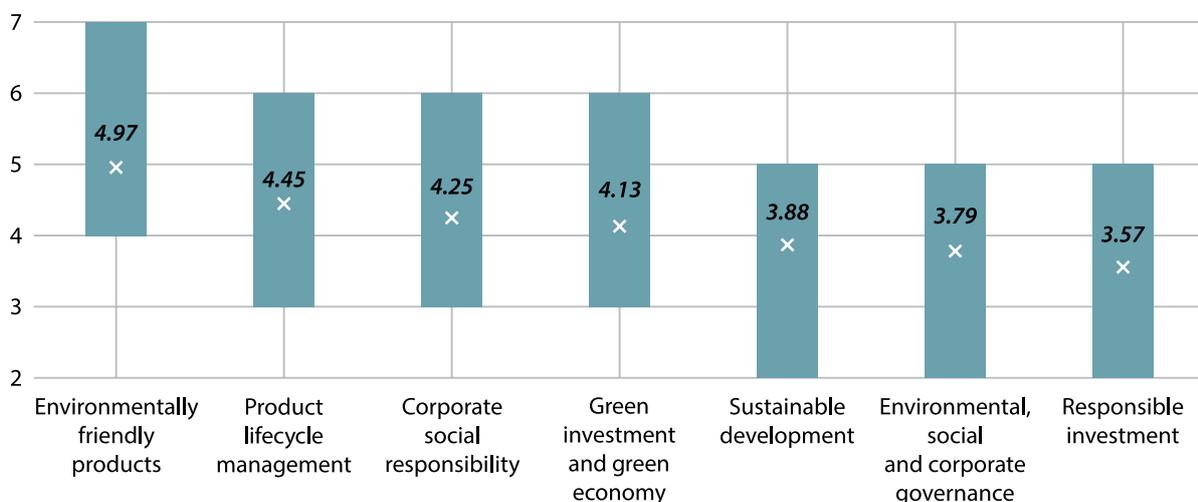


Fig. 2. Distribution of answers to the question "Which of these development concepts are you familiar with?"¹

Рис. 2. Распределение ответов на вопрос «Какие из данных концепций развития Вам знакомы?»

¹ Box and whisker plots are shown, mean values are given for the variables.



Fig. 3. Distribution of answers to the question "What are the problems of social and environmental development of the region of your residence related to the activities of manufacturing companies that bother you in the first place?," %

Рис. 3. Распределение ответов на вопрос «Какие проблемы социального и экологического развития региона Вашего проживания, связанные с деятельностью производственных компаний, Вас беспокоят в первую очередь?», %

growing importance of these risks is associated primarily with the current wave of crises that began in 2020 and disruption in supply chains, which led to negative externalities for regional communities. Of the least importance for the respondents are social and cultural problems associated with the influence of manufacturing companies and their ESG strategies, this concerns cultural differences, low participation of companies in organizing leisure op-

portunities and the availability of adequate infrastructure for the implementation of socially significant projects, training and development of community representatives.

After several multiple-choice questions, a block of statements follows, which are necessary to change variables and test hypotheses. The descriptive statistics and the results of the factor analysis for the variables are shown in Table 3.

Table 3 – Descriptive statistics and results of EFA for the selected variables
Таблица 3 – Описательная статистика и результаты факторного анализа переменных

Variables	Mean	S.D.	Factor	EV, %	CA	FL
A large number of opportunities in the labour market, high wages	3.88	1.72	Economic development of the region (F_DEV_ECON)	15.8	0.93	0.78
The economic state of the region, the level of inflation, unemployment and incomes of the population	4.22	1.67				0.76
The standard of living of socially vulnerable segments of the population (large families, people with special needs, retired persons)	4.11	1.66				0.74
The presence of large employers, new industries and technologies	4.36	1.76				0.73
Health system: planned and emergency medical care	4.20	1.77				0.72
Favourable conditions for small and medium-sized businesses, tax incentives	4.01	1.57				0.68
Access to a high-quality primary, general and vocational educational system	4.57	1.70				0.64
Development of the transport system: public transport and taxis	4.70	1.74				0.63
The level of trust in local authorities and awareness of their actions	3.48	1.75				0.55
Developed information and communication technologies, affordable Internet and mobile communications	5.08	1.70				0.54

