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Article

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Impact of foreign direct investment on socio-economic development in belt and road countries

Abdul Sattar^{1*}, Abida Hassan³, Muhammad Noshab Hussain², Uzma Sakhi⁴ and Ali Raza Elahi⁵

Abstract: This study is an attempt to empirically investigate the impact of foreign direct investment (FDI) on socio-economic development in the “Belt & Road” initiative (BRI) countries. It employed panel data for the period 2005 to 2018. This study used three socio-economic development indicators, life expectancy, GNI per capita, and human capital development, as outcome variables. This study found a long-run association between FDI and socio-economic development. The baseline regression results indicate that FDI does not contribute to socio-economic development in BRI countries and these findings are robust with Fully Modified Ordinary Least Square (FMOLS). However, when taking into account the region-wise analysis it is found that FDI has a positive and significant impact on poverty reduction in South Asia (SA) and Central and Western Asia (CWA) region and a negative impact in Central and East Europe (CEU) and Middle East North Africa (MENA) and it has no effect on poverty reduction in Sub-Sahara Africa (SSA) and East Asia Pacific (EAP) region. FDI has a positive effect on improved health facilities in SA and CWA region and it has a statistically insignificant or negative impact in the rest of the region. Finally, there is a positive and significant impact of FDI on human capital development in CEU and EAP region and negative association in MENA, however, it has no role in SA, CWA and SSA region. This finding postulates an idea that foreign direct investment is not a black and white mechanism. It is recommended that governments of BRI countries must prioritize public health facilities, social safety programs, poverty reduction initiatives, and human capital development strategies when looking for foreign direct investment in the country.

Subjects: Education; Sociology; Health & Development; Regional Development; Economics and Development; Economics

Keywords: Poverty reduction; improved health facilities; human capital development; FDI; BRI

1. Introduction

Socio-economic development is a process of social and economic development in society. It is measured as life expectancy, GDP, literacy level, and level of employment in society. Sustainability is a broad subject and it applies to various sectors. It has many aspects but the social aspect of sustainability focused on welfare at the grassroots (Olawumi, 2018). It has three pillars economy, environment, and society. The origin of social sustainability belongs to resource mobilization from developed nations to developing nations. Currently, many countries are focusing on sustainable

development (UNGA 2019). This planet faces many challenges to deal with these challenges United Nations (UN) proposed seventeen sustainable development goals. The foremost and first goal is the reduction in poverty (welfare) in developing nations through resource mobilization.

Conventional argument broadly assumes that mankind's well-being is the linear function of economic growth. However, this supposition has been studied by many scholars (Pyatt, 1987a; Escobar, 2000). But Sen (1995) performed cross-country analysis and concluded that Sri Lanka and China have low GNP but life expectancy is higher in these countries as compared to Brazil, Gabon, and South Africa in 1992. Furthermore, they suggested that economic growth is a necessary condition but it is not a sufficient condition to boost up overall welfare of the nation. Based on the findings of Sen, (1995) another scholar (Stiglitz, 2006) claimed that due to the narrow focus on the gross domestic product other important factors such as health and education can be overlooked. Economic growth is one of the major determinants of socio-economic development therefore, higher sustainable economic growth has been seen as one of the major objectives of all policy makers around the world. Although, GDP growth is considered necessary but not a sufficient condition for human development and it does not guarantee desirable human development globally. Economic growth is measured through GDP however a consequence in one sector within the multifaceted dimension of actual development. In a broader sense, it is considered a too-narrow measure of human progress. So, measuring welfare through the gross domestic product may be misleading (Krugman, 1995).

Socio-economic development catches diverse aspects of social welfare that include other social and physical indicators of liberty and quality of living standards like assessable and affordable health facilities, living standards, access to modern medical information and knowledge are the needs of social economic development. A broad debate among policymakers and economists on finding the conclusive indicator for the social and economic development of a nation resulted in constructing the new indexes and measures. The United Nations Development Programs (UNDP) developed the human development index in 1991 which computes the living standard and it provides a valuable instrument for comparative assessment of countries in terms of various indicators including literacy, education, quality of life, and average life expectancy. The human development index got tremendous popularity among policy makers and academicians when it was recognized as a rating tool from 1990 to the present (Ranis et al., 2000; Streeten, 1999).

There is another strongly debatable concept in the field of macroeconomics called foreign direct investment. The origin of this debate goes back to following the product cycle theory of Vernon's 1966, the internalization theory of Buckley 1985 and the theory of competitive advantage Porter, 1990, and are the best examples of the important contribution to academic debates and constitution of theoretical grounds for the significance of foreign direct investment. Based on these theories and background foreign direct investment has increased significantly for the last many decades. Even the perceived risk of foreign direct investment to the sovereignty of the host countries has not been adequate to impede the incentive for developing nations to catch the attention of multinational enterprises. So this progress has led to the fast growth of foreign direct investment inflow, particularly to developing nations. This growing importance of foreign direct investment has resulted in various empirical research exploring the effect of FDI on the economy.

