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ESG Relationship with GDP Per Capita; A Panel Study of India

Surayya Jamal¹, Ahmad Zeb², Zulfiqar Ali³, Basharat Khan⁴,
Karishma Begum⁵

¹PhD Abdul Wali Khan University, Mardan, Pakistan. Email: surayyajml@gmail.com

²Lecturer, Department of Management Sciences, Islamia College Peshawar, Pakistan. Email: ahmad.zeb@icp.edu.pk

³Assistant Professor, Department of Business Administration, University of Mirpurkhas, Pakistan. Email: zulfiqar1989@outlook.com

⁴Lecturer, Department of Management Sciences, Hazara University, Mansehra, Pakistan. Email: basharatmaju@gmail.com

⁵ Student at Women University, Mardan, Pakistan. Email: karishmaa100gmail.com

Abstract

A strong ESG performance plays a crucial role in determining the GDP per capita. The primary aim of this research paper is to examine the influence of Environmental, Social, and Governance (ESG) factors on the Gross Domestic Product (GDP) per capita. The sample period of this research paper is from 2014 to 2023. The analysis has been performed on the Indian non-financial sector. The firms listed on Indian stock exchange is selected for this study. The data for this study has been collected from Thomson Reuter DataStream and World Governance Indicator (WGI). The study's dependent variable is the Gross Domestic Product (GDP) per capita. The independent variable covers characteristics concerning to the environment, social aspects, and government. This study significantly and drastically heightened the current knowledge base by considering the governance elements at national level, rather than at the individual firm level.

The empirical evidence and results suggest that environmental, social, and governance factors have a favorable and enhancing influence on GDP per capita. The study's results signify a vital addition to the current knowledge and suggest direction to investors and policy makers about the importance and significance of non-financial performance in encouraging economic growth. The investors must consider the non-financial aspect for economic growth.

Keywords: ESG, GDP per capita, India, growth, economy,

1. INTRODUCTION

According to Zhou et al. (2020) that currently organizations are assessed and evaluated according to environmental, social, and governance (ESG) concerns and determinants which have gained prominence in the finance industry and other domains. These non financial aspects are very important for organization growth and performance. The accomplishment of the United Nations Sustainable Development Goals (SDGs) and the Paris Climate Agreement in 2015 has developed in increased recognition and supervising of environmentally sustainable corporate practices. The United Nations Principles for Responsible Investment (UN PRI), implemented in 2007, have improved companies' understanding of the requirement to participate ESG in policies and concerns into their business and risk management strategies as well approaches, separate from their broader corporate social responsibility (CSR) activities UN PRI, (2018). Several firms and organizations have started executing internal policies with significant environmental, social, and governance (ESG) problems. These organizations believes that ESG factors are beneficial for growth and success. These guidelines prioritize areas such as clear disclosure of consequences and hazards, evaluating the environmental, social, and governance (ESG) impact, gathering data, and delivering precise reporting. This may be accomplished by using either integrated annual reports or distinct sustainability reports (Alandejani & Al-Shaer, 2023; Skouloudis et al., 2016). There has been a significant stream in external efforts to evaluate and supervise the ESG (Environmental, Social, and Governance) performance of firms. This includes the extension of credit rating agencies to combine ESG rankings, along with efforts such as the Carbon Disclosure Project (CDP). The CDP supervises the annual surveys to assess the activities of more than 7,500 corporations in areas such as climate change and water management CDP, (2019). The influence of these measures and metrics on the performance of organizations has

been considerably documented. Several studies have established that companies that have improved their ESG (Environmental, Social, and Governance) performance, for example, by reducing their carbon emissions, promoting diversity in terms of gender and race, or actively appealing with local communities, have generally experienced a rise in their firm value Berg et al., (2022), excellent credit ratings Diaye et al., (2023), increased production Gratcheva et al., (2021), progressed in competitiveness Jiang et al., (2022), and brilliant the overall financial performance Zhang et al., (2022).