Table 3 (concluded)
Окончание табл. 3

Variables	Mean	S.D.	Factor	EV, %	CA	FL			
Architecture of the city and the presence of city attractions	4.07	1.86	Socio-cultural development of the region (F_DEV_SC)	15.1	0.93	0.82			
Availability of natural reserves and natural attractions	4.08	1.76				0.81			
Cultural and leisure places, museums, exhibitions, theatres and other institutions	4.39	1.79				0.81			
Climatic conditions and geographic location	3.96	1.76				0.70			
Infrastructure for the development of children of preschool and school age, sports grounds	4.59	1.72				0.68			
State of the environment	3.89	1.62				0.66			
Smart solutions for city management, digital platforms for interaction with authorities	3.91	1.71				0.62			
The presence of large shopping centres, bars and cafes	4.85	1.87				0.61			
Independent, active and relevant media	3.78	1.75				0.58			
Use of renewable or alternative energy sources	4.06	1.80				Environmental Practices ESG (F_P_ENV ESG)	15.4	0.95	0.81
Investments in the processing of industrial and domestic waste	4.26	1.79	0.80						
Timely installation and renewal of equipment for the protection of air, water and soil	4.13	1.87	0.79						
Creation of environmentally friendly products, product life cycle management	4.47	1.81	0.77						
Efficient and environmentally friendly use of the natural resources of the region	4.56	1.91	0.74						
Promoting the image of environmentally friendly products and a "green" lifestyle	4.31	1.80	0.73						
Restoration of territories, "green" spaces	4.71	1.84	Socio-cultural practices of ESG (F_P_SC ESG)	13.2	0.93	0.68			
Organization and co-financing of social events and holidays	4.51	1.80				0.80			
Programs for the protection of indigenous peoples living in the regions	4.42	1.93				0.80			
Cooperation with local authorities in the field of social programs for regional development	4.52	1.80				0.74			
Organization of cultural exhibitions, factory museums, excursions	4.56	1.85				0.69			
Regular social payments for pregnancy and child care	5.00	1.83				0.69			
Social payments due to health problems	4.99	1.74				0.64			
Payment of taxes to local, regional and federal budgets	4.56	1.74				0.51			
Creation of stable jobs and regular payment of wages	5.10	1.86				ESG Labour Market Development Practices (F_P_LM ESG)	13.2	0.96	0.77
Ensuring career and personal development, prospects for professionals	5.04	1.87							0.73
Ensuring interesting and varied work using modern technologies	4.88	1.90	0.71						
Social guarantees and wages above the industry average	5.02	1.85	0.67						
Investments in social infrastructure, places of recreation and recreation for the population	4.77	1.82				0.64			

Note: The results of the authors' calculations using IBM SPSS Statistics 23 based on the survey data are shown. The questionnaire is developed by the authors based on a literature review. EV, % is percent of total variance explained, CA is Cronbach's alpha, FL is factor loadings.

The results of the factor analysis are adequate because the Kaiser-Meyer-Olkin scores (KMO-test) and the Bartlett sphericity measure are within acceptable limits (KMO = 0.995, p-value for the Bartlett test is significantly less than 1 %). As a result of the analysis, it is possible to identify five stable theoretical constructs that are characterized by a high degree of consistency (Cronbach's alpha criterion, CA, for each theoretical construct is higher than 0.9, which is a good result). The economic development factor (F_DEV_ECON) includes a group of variables that relate to labour market opportunities, perceptions of inflation, unemployment, and income levels. For most respondents, economic development is primarily associated with the

development of the local labour market, as well as living standards, especially for vulnerable segments of the population, such as large families, people with special needs and pensioners. To a lesser extent, respondents noted the influence of information and communication technologies as an important factor in the socio-economic development of the region.