Owing to the growing importance and magnitude of the effect of foreign direct investment on skill and knowledge (Hansen & Rand,), the competitiveness of local enterprises (Sun & He, 2014) technology development (Kemeny, 2010) and stock value has been studied intensively (Huang & Shiu, 2009). Many research articles explored the impact of foreign direct investment on economic development and the impact of FDI on economic growth. The majority of the results showed that foreign direct investment has a progressive effect on economic growth both for developing and developed nations (Iamsiraroj & Ulubaşoğlu, 2015; Omri et al., 2014). Foreign direct investment net inflow is considered an important channel to mobilize the resources in developing nations (Gohou & Soumaré,). In 1990 private sector led by FDI contributed 75% of external capital flows to

developing countries and in 1998 its share improved to 2/3 of the whole capital inflow. In 2007 developing nations received the highest share of capital inflow and in 2010 its share was 690 Billion US\$, in 2016 its share reached 765 Billion US\$, and the Asia region is considered the largest recipient (UNCTAD, 2012 & UNCTAD, 2016). China's Belt and Road Initiative (BRI) has been considered for the "UN-2030 agenda of sustainable development"¹ along with achieving the "Sustainable Development Goals" for the global agenda².

The "Belt & Road" initiative is a great vision of Chinese President Mr. Xi Jinping for economic cooperation and economic integration with Asia, Africa, and Europe (Huang, 2016). Mr. Xi Jinping in September-October 2013, during his state visits to Kazakhstan and Indonesia, proposed the building of the New Silk Road and Economic Belt and the 21st Century Maritime Silk Road. It is collectively known as Belt and Road Initiative (BRI) or One Belt and One Road (OBOR). The "Silk Road Economic Belt" is a land-based development project which includes rail, roads, pipelines and associated infrastructure and Maritime Silk Road is a sea-based road which involves ports, maritime infrastructure and shipping routes (Yang, Lan et al. 2019). In November 2013, the initiative was approved and written into the reform blueprint as a key policy priority at the third Plenum of China's 18th National Congress. In March 2015, with approval from the State Council³, several government departments jointly released the "Vision and Action on Jointly Building Silk Road Economic Belt and 21st Century Maritime Silk Road" (Vision and Action, NDRC (2015), which provides more specific plans and explanations about the BRI.

According to the Vision and Action (NDRC 2015), the BRI aims to link Asia, Europe and Africa through its five routes. The Silk Road Economic Belt will: (1) connect China with Europe through Central Asia and Russia; (2) link China to the Persian Gulf and Mediterranean through Central and West Asia; (3) bring together China and Southeast Asian, South Asia and Indian Ocean. The 21st Century Maritime Silk Road will: (4) start from China's coastal ports to the Indian Ocean through the South China Sea, and extends to Africa and Europe; (5) connect China's coastal ports with South Pacific Ocean through the South China Sea. It is ever conceived most aspiring infrastructure development & regional integration (Chen, Fan et al. 2019). The belt & road initiative (BRI) became a global grand strategy (An, Razzaq et al. 2021) which supports to strengthen the physical infrastructure, improving regional development, reorganizing the relationships with neighboring countries and reroute & restructure the economic activities (Beeson 2018). The BRI promotes mutual learning, economic prosperity, and world peace by improving human capital, financial and physical connectivity across the world. Since 2013, BRI got tremendous attention of the world and in the last few years it made significant progress. The BRI aims to connect Asia, Europe and Africa through creating synthesized connectivity network in more than 65 countries which accounted for 55% of the world GDP, 70% of the world population (Zhao, 2016). As per report of People's Daily, (2018) more than 120 nations joined the BRI and signed the cooperation agreement with China. Currently on official website of BRI there are listed 140 countries that joined this initiative. BRI accounting for 35% of the world trade, 39% of the global land, 54% of the world CO₂ emissions and 50% of the world energy consumption (Fan, Da et al. 2019; Du and Zhang 2018). The estimated investment of BRI is 01 trillion US\$ to 8.5 trillion US\$⁴ (Lechner et al., 2019). As per Morgan Stanley estimation's BRI expense would reach up to 1.2 trillion US\$ to 1.3 trillion US\$ over the life of the project by 2027. As per Asian Development Bank, 2017, Asia region will require 26 trillion US dollars for infrastructure development until 2030. In term of economy, it is estimated that in 2050 belt & road region will contribute 80% of the world gross domestic product (Peters 2020), total trade volume between BRI countries and China exceeds 05 trillion dollars; direct investment from Peoples Republic of China to BRI participating countries exceeds seventy billion dollars with annual growth 7.2%. In term of cultural activities more than 300,000 international students are studying in China from BRI participating countries and tourist spending between China and BRI countries is estimated 100 billion dollars.