Likewise, numerous reports, research, and articles have attempted to assess the correlations between environmental or social regulations and the operational efficacy of certain corporations (Clark et al., 2014; Rubashkina et al., 2015; Friede et al., 2015; Cohen and Tubb, 2018). The researchers have also explored the impression of macroeconomic variables on firms' willingness and capacity to implement internal policies that are in line with environmental, social, and governance (ESG) assumptions (Gratcheva et al., 2021; Lins et al., 2017; Ahmad et al., 2021). There is a scarcity of research on the influence of implementing ESG practices at the level of individual firms on the overall performance of countries macroeconomics variables. Less researcher studies the firm level and macroeconomic level variables. Several theoretical studies have suggested that the implementation of environmental, social, and governance (ESG) policies may influence the growth of the economy. This research study is grounded on the Porter Hypothesis, which suggests that incorporating ESG metrics at the organizational level may improve economic competitiveness and productivity. This hypothesis has established support from several researchers (Attan et al., 2018; Zahid et al., 2019; Sadiq et al., 2020; Muslichah, 2020). Expanding on this idea and belief, the advancements in production and effectiveness are grounded on known economic theory, ultimately leading to increased net economic growth, as articulated by Cohen & Tubb (2018). However, there is a significant lack of empirical research on this specific topic. This article presents the first empirical study examining the influence of adopting environmental, social, and governance (ESG) policies on the overall economic performance of emerging nations, with a special emphasis on India. This research made a valuable contribution to the existing body of knowledge by focusing on governance aspects at the nation level, rather than at the level of individual firms. The empirical findings demonstrate that environmental, social, and governance aspects positively contribute to the GDP per capita.

The study's findings provide a valuable contribution to the existing body of knowledge and provide guidance to investors and policy makers on the significance of non-financial performance in promoting economic development.

2) Literature Review

There is a contradictory link between the trajectory of GDP and the use of ESG concepts. In fact, high-capita nations are where the ESG models have been presented most often. Nonetheless, there exist notable distinctions among the diverse western nations about the efficacious ESG-GDPG correlation. The mentioned publications' economic and empirical findings demonstrate that, whereas there seems to be a negative link in Europe, there is a positive and enhancing association involving GDPG and ESG in the USA. Moreover, the E element in the ESG pillar be likely to adversely related with GDPG, but the S and G components are favourably associated and linked with GDPG. As a matter of fact, energy consumption is one factor that determines economic development as it always leads to a rise in the value and assessment of emissions. It follows that high GDPG nations often have difficulties in maintaining environmental sustainability. When the GDPG rate for S&P 500 corporations drops, just one of the ESG variables—G—seems to have no detrimental impact on financial stability, Cohen (2022). Globally, there is a positive correlation between GDP and ESG rankings, Morgenstern et al., (2022). Using ESG models to undertake the energy transition has a favourable effect on nations with medium-low GDP levels, Puttachai et al., (2022). In Asian nations, financial development and expansion, ESG ratings, and GDP have favourable correlations between them between 2013 and 2017. Ng and associates, 2020. From 2008 to 2019, there was a negative correlation found in 25 OECD nations between GDPG rates and ESG ratings, Khatib & Amosh, (2023). The economic prosperity of Latin American nations is strongly correlated with financial investments made in ESG initiatives. Nenuzhenko & Cherkasova, (2022). The GDPG rate and emissions have a positive connection, indicating that the E factor of the ESG model has no beneficial effect on economic growth. Liang & Song, (2022).

Using information from six well-known ESG rating agencies: Kinder, Lydenberg and Domini (KLD), Sustainalytics, S&P Global (RobecoSAM), Moody's ESG (Vigeo-Eiris), Refinitiv (Asset4), and MSCI, Diaye (2022) examines the discrepancies in environmental, social, and

governance (ESG) ratings. The researcher maps the various approaches onto a common taxonomy of categories and record the rating deviation. The researcher breaks down the divergence into contributions of weight, measurement, and scope using this taxonomy. 57% of the variation is attributed to measurement, 37% to scope, and 5% to weight. By looking more closely at the causes of measurement divergence, the researcher finds evidence of a rater influence, in which a rater's perception of a company as a whole affects how certain categories are measured. The findings demand a closer look at the information used to create ESG ratings.