The factor analysis results only include values with loads above 0.5, so one of the questions in this section of the questionnaire is excluded from the analysis, it is related to the availability of natural resources in the region. Despite the fact that the average answers for the question are more than 4.8 points on Likert scale, it showed

a low level of correlation with all other factors. In the process of factor analysis, it is not possible to separate the previously identified social, geographical, historical and architectural factors that affect the attractiveness of regions for living and their development. In this regard, only one socio-cultural factor (F_DEV_SC) is singled out, which includes all categories of statements related to the cultural, infrastructural and environmental aspects of regional development. Of greatest importance is the development of infrastructure solutions and the presence of interesting places, nature reserves, which form the basis of the region's heritage for future generations and affect the emotional attachment of people.

Finally, within the factors, ESG practices are also classified and divided into three standard groups. These practices are directly associated by respondents with the operational activities of industrial enterprises and affect the subjective attractiveness of the region for living, running a household, and providing for a family. As part of the environmental factors (F_P_ENV ESG), priority is given to investments in environmental protection and new technologies related to the processing of industrial waste. The social factor (F_P_SC ESG) includes areas related to the cultural involvement of companies, their impact on the development of indigenous peoples, participation in health programmes and training of employees and the local population. A special category is the factor of corporate governance, which for external stakeholders is associated mainly with the development of the labour market (F_P_LM ESG). In this case, respondents noted the importance of creating stable jobs, providing career development and interesting work, as well as investing in new industries to increase the technological potential of the region.

Based on the results of factor analysis, for each theoretical construct, the average value of all explicit variables

included in its composition is calculated, and then the regression analysis procedure is carried out. In this case, the questionnaire also included a question regarding location attachment. To measure this variable, the following scale is chosen, which is not explicitly presented by the respondents in order to avoid psychologic biases in the answers. The lowest scores (1, 2 and 3 points) corresponded to the answers: "In the coming months, I plan to change the region of residence due to environmental and social problems", "In the coming months I plan to change the region of residence for personal reasons", and "I would like to change the region of residence, but I will live in the region for the next three to five years, because there are no resources or opportunities to move". An intermediate or neutral value corresponds to the answer in the questionnaire: "I plan to live in this region for the next year, but I constantly think about changing the region of residence". Finally, high scores for location attachment (5, 6 and 7 points) corresponded to the responses "Planning my personal life in the region for the next few years", "I would like to run a household and provide accommodation in the region for my family and relatives over the next three to five years", "I plan to work and raise children in the region for the next three to five years".

The results of the regression analysis are shown in Table 4. To control the multicollinearity of factors, the variance inflation factor (VIF) is used, which in all models is below 5, and therefore there is no significant multicollinearity. All models are statistically significant, F-statistics and constants in the equations are significant. In addition, the first two models have a fairly high explanatory power at the level of 63 %. The first and second models evaluate the impact of ESG and the perception of regional socio-cultural development on economic development. It is obvious that the most important variables in this case are the strategies of companies for the development of

Table 4 – OLS regression analysis results
Таблица 4 – Результаты регрессионного анализа МНК

Independent variables	Dependent variable (direct effects)					
	F_DEV_ECON		F_DEV_ECON		PL_ATT	
	B	t	B	t	B	t
Constant	0.75	4.60**	0.78	4.93**	2.98	9.49
F_DEV_ECON Economic Development of the Region	n/a	n/a	n/a	n/a	0.09	0.93
F_DEV_SC Socio-Cultural Development of the Region	0.68	20.24**	0.69	20.67**	0.20	2.13*
F_P_ENV ESG Environmental Practices	-0.08	-1.80	-0.07	-1.59	-0.01	-0.13
F_P_SC ESG Socio-Cultural Practices	0.05	1.04	n/a	n/a	-0.03	-0.36
F_P_LM ESG Practices for Labour Market Development	0.16	3.44**	0.19	4.47**	0.12	1.28
Adjusted R ²	63.3%		63.3%		7.2%	
F-statistics	155.57		207.02		6.52	
Durbin-Watson	2.00		1.99		2.01	
Max. VIF	3.56		2.76		3.68	
Observations	359		359		359	