After the launch of the BRI, many studies have been conducted on various aspects in BRI countries (Sattar, Hussain et al., 2022) examining the impact of BRI on environmental degradation

in BRI countries. Maryla & Dominique (2019) studied the economic, poverty, and environmental impact of the BRI countries. Yu, Zhao, et al. (2020) found that China's BRI enhanced China's export to forty-five BRI countries and thirty non-BRI top trading countries. Du and Zhang (2018) found that China's BRI has enhanced China's cross boarder investment. Total green factor productivity of Chinese provinces has been improved through BRI. Liu and Xin (2019) and Foo, Lean, & Salim, (2019) studied the impact of BRI on international trade in the ASEAN region. Sun et al. (2019) examined the economic effects of the Belt and Road Initiative in BRI countries. Ma (2022) examined growth effects on economic integration in BRI countries. Hussain, Li et al. (2022) examined the dynamic linkages between corruption tourism and carbon emission in BRI countries. Sattar, Tolassa et al., (2022) examined the environmental effects of China's ODI in South Asian BRI countries. Hussain, Li et al. (2022b) evaluated the impact of energy and the environment on economic growth in BRI countries. Bilal Khan, Huobao et al. (2019) examined the effects of FDI on poverty reduction in Pakistan and Liao et al., (2020) studied the impact of international development aid on FDI in BRI countries but the impact of FDI on socio-economic development in BRI has not been conducted in the prior studies. As per authors' understanding it is the pioneer attempt to examine the impact of FDI on socio economic development in BRI countries. As foreign direct investment can impact macroeconomic indicators including economic growth, human capital, employment, capital development and it can affect the social welfare through technological spillover, human capital and industrial structure. Therefore, the basic question of this research paper: does foreign direct investment impacts on socio economic development in BRI countries? The finding of the study reports that FDI does not contribute in social economic development in BRI countries however, region wise analysis have significant differences. It is recommended that governments of BRI countries should focus on improving health facilities, human capital development and poverty reduction strategies by implementing the social safety programs and poverty alleviation strategies and these areas should be on top priority when bring FDI in the country. The rest of the article is arranged as 2. Literature Review, 3. Methodology, Data and Variables 4. Results 5. Discussion & Conclusion.

2. Literature Review

The history of foreign direct investment (FDI) in developing nations originated after World War II, and the main motive behind this startup was political instead of economic. This motive shifted to developed nations that provided subsidies, economic incentives, and fiscal benefits to developing nations. This link has different dimensions first, the association between foreign direct investment and poverty can be described in terms of economic and social sides. The social aspect is that it helps the government to overcome poverty. The reason behind this is that it provides jobs, strengthens skills, and restores technological improvement. As per the earlier viewpoint, the economic side describes technological progress as the key factor for sustainable economic development and it has a significant effect on societal improvements (Solow 1956a).

Nowadays attention has been shifted to improving human capital. As per endogenous growth theory technology and human capital play a vital role in development and these indicators are considered major contributors to sustainable economic development. Socio-economic development is considered the primary factor behind human capital development which excites our major interest to investigate how foreign direct investment impacts human capital development. Second, this impact may be indirect or direct. The private sector has a spillover effect through backward connection between indigenous suppliers, foreign direct investment, and domestic sourcing which generates linkages between FDI and domestic companies that improve the export capacity of domestic firms. Likewise, modern technology creates effective competition in the market and it has a positive significant spillover effect on the welfare and economic growth. Another channel for FDI is employment opportunities but it is only effective if the employment ratio is significantly more than foreign direct investment-related unemployment. Thus foreign direct investment has an enormous impact on the welfare of the labor-intensive segment. But these benefits depend on the type of FDIs. But policy measures are also important to increase FDI inflow. It has been seen that at the macro level FDI improves economic growth if the attitude of revenue transfer is positive. In

this situation, the association will be indirect. Additionally, the host country's economic level also impacts this association. For example, this impact can be achieved through skilled labor, efficient supplies, and cultural, political, social, and resource endowment characteristics of the FDI's receiving country (Sumner, 2005).