Zhang et al. (2022) investigate, from a sustainable standpoint, the relationship between corporate investment choices and sovereign environmental, social, and corporate governance (ESG) concerns. Utilising data on policy uncertainty, nation-level governance, and business-level balance sheets, we conclude that country governance significantly increases firm investment. Furthermore, this study demonstrates that the uncertainty surrounding immigration and climate policy has a statistically significant diminishing effect on corporate investment, suggesting that the social and environmental prospects in the UK are crucial in attracting company investment. Furthermore, the moderation analysis of corporate leverage reveals empirical evidence that firms may lessen the impact of debt overhang on firm investment by achieving better environmental, social, and governance performance. These findings have a number of significant ramifications for climate change and the goals of the COP26 meeting.

The banking sector has made extensive use of ESG-type models. Stakeholder-oriented governance and shareholder-oriented governance are two distinct governance models that have been compared in the banking industry Ferri & Leogrande, (2015). The endorsement of the ESG model often marks the culmination of a protracted discussion that began with corporate social responsibility and resulted in the acknowledgment of social, governance, and environmental problems within bank governance, Leogrande & Ferri, (2021). Since the establishment of European cooperative banks, social, ethical, and environmental problems have been important in the banking sector Ferri & Leogrande, (2023). In the USA, there is a positive correlation between GDP and ESG ratings; however, in Europe, this correlation is negative, Dell'Atti & Birindelli (2018). One tactic that serves a number of objectives is the incorporation of the ESG model into corporate governance. Big businesses use the ESG model to demonstrate their concern for social,

ethical, and environmental concerns and to improve their standing with investors and customers. Due to the increased interest from financiers in providing funding for ESG-based initiatives, a new kind of free riding called "greenwashing" has emerged. The implementation of ESG models as well as methods at the corporate level is positively correlated with GDP per capita growth, indicating a close link between macroeconomic success and microeconomic decision-making, Zhou et al., (2020). The MSCI ESG database shows a positive correlation between GDP levels and better ESG ratings between 2007 and 2017, Breedts et al. . (2019)

2.1 Hypothesis Development

When businesses stay profitable over the long term, they can produce long-term success. Even so, GDP and ESG performance measurements are chosen together because they can work well with each other and sometimes they can be in conflict with each other. Businesses that are well run and care about both society and the environment are more likely to do well, make money for their shareholders, and gain customer trust and confidence. On the other hand, organisations that are financially stable and useful are doing better because they have more ways to help people and the environment. Still, increasing company value is one of the main goals of many businesses. The companies used ESG problems well to increase the value of their stakeholders, which led to better economic performance. Still, it's not very clear what the link is between ESG and GDP per head.

ESG helps the economy in many ways. For example, social duty and caring about things like human rights and a good image make businesses more competitive and improve their long-term economic performance. The opposite result, on the other hand, is linked to the idea that ESG factors are expensive and lower the value of a company's shares. But the truth is that companies that care about ESG performance will be seen as more aware of social and environmental problems and to have better corporate control. Companies that follow ESG standards can get better workers, which makes the company more productive. Similarly, improvements in ESG have an effect on the economy and lower the cost of capital.

2.1.1 Environmental Determinant

Environmental performance refers to the act of minimising the use of dangerous substances, minimising waste output, minimising energy consumption, and adhering to all environmental regulations and guidelines, Jin & Zialani, (2020). It assesses the impact of corporations on natural systems, including both biotic and abiotic elements such as land, water, and air, which together form ecosystems. The statement by Ortas et al. (2015) highlights the degree to which a company implements superior management strategies to minimise environmental hazards and optimise the use of environmental resources. Limkriangkrai et al. (2017) argue that companies have a responsibility and obligation to minimise their detrimental effects on the environment and comply with ecosystem management. The environmental issues have a significant influence on the financial success of businesses.