Note: Direct effects investigated. * = significant at the level less than 0.01; ** = significant at the level less than 0.05.

local labour markets and the socio-cultural image of the regions, other variables are statistically insignificant, so the first hypothesis is accepted, and the second is rejected. The third model, which includes the direct influence of the development level of regions and ESG practices on location attachment, showed a low explanatory power (about 7 % of the variance), only the indicator of socio-cultural development of regions is statistically significant, and ESG practices do not have direct effects on the resulting variable, therefore, the third hypothesis put forward is not accepted at this stage of the analysis. Probably, attachment to the region also depends on a significant number of internal psychological and emotional variables of the individual, which are not included in the scope of this study.

To test the indirect effects, a path model that reflects the causal relationships between the previously considered factors is proposed. Fig. 4 shows the effects of ESG practices on the economic and social development of the regions. Then the impact of development on the desire of people to stay in the region of presence (place attachment) is analysed. All significant relationships in Fig. 4 are indicated by bold arrows; the resulting model is statistically significant CMIN/DF (minimum discrepancy, divided by its degrees of freedom) < 0.5, GFI (goodness fit index) = 1, AGFI (adjusted goodness fit index) = 0.99, which indicates a high explanatory power of the model, RMSEA (root mean square error of approximation) = 0.01. However, the indirect effects of the influence of ESG factors on people's attachment to the region could not be confirmed at a statistically significant level, and *the third hypothesis is rejected*. As shown earlier, social responsibility practices have a direct impact on the perception of the development of the region's economy. An important result is that respondents give a key role in the perception of the economic condition of the region to labour market development practices – the population is keenly interested in the development of jobs and the technological renewal of industries, the enrichment of work and the im-

provement of career prospects. It is assumed that these components primarily affect the reputational capital of manufacturing enterprises as employers and social investors.

CONCLUSION

Investigating ESG spillovers for external stakeholders provides necessary insights to identify and understand the positive and negative impacts that companies' ESG practices have on local communities and the environment. In Russia, the manufacturing enterprises, especially extractive industries such as oil and gas are among the most important economic sectors, and their activities have a significant impact on the environment and local communities. Therefore, understanding the impact of their operations on the environment and communities provides methodological support to improve management practices and withstand challenges of development and preserve natural resources for future generations. Identified research gap in understanding ESG spillovers is caused by the lack of data and information available on external stakeholders' personal perceptions, particularly with regard to the social and environmental impacts of companies' operations. Sectoral ESG ratings, based on internal information of companies usually have methodological biases associated with distortions in understanding the real needs of the population and the study of their subjective perception. Another challenge is the lack of transparency in the Russian business environment, which makes it difficult to obtain accurate and reliable information. Despite these challenges, there is an increasing awareness of the importance of ESG practices and the need to investigate their spillovers.

The *originality* of the proposed approach lies in several dimensions. First, a questionnaire is developed that allows testing the validity and internal consistency of the factors identified in the theory, such as the economic, socio-cultural development of the region, environmental, social and corporate governance practices. Second, as