The association between human capital development and FDI is discussed in the literature in terms of economic growth and welfare. Sen, (1998) studied that welfare economics focused more on societal and economic parameters rather than a gross domestic product which shows a paradigm move in the course of evaluating the overall progress of an individual's quality of life. Sen (1992) declare that "while the economic study has often focused on goods and income to measure a person's misery, deprivation and benefit there is required to transfer concentration to things that persons have reasons to worth intrinsically." It is broadly accepted that economic growth makes a constructive contribution towards human progress if this supposition is right then it is predicted that foreign direct investment has an indirect impact on human well-being. Although, this assumption of a perfect positive association between welfare and economic growth has been criticized by Anand & Sen, (2000). A study conducted by Bruno, Ravallion, Squire et al., (1996a) claimed that economic growth provides benefits to all players of society but could not decrease income inequality automatically. The impact of income expansion on income inequality belonged to the opening state of imbalance in the nation. The countries whose income inequality level is high economic growth may be increase but the poverty level also increase and make the socioeconomic development worsen (Gohou & Soumaré,). If economy development is not pro-poor then it does not encourage wealth redistribution in the society it negatively impacts the welfare and makes inequality worse.

Arcelus et al., (2005) analyzed the effect of FDI on human development using the human development index score for low and middle-income countries for the period 1975–1995 and found a positive effect. Similarly Arcelus et al., (2005) studied the impact of foreign capital inflow on three indicators of the human development index including wealth, education, and life expectancy, and concluded that the impact of foreign capital inflow on socio-economic development depends on many factors the important factor is a return to scale. The general assumption about studying the association between foreign direct investments on economic growth is that economic growth improves the welfare in developing countries and overall conclusion about this phenomenn is mixed. Many studies show that FDI improves economic growth. Most of the research indicators show that FDI increases economic growth. The difference in the results could be the reason for different econometric techniques and lack of harmonized and comprehensive data sets.

Many studies explored the relationship between foreign direct investment and economic growth using different econometric methods. Results are mixed. Beugelsdijk, Smeets, Zwinkels et al., (2008a) evaluated the horizontal and vertical foreign direct investment in forty-four countries for the period from 1983–2003, and found a significant and positive impact in developing countries but no vertical or horizontal effect in these countries. A study conducted by Lee & Chang, (2009) used a panel correction and panel co-integration model using annual data from 1970 to 2002 in thirty-seven countries and found long relationship is strong and the short-run relation is weak short. However, a study used cross-sectional data from 91 countries for the period 1975 to 2005 by applying threshold level regression and concluded that the development of the financial market has a positive effect on foreign direct investment and without improvement of the domestic financial market has no significant effect on foreign direct investment (Azman-Saini et al., 2010).

Similarly, another study conducted (Dutta & Roy 2011) investigated the impact of political risk on the relationship between financial development and foreign direct investment in 97 countries using panel data and concluded that a positive relationship between financial development and foreign direct investment becomes negative beyond a specific level and the political factors changed this level of financial growth. Moreover, this threshold level has a high score during the political stability in the country, and parallel existence of political stability and financial

development is difficult for the significant effect of foreign direct investment on economic growth. Omri et al., (2014) investigated the causal relationship between foreign direct investment, CO₂ emission, and economic growth by applying a dynamic and simultaneous equation model using panel data from 54 countries from 1990 to 2011. The data set is distributed into sub-samples Central Asia, Latin America, North Africa, Middle East, Sub-Sahara, and Caribbean countries. The result shows that there is bidirectional causality in all regions except North Africa and Europe. Another study employing panel data from 49 countries for the period 1974 to 2008, result indicate that foreign direct investment in higher stocks leads to higher productivity growth, and usage of modern technology also increased in developing countries (Baltabaev, 2014a).

Pegkas, (2015) investigated the effect of foreign direct investment on economic growth in Eurozone countries for the period 2002 to 2012 by employing DOLS and FMOLS methods results showed that there is a long-run association between foreign direct investment stocks and economic growth. Furthermore, the result also shows that foreign direct investment positively impacts the Eurozone countries. Jude & Leveuge, (2017) used smooth panel regression investigated conditional association among the institutional quality, foreign direct investment, and economic growth and the finding showed that foreign direct investment has a positive impact on economic growth beyond a specific threshold level of institutional quality it is also concluded that institutional reforms also have a better impact on economic development. Barrel & Nahhas, (2018) investigated the impact of bilateral direct foreign investment and market integration in OCED countries and results showed that distance, single market and a single market affect the bilateral foreign direct investment inflow in the region

Likewise, Feils & Rahman, (2011) established the hypothesis that regional associations among the countries increased inward foreign direct investment and many members of the association attract more FDI inflows. However geographic distance and cultural, institutional efficiency, and market size have diverse effects on the outsider nations. On contrary, a study discussed the foreign direct investment-led hypothesis in twenty-eight developing nations applying the co-integration model. Results showed that there is no evidence of the short and long-run impact of foreign direct investment on economic growth (Herzer et al., 2008). A study conducted by Herzer, (2012) argues that there is a negative effect of foreign direct investment on economic growth in developing nations. Another study showed that the impact of foreign direct investment on economic growth in 05 SARRC countries is also not significant (Basnet & Pradhan, 2014a). Finally, Iwasaki & Tokunaga, (2014) concluded that Central & Eastern European countries examined the impact of foreign direct investment on economic growth and concluded that there is no solid evidence between foreign direct investment and economic growth.