Shrivastava and Tamvada (2017) found that there is a negative correlation between the use of environmentally friendly goods and services and financial performance. Soto-Acosta et al. (2016) also state that green awareness does not have a direct impact on company performance. Li and Olorunniwo (2008) define waste reduction as the systematic approach of decreasing the overall quantity of garbage generated by an individual. In order to achieve a society that is more sustainable, it is imperative that we decrease or completely eradicate detrimental waste, Miralles-Quirós et al., (2018).

According to Limkriangkrai et al. (2017), the environmental initiative involves carrying out tasks related to reducing trash. The key areas of concern include climate change, waste minimization, water conservation, pollution mitigation, and afforestation to mitigate global warming. An opposing perspective is that a robust financial system and strong economic development of a nation attract foreign direct investment (FDI). Novel manufacturing processes are developed with the aim of diminishing the carbon footprint in the economy of the host countries, while also fostering the influx of international enterprises. Eskeland and Harrison (2003) and Kumbaroğlu et al. (2008) also highlight the reduced carbon dioxide emissions. Based on empirical literature and other hypotheses, the researcher assumes the following connection for this study.

Hypothesis I : The GDP per capita and the environmental factors of ESG are positively correlated.

2.1.2 Social Determinant

Social performance refers to a corporation's capability and talent to meet the social expectations of stakeholders. The main objective is to enhance the company's reputation among the general public and its workers, Jin & Zialani, (2020). Social and organisational capability may be defined as the ability to foster customer trust via the use of optimal management approaches. The organization's reputation is manifested in it, generating enduring value for the firm, Ortas at al., (2015).

Ahmad et al. (2021) defines the aim and objective of social performance as the equitable treatment of all stakeholders and the maintenance of the business's operating environment. They provide the necessary actions for firms to address challenges that impact both internal and external stakeholders. According to Sultana et al. (2018), social performance states serve to safeguard and uphold the rights of individuals while also enhancing the quality of life within the community. The issues included in this study are labour standards, gender diversity, community connections, human rights, health and safety, and employee commitment (CFA, 2008).

Investing in society may enhance shareholder value by boosting sales, motivating and empowering people, fostering productivity development, and promoting innovation. The function of Corporate Social Responsibility (CSR) is crucial in enhancing a company's reputation and credibility, fostering customer loyalty, and influencing consumer demand, Lev et al., (2010). Based on an analysis of several assumptions and observed research, the researcher formulates a subsequent hypothesis for this investigation.

Hypothesis II: The GDP per capita and the social determinants of ESG are positively correlated.

2.1.3 Governance Determinant

Governance refers to the processes that a community uses to create, implement, and modify its laws. While a society's formal institutional architecture plays a crucial role in defining its governance, governance encompasses much more. In practice, governance is nuanced and

situation-specific. It necessitates the interplay of connections, regulations, and formal and informal procedures. Governance, therefore, is dealing with power and figuring out who has the right to create and uphold societal standards. The factors derived from social, political, and cultural viewpoints that impact a government's effectiveness are outlined by La Porta et al., (1999). La Porta also concludes that variety in religion and ethnicity, together with cultural distinctions, have an impact on how the government functions and carries out its duties. However, Islam and Montenegro's (2002) findings suggested that social characteristics had little effect on the calibre of an organisation. When examining the size of the government, the researcher contends that larger and more effective governments function better. However, data was presented by Afonso & Jalles (2013) and Brunetti & Weder (1999) that supported the opposite conclusion.