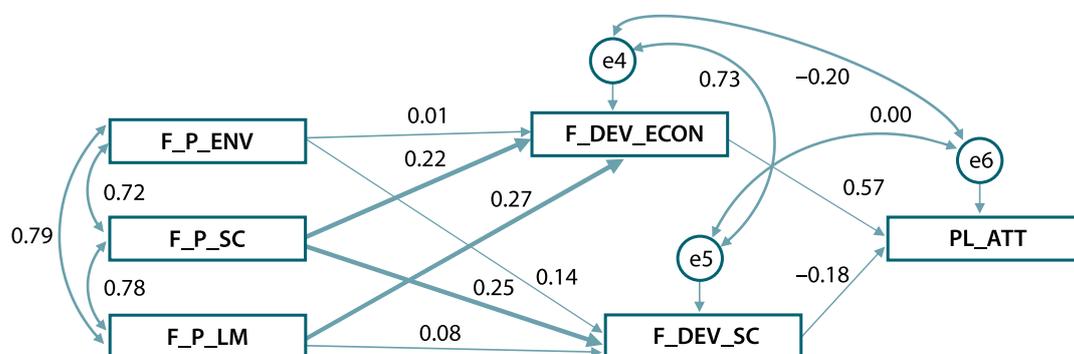


Fig. 4. Path diagram for assessing the indirect effects and interactions between latent variables¹

Рис. 4. Путьевая диаграмма для оценки непрямых эффектов взаимодействия переменных

¹ Standardized path coefficients are shown. Based on authors' calculations using IBM SPSS Amos 23.

an important indicator of regional development, an indicator of attachment to a place of residence is proposed, reflecting an emotional connection with the local community, which is one of the main indicators of the quality of regional development under the influence of companies operating in it. Third, a path model is proposed that reflects the direct and indirect effects of the interaction between factors.

The results of the study suggest that only specific practices of the organization's ESG initiatives that involve direct interaction with external stakeholders have a positive impact on how the organization is perceived as socially responsible and how attached individuals are to their region of residence. This finding is surprising because it goes against the commonly accepted belief that all ESG practices have a positive impact on stakeholder perceptions and attachment to the region. Empirical testing allowed us to conclude that the *most important predictors in the subjective assessment of regional development are mature ESG practices related to the labour market and socio-cultural aspects of the life of local communities*. The study suggests that organizations should prioritize ESG practices that involve direct interaction with external stakeholders, such as creation of stable jobs, demonstration of career opportunities, and human capital development practices. These practices are more likely to improve stakeholder perceptions of the organization's social responsibility and increase attachment to the region. Overall, the study highlights the importance of strategic CSR practices that are tailored to the specific needs and expectations of external stakeholders. Participation of companies in these activities is obviously a priority in today's resource constraints and supply chain disruptions.

Practical implications for ESG-related labour market policies. The study prioritized activities for ESG strategies improvement, empathizing that managers can develop human resource policies to improve the quality of jobs,

labour market potential of the region, and increase attractiveness as employers using ESG principles and strategies for non-financial disclosures, reputation improvements and external CRS positioning at the regional level in the following ways. *Applied policies* in companies should that promote fair labour practices such as fair wages, talent management and human capital retention, safe working conditions, and non-discrimination by creating a more productive and innovative workforce. This can improve the quality of jobs for employees and increase the attractiveness of the company as a responsible employer. It is also important to develop policies that provide employees with opportunities for *training and development*, which can improve their skills and increase their labour market potential, diversity and inclusion to create a more inclusive and equitable workplace. This can increase the attractiveness of the company as a responsible employer and help to improve the labour market potential of the region by providing a more diverse range of job opportunities, promoting sustainable economic growth.

Limitations and further research. There are several limitations of research using survey methods that rely on self-reported data, which may be subject to bias or inaccuracies, obtained data may not capture all relevant information to provide a comprehensive understanding of ESG spillovers. Though we test and verify theoretical constructs, such as ESG practices and regional development, on a relatively small sample size, we consider obtained results can be generalizable to other non-industrial regions or service sectors. However, path analysis assumes that the relationships between variables are causal and additive, which may not always be the case. Even with a large sample size and robust statistical methods, it can be challenging to capture all the ESG spillovers, as they can be diverse and may occur in different forms, that is why further research should consider alternative methods or data sources. ■

Appendix – Primary data and questionnaire
Приложение – Первичные данные и анкета

The questionnaire primary data used in the article are given at stable URL: <https://drive.google.com/drive/folders/1y03NeOLvVeAT-k-dD4LXt-Eb8qxxnRQE?usp=sharing>. (in Russ.)

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