Very few studies used the human development index to check the impact of foreign direct investment on socio-economic development Sharma & Gani, (2007) examined the impact of foreign direct investment on human development in low and middle-income nations for the period 1975 to 1999 and used the fixed effect model. Results showed that there is a positive impact on human development. The more recent study conducted by Gohou & Soumaré, () investigated this association between FDI and welfare in the African region. Results showed that there is a positive and significant effect on poverty alleviation but significant differences in the African region. Moreover, foreign direct investment has a good effect on welfare in poor countries as compared to rich countries. Fowowe and Shuaibu (2014) used the proportion of the poverty line and re-examined this relationship and found that there is a significant effect of foreign direct investment on poverty reduction in the African region.

A study conducted by Mirza & Giroud, (2004) said that international corporations are the major source of investment in Vietnam. Yet Vietnam needs subsidies in the value chain to gain an important competitive advantage over other countries in the region. Another study using panel data showed the significant and positive impact of FDI on poverty (Hung 2005). A study was conducted in Pakistan to check the impact of foreign direct investment on poverty reduction and

the result suggested that foreign direct investment reduces poverty in Pakistan (Shamim, Azeem, et al., 2014a). Similarly Ahmad et al., (2018) concluded a bidirectional casual association between FDI and economic expansion in ASEAN nations. However Tambunan, (2005) suggested that foreign direct investment has a significant positive impact on poverty but there is needed more effort for technological spillover and tax collection from multinational organizations. Tsai and Huang (2007) conducted a study in Taiwan and concluded that continuous economic improvement is the key force to reducing poverty in the short and long run. Perera & Lee, (2013) conducted research in 09 Asian countries to check the impact of institution quality, and foreign direct investment on income inequality and poverty, and the finding showed that economic growth reduces poverty. From the above literature it is found that no empirical study has been conducted on socio-economic development in “Belt & Road” countries. To bridge this gap in the literature, this study is the pioneer attempt which is going to empirically investigate the impact of FDI on socio economic development in BRI countries.

3. Methodology, Data, and Variables

The purpose of this is to empirically investigate the impact of foreign direct investment on socio-economic development in BRI countries. The study sample consisted of the duration 2005–2018. Foreign direct investment net inflow (as a percentage of GDP) is used as the independent variable. Three dependent variables are used to estimate socio-economic development i.e., gross national income per capita is used as a proxy variable for poverty reduction. Life expectancy at birth is used to capture the improved health facilities in BRI countries and school enrollment primary (% of gross) is used to capture human capital development four sets of control variables were used in this study including economic and policy variables, infrastructure development indicators, institutional quality, and risk factors and all these variables are used in various studies followed by Fayyaz Ahmad, Muhammad, et al., (2019), Gohou & Soumaré, (), Bilal Khan, Huobao, et al., (2019), James and Taiwo, (2021), Mansi et al., (2020), Zhang, (2006). Detail of variables and data sources are given in Table 1.

The following equation is used to estimate the impact of FDI on socio-economic development.

$$SED_{it} = \alpha_0 + \alpha_1 FDI_{it} + \alpha_2 X_{it} + \varepsilon_{it} \quad (1)$$

According to United Nations Development Program (UNDP) human development index report, three indicators have been used as proxy variables including gross national income per capita, life expectancy at birth, and school enrollment (% of primary) as dependent variables to capture socioeconomic development (SED) effects where FDI (foreign direct investment net inflow) is the independent variables and X is sets of control variables which includes economy and policy, institutional quality and political risks factors in each country and regions, β_0 is the intercept and β_1 and β_2 are respective coefficients and ε_{it} is the error term.

This study employed the cross-sectional test (CSD) to determine whether the variables are cross-sectional dependent or independent followed by Pesaran, (2004). The CSD issue occurs due to rapid growth of financial integration, economic and globalization, unobserved common shocks, and because of augmentation in the measurement of trade liberalization. Therefore, it is necessary to use the CSD test for the panels. Mathematically, it is presented as

$$CSD = \sqrt{\frac{2T}{N(N-1)}} \left(\sum_{i=1}^{N-1} \sum_{j=i+1}^N \hat{\rho}_{ij} \right) \sim N(0, 1)_{i,j}$$

Where $\hat{\rho}_{ij}$ presents the correlation between each pair of residual series got from regression estimates.