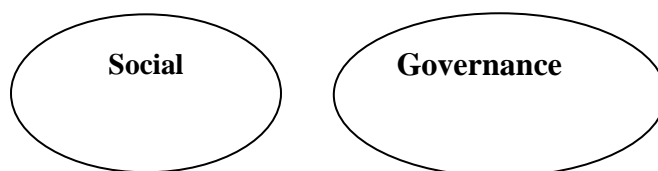
As stated by the cited sources (Kaufman et al., 2005; Yu et al. 2018; Petzer et al., 2012; Judge et al., 2008), the following variables are used to calculate the governance pillar of ESG: voice and accountability; political stability and lack of violence; effectiveness of governance; regulatory quality; rule of law; and control of corruption. For this research project, the investigator makes the following assumptions:

Hypothesis III: GDP per capita and the governance component of ESG are positively correlated.

2.2 Conceptual Frame Work

The purpose of this research study is to relate the GDP per capita to ESG. ESG is the merger of CSR and corporate governance. As a result, the notion of CSR (which encompasses social and environmental concerns) and corporate governance in relation to economic performance is defined. This study employed ESG as an independent variable. However, the study's dependent variable is GDP per capita.

Figure I: Conceptual Framework for ESG



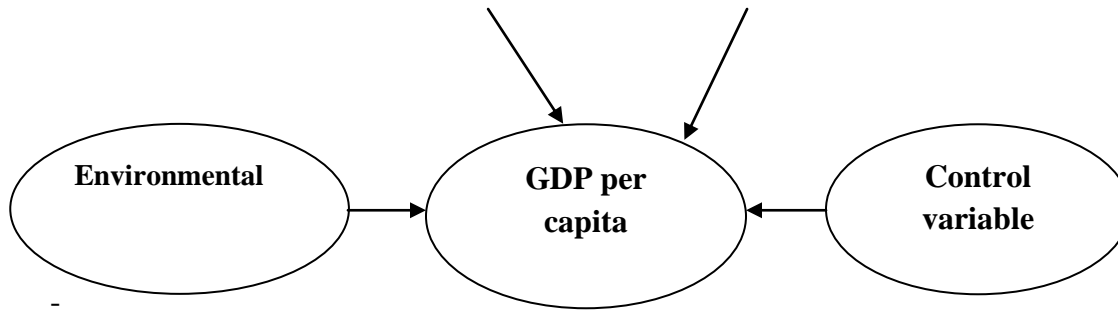


Figure 1: The relationship between dependent and independent variables.

3 RESEARCH METHODOLOGY

3.1 Sample and Data

This research study was characterized by its analytical approach. This study is grounded on readily available facts or information, which is then used for further analysis in order to draw conclusions. This study utilizes the Panel data methodology. Panel data was collected from several firms at diverse points in time and across different timeframes. Panel data exhibits features of both cross-sectional and time-series data. The data for this research study was collected in India. The sample used in this research consisted of non-financial enterprises that were listed on the India Stock Exchange. This research used a decade-long dataset spanning from 2014 to 2023. The data pertaining to all variables are gathered from the Thomson Reuter DataStream and World Governance Indicator(WGI).

3.2 Variables Explanation

Taking into consideration the many different theories and motivations of ESG, as well as the considerable empirical literature that was reviewed, the dependent and independent variables were selected after careful consideration.

The dependent or regressed variable for this research analysis is GDP per capita. Environmental, social, and governance factors are the independent or regressor variables that are being investigated and explored in this research study. These independent variables are responsible to

cause changes in dependent variable. The parameters that are used to evaluate the environmental determinants or pillar of ESG for this research are waste reduction, CO2 emission, water consumption, energy consumption as well as product innovation, (Gerged, 2020, Miralles-Quirós et al.,2018; Develle, 2021; Xie et al., 2018). The subsequent elements or determinants that cover the social pillar of the ESG are following. Health and safety, human rights, training and development as well as community development. (Ahmad, 2021; Xie et al., 2019; Ferrero-ferrero et al., 2016; Galbreath, 2013; Zahid & Ghazali, 2019; Duuren et al., 2016). The mention sources (Kaufman et al., 2005; Yu et al. 2018; Petzer et al., 2012; Judge et al., 2008) calculate the governance determinant or factor of ESG from these components; voice and accountability, Governance effectiveness, Political stability and absence of violence, Rule of Law, Regulatory quality, and Control of Corruption. The sum of the score of all these three pillars are collected from the data streams. The age of the company, the size of the company, and inflation are the control variables for this research. The firm size is estimated as logarithm of total assets (Sahut & Pasquini-Descomps 2018; Mohammad & Wasiuzzaman, 2021). A company's age is determined by the amount of time that has passed since it was first listed on a stock market., (Thomas, (2012).