Before estimating the co-integration test, it is essential to check the stationary of the model. It is also necessary to investigate the presence of unit roots for its long-run relationship of independent

Table 1. List of variables

Variables	Description	Data Source	Nature of variable
GNI per capita	A proxy variable to measure poverty (welfare)	The human development report of UNDP	Dependent
Life expectancy at birth	A proxy variable to capture improved health facilities	World Development Indicators WDIs the World Bank	Dependent
Education	School enrollment (% of gross). A proxy variable for human capital development	The human development report of UNDP	Dependent
FDI net inflow	Foreign direct investment, net inflows (% of GDP)	World Development Indicators WDIs the World Bank	Independent
Economic and Policy Variables			
Govt. Expense	Govt. expense/GDP	World Development Indicators WDIs the World Bank	Control
Openness	Import + export /GDP	World Development Indicators WDIs the World Bank	Control
	Infrastructure Indicators		
Phone	Fixed telephone subscriptions (per 100 people)	World Development Indicators WDIs the World Bank	Control
Electricity	Access to electricity (% of the population)	World Development Indicators WDIs the World Bank	Control
Landlock	If Land lock = 1	The GeoDist database (Mayer and Zignago, 2011). Geo-ciiip	Control
Institutional Quality			
CPI	Corruption perception index	Transparency International	Control
Political Risk			
PR	Political rights ratings 1.0 and 2.5 were designated Free; between 3.0 and 5.5 Partly Free, and between 5.5 and 7.0 Not Free.	Freedom House	Control
CL	Civil liberties ratings 1.0 and 2.5 were designated Free; between 3.0 and 5.5 Partly Free, and between 5.5 and 7.0 Not Free.	Freedom House	Control

and dependent variables. For the co-integration estimation, the order of the integration might be similar for all the variables. This study used (Levin et al., 2002) unit root test to control the issue for non-stationary data because the regression result will be spurious or biased if variables are non-stationary. After examining the stationary in the variables the further step is to investigate the long-run relationships among the variables. This study adopted Pedroni, (2004). Mathematically it is presented as

$$Y_{it} = \alpha_i + \delta_i t + \sum_m \beta_{mi} X_{mit} + \mu_{it} \quad (3)$$

The severe problems of endogeneity and autocorrelations can create nuisance issues and bias the findings of the estimated coefficients from the panel data least square regression, therefore this work employed the fully modified ordinary least square (FMOLS). This technique is adopted because all variables are stationary at their first difference form. So, the cointegration test can be used for testing the existence of a long run relationships among the variables. In case of the existence of cointegration among the variables, then the FMOLS estimator can be used to estimate the long-run equilibrium coefficient. In this study, cointegration exists between variables, therefore, FMOLS is used. Mathematically it is presented as

$$\hat{\beta}_{FMOLS} = \frac{1}{N} \sum_{i=1}^N \left[\left(\sum_{t=1}^T (Z_{i,t} - \bar{Z}_i)^2 \right)^{-1} \left(\sum_{t=1}^T (Z_{i,t} - \bar{Z}_i) \widehat{EFP}_{it} - T \hat{\delta}_i \right) \right] \quad (4)$$

4. Results

The purpose of this study is to empirically investigate the impact of foreign direct investment on socio-economic development in BRI countries.

Descriptive statistics is significant to define vital characteristics of the data. Table 1 and 2 presents descriptive statistics of the data. The mean value of dependent variables GNI per capita, School enrollment, and life expectancy is referred to as 18,706, 12.35 and 5.284 minimum values describe as 1059, 31, and 54.35, and maximum values are reported as 132,440, 150, and 83.15 respectively and the standard deviation is reported as 21,569, 12.35 and 5.283 respectively and main independent variables foreign direct investment net inflow reports their respective mean, standard deviation, minimum and maximum values 4.795, 6.651, -41.51 and 54.65 respectively. However, other economic and policy variables and institutional quality variables also report their respective values.

Before performing the formal regression analysis, this study checked certain assumptions. The kernel Distribution Plot is used to check the normality of the data. Figure 1 indicates that data is normally distributed. For the multicollinearity issues in the data, this study used variance inflation factor (VIF) and the mean value of the VIF score is 2.78 which falls below 5 and suggests that there is no collinearity issue in the data. Breuch-Pagan test is used to check the heteroskedasticity and the null hypothesis of Breuch-Pagan test is H0: constant variance for all cases and the results of Table 3 report that p-values of three dependent variables that correspond to the Chi-Square test statistic are less than 5% level of significance (0.0037, 0.0010 and 0.000 < 0.05) and conclude that heteroscedasticity exists in the data. There are several ways to fix this issue, including the

Table 2. Descriptive Statistics

VARIABLES	(1) N	(2) Mean	(3) SD	(4) Min	(5) Max
GNI per capita	952	18,706	21,569	1,059	132,440
Education	952	101.1	12.35	31	150.0
Life expectancy	952	72.15	5.283	54.35	83.15
FDI net inflow	952	4.795	6.651	-41.51	54.65
Govt. expense	952	24.32	12.41	0.673	83.62
Trade openness	952	78.05	43.08	4.101	343.5
Landlock	952	0.250	0.433	0	1
Phone	951	16.89	13.29	0.0181	59.38
Electricity	952	90.74	18.53	11.20	100
CPI	951	37.42	15.09	8	94
PR	952	4.111	2.026	1	7
CL	952	3.935	1.712	1	7

Figure 1. Kernel Distribution Plot

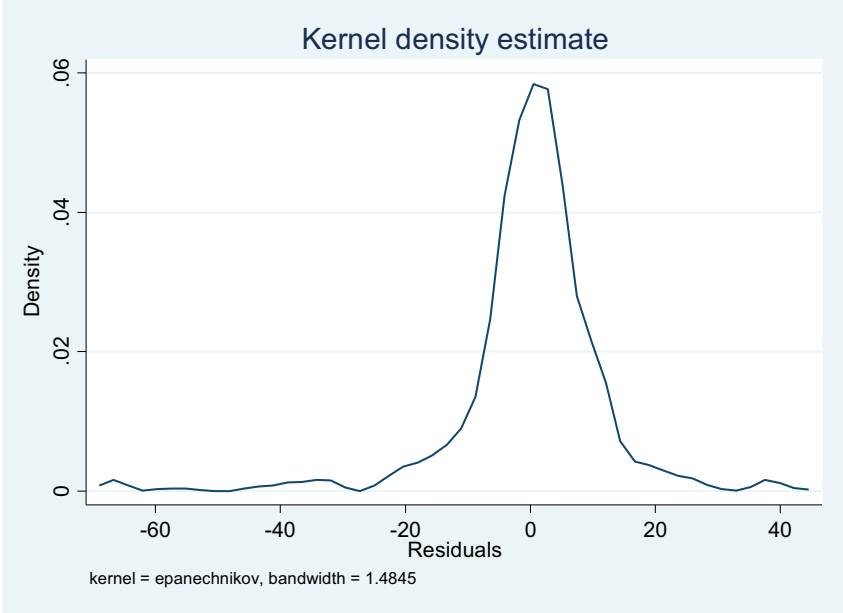


Table 3. Breusch-Pagan/Cook-Weisberg test for Heteroskedasticity

Ho: Constant variance
Variables: fitted values of school enrollment
chi2(1) = 8.43
Prob > chi2 = 0.0037
Ho: Constant variance
Variables: fitted values of life expectancy
chi2(1) = 10.87
Prob > chi2 = 0.0010
Ho: Constant variance
Variables: fitted values of ln_GNI Per Capita
chi2(1) = 19.91
Prob > chi2 = 0.0000

transformation of the response variable, the use of weighted regression, and the use of robust standard errors. Robust standard errors are more “robust” to the problem of heteroscedasticity and tend to provide a more accurate measure of the true standard error of a regression coefficient therefore this study used robust standard errors to handle the heteroscedasticity issue in the data.

In panel data analysis the cross-sectional dependence test is used as a fundamental setup before determining the unit root. The cross-sectional dependence test is used by many researchers in their empirical studies (such as Rauf et al., 2018; Dong et al., 2019), consequently, this study adopted Pesaran, (2004). The null hypothesis is H0; that there is no cross-sectional dependence. The finding reported in Table 4 portrays that there exists cross-sectional dependence. Sometimes macroeconomic measures have a unit root problem. In that situation, the finding of the regression estimate is typically misleading or spurious. Therefore, to investigate the stationary of the variables this study used the Levin-Lin Chu Unit Root test, and the results of the unit root test (Levin et al., 2002) Table 5 indicate that all variables are stationary at the level and their 1st difference form. Before examining the long-run association among the indicators entire variables should be co-integrated. This study used Pedroni, (2004) and the results of Table 6 indicate that test statistics of Modified Phillips-Perron t, Phillips-Perron t, and Augmented Dickey-Fuller t are statistically significant which confirms that long-run association exists among the variables.

Table 4. Result of Cross-Sectional Dependence Test

Level	Variable	CD Test	
		Statistics	Probability
Level	lnGNI Per capita	104.734***	0.000
Level	FDI	22.171***	0.000
Level	Govt. expense	13.824***	0.000
Level	Openness	23.484***	0.000
Level	Landlocked	0	1.00
Level	Phone	20.007***	0.000
Level	Electricity	45.406***	0.000
Level	CPI	45.043***	0.000
Level	PR	0.237	0.813
Level	CL	8.383***	0.000