4. DATA ANALYSIS

4.1 Descriptive Statistic of Pakistan

Descriptive statistic shows the key summary of the data. The descriptive statistic for estimating the ESG influence on GDP per capita is shown in the Table; I below.

Table I: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
GDP-CA	430	.267	.253	.003	1.672
ENV-FAC	430	252.484	57.621	152.06	360.06
SOC-FAC	430	253.896	68.721	39.44	322.59
GOV-FAC	430	263.732	14.242	245.369	290.245
F-AGE	430	49.295	17.193	14	80
INF	430	.426	1.071	-13.71	10.627
F-SIZE	430	8.264	.582	7.033	9.661

The Table displays the descriptive statistics among variables.

4.2 Correlation matrix

Correlation matrix shows the association between dependent and independent variable. It value range from +1 to -1.

Table II: Correlation matrix

Variable	GDPCA	ENVFAC	SOCFAC	GOVFAC	FAGE	INF	FSIZE
GDPCA	1.000						
ENVFAC	-0.006	1.000					
SOCFAC	-0.056	0.455	1.000				
GOVFAC	0.158	0.053	0.339	1.000			
FAGE	-0.527	0.392	0.533	0.150	1.000		
INF	0.063	0.137	0.163	0.000	0.008	1.000	
FSIZE	-0.234	0.051	-0.023	-0.053	0.156	0.017	1.000

*The Table displays the correlation matrix among variables with their significance levels. To indicate results that are statistically significant at 1%, 5%, and 10% correspondingly, the symbols ***, **, and * are used.*

4.3 Regression Analysis

In the present study, a multivariate analysis is conducted to examine the linear relationship between GDP per capita and its determinants. The dependent variable for this study is GDP per capita. The independent variables are environmental, social and governance. The control variables are firm size, inflation and firm age.

$$GDPCA = \alpha + \beta_1 ENVFAC + \beta_2 SOCFAC + \beta_3 GOVFAC + \beta_4 FAGE + \beta_5 INF + \beta_6 FSIZE + \epsilon_{i,t} \quad (4.1)$$

The relationship between the dependent variable and the independent variable is represented by the equation (4.1). The GDPCA measures the gross domestic product per capita, the ENVFAC measures the environmental impact, the SOCFAC measures the social impact, the GOVFAC measures the governance, the FAGE measures the age of the company, the INF measures the inflation, and the FSIZE measures the size of the business. The slope, denoted by β , is the beta coefficient, and the error term is denoted by $\epsilon_{i,t}$.

Table III presents the regression result for GDP per capita. The number of observation is 430. The model fitness is determined through R-squared and F-value. The value of R squared is 0.416, which indicates that independent variables are responsible for accounting for 41% of the

total variance in the GDP per Capita of other types of businesses that are not financial institutions. The results of F-value show that overall model is significant at 1% and can be used for further analysis. ENVFAC, SOCFAC, and GOVFAC are positive related with GDPCA. It means that increase in environmental, social and governance enhance the GDP per capita. FAGE and FSIZE show negative and significant relationship with GDPCA. It means that firm age and firm size decreases the GDP per capita for non-financial firms of India. Inflation shows insignificant results.

Table. III: Regression Analysis for GDP Per Capita

GDPCA	Coef.	St.Err.	p-value
ENVFAC	.001***	0	0.000
SOCFAC	.001***	0	.002
GOVFAC	.003***	.001	0.000
FAGE	-.302***	.02	0.000
INF	0	.001	.619
FSIZE	-.029***	.009	.002
R-squared	0.416	Number of obs	430
F-test	50.282	Prob > F	0.000***

*This table presents the regression analysis for GDP per capita. The independent variables are ENVFAC, SOCFAC and GOVFAC. The control variable for the study are FSIZE (firm size), INF (inflation) and FAGE (firm age). *, **, *** represents statistically significant at 10%,5% and 1% respectively.*

5. RESULTS AND DISCUSSION

This research study adopts the multivariate analysis to determine the effect of ESG on GDP per capita. Table III depicts that environmental, social and governance determinants influence the GDP per capita of firms in India. The results of environmental, governance and social factor are in line with the stockholder theory, which suggests that ESG activities increase the performance of firms. Earlier research (Mohammad & Wasiuzzaman, 2021; Muslichah, 2020; Ahmad et al., 2020) have also shown a favorable correlation between environmental, social, and governance (ESG) factors and the success of businesses. It is suggested by the institutional theory that the internal and external environment of the business, as well as the governance procedures and corporate culture, are more successful in accomplishing all aspects of sustainability. For the sake

of this idea, the organization may be compared to an institution that has a shared objective. Based on this theory the governance factor plays a vital role in organizational performance. As India is a developing country with governance issues such as political instability and corruption, less regulatory quality so this is why governance factors are important for GDP and growth of the economy. The results of the Develle, (2021) and Zhang et al. (2022) revealed that the Governance factor shows significant performance results. Broadstock (2020) and Muslichah (2020) have also examined the influence of governance mechanisms (such as Tobin's Q and price-to-book ratio) on the value of enterprises. They discovered that better governance boosts business performance. Effective governance boosts investor trust, which raises the firm's worth.

The results show that firm size decreases the GDP per capita. According to Li et al. (2018) and Mohammad & Wasiuzzaman (2021), the company's size has a negative correlation with Tobin's Q. The firm age increases accounting performance while decreasing the market performance.

5.1 Implications of the Study

The results of this research study have a lot of different effects. This study found that ESG factors make the GDP per capita of companies in emerging countries like India higher. This study adds to what's already been written by looking at government at the country level. From the point of view of policy, this study gives governments and officials ideas on how to improve success at the country level through better governance. Shareholders and purchasers may use the data from the research to assist them in determining whether or not they want to invest in environmental, social, and governance (ESG) concerns. The reason for this is because the research shown that environmental, social, and governance (ESG) aspects are significant for both short-term and long-term success. The results of this study are also useful for lawmakers and people in charge. They control their resources and put money into ESG projects. Over time, they will grow faster and stronger.

5.2 Future Research Recommendations

A more substantial sample period, in addition to other environmental and social elements, should be investigated for future study, since this is the recommendation that has been made. By doing so, we will be able to shed light on the effect of extra and complicated ESG issues on growth

performance. A further suggestion is that the indirect influence of environmental, social, and governance factors on another variable, such as regulatory quality, will be investigated.

5.3 Conclusion

When it comes to the achievement of a company's goals, environmental, social, and governance challenges are all effective factors to consider. The primary purpose of this research project is to ascertain the influence that environmental, social, and governance factors have on the gross domestic product (GDP) per capita in India. The following is a distinguishing feature that makes the present research very important. In the first place, the present research investigates the key socioeconomic factors that have an impact on GDP per capita. Second, the research emphasises the significance of administrative structures at the national level.

For the purpose of this research, a sample of non-financial companies that were listed on the India Stock Exchange between the years 2014 and 2023 was selected. As part of this investigation, multivariate analysis was performed on panel data. According to the findings of the research, environmental, social, and governance factors are noteworthy factors that have a major impact on the gross domestic product (GDP) per capita of businesses in India. The findings of the research are in line with the other empirical studies that have been conducted in the past. Management and policymakers may also benefit from the findings of the present research since they provide useful information. Their resources are managed, and they invest in activities that are environmentally, socially, and economically responsible. In the long term, there will be an improvement in the economy.

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