***p < 0.01, ** p < 0.05, * p < 0.1

Table 5. Result of Panel Unit Root Test

Level	Variable	Levin-Lin Chu Unit Root Test	
		Statistics	Probability
Level	lnGNI Per Capita	-3.3208***	0.000
Level	Education	-7.4758***	0.000
Level	Life Expectancy	-23.2258***	0.000
Level	FDI	-11.9270***	0.000
Level	Govt. expense	-5.9748***	0.000
Level	Openness	-7.5381***	0.000
Level	Landlocked	-1.2494*	0.100
Level	Phone	3.215***	0.000
Level	Electricity	-1.2494*	0.100
Level	CPI	3.078***	0.001
1 st diff.	PR	-2.90***	0.000
1 st diff	CL	-1.80***	0.000

***p < 0.01, ** p < 0.05, * p < 0.1

Table 6. Pedroni (2004) test for Cointegration

Variable	Statistics	Probability
Modified Phillips-Perron t	14.4475***	0.0000
Phillips-Perron t	-6.4483***	0.0000
Augmented Dickey-Fuller t	-10.8696***	0.0000

***p < 0.01, ** p < 0.05, * p < 0.1

Panel Data Ordinary Least Square is used to estimate the baseline regression results. Table 7, column-1-2, indicates that the impact of foreign direct investment (FDI) on gross national income per capita in BRI countries is negative or insignificant when using the total sample and when controlling the year fixed in effects which suggests that FDI plays no role in poverty reduction in BRI countries. Similarly, column 3-4 also produces the same results suggesting that foreign direct investment has no role in improving human capital development. Finally, columns 5-6 indicate that the impact of foreign direct investment in improving the health facilities in BRI countries is also lacking. However, government spending in BRI countries in enhancing the gross national

Table 7. Results Impact of FDI on Socio-Economic Development

VARIABLES	(1) lnGNI	(2) lnGNI	(3) Education	(4) Education	(5) Life Expe.	(6) Life Expe.
FDI	-0.004*	-0.004	0.021	0.038	-0.030**	-0.014
	(-1.69)	(-1.48)	(0.33)	(0.63)	(-2.30)	(-1.20)
Govt.Exp	0.010***	0.009***	-0.045	-0.053	0.022***	0.016**
	(5.98)	(5.63)	(-1.00)	(-1.18)	(2.93)	(2.13)
Openness	-0.001**	-0.001**	-0.022**	-0.021**	-0.001	0.001
	(-2.39)	(-2.32)	(-2.38)	(-2.20)	(-0.26)	(0.42)
Landlock	-0.149***	-0.149***	4.350***	4.306***	-2.340***	-2.373***
	(-3.53)	(-3.61)	(4.48)	(4.45)	(-10.46)	(-10.81)
Phone	0.013***	0.013***	-0.070**	-0.057*	0.042***	0.057***
	(8.12)	(8.20)	(-2.35)	(-1.92)	(4.69)	(6.32)
Electricity	0.019***	0.018***	-0.048	-0.055*	0.151***	0.142***
	(21.19)	(20.36)	(-1.64)	(-1.82)	(23.17)	(21.99)
CPI	0.038***	0.037***	0.047	0.036	0.119***	0.107***
	(20.01)	(18.75)	(1.41)	(1.11)	(13.57)	(12.55)
PR	0.097***	0.102***	-0.169	-0.101	0.049	0.125
	(4.49)	(4.81)	(-0.37)	(-0.22)	(0.43)	(1.16)
CL	-0.001	-0.009	-0.496	-0.602	-0.119	-0.234*
	(-0.05)	(-0.36)	(-0.94)	(-1.15)	(-0.85)	(-1.75)
Constant	5.526***	5.389***	109.139***	108.129***	53.804***	53.462***
	(51.83)	(44.77)	(37.88)	(32.82)	(80.69)	(71.21)
Observations	950	950	950	950	950	950
R-squared	0.757	0.763	0.049	0.055	0.722	0.739
Year FE	No	Yes	No	Yes	No	Yes

Robust t-statistics in parentheses *** p < 0.01, ** p < 0.05, * p < 0.1

income per capita is positive and significant which suggests that government efforts and their public expenditure can reduce poverty in BRI countries but public spending on attaining human capital is not attracting. Finally, government spending on improving health facilities contributes positively. The effect of trade openness and landlocked countries on social and economic development is not encouraging. The infrastructure indicators like mobile phone users and access to electricity contribute positively to enhancing the gross national income per capita and healthier working population and the level of institutional quality of BRI countries contributes positively to social economic development. Finally the political risk factors i.e. political rights and civil liberties in BRI countries have no role in social economic development except the political rights contribute positively to gross national income per capita.

To investigate the impact of foreign direct investment on gross national income per capita which is used as a proxy variable for poverty reduction. This study divides the total sample into six sub-samples. Table 8 columns 1–2 shows that there is a positive and significant impact of FDI on gross national income per capita in South Asia (SA) and Central and Western Asia (CWA) region. However, it has a statistically significant negative impact in Central and East Europe (CEU) and Middle East North Africa (MENA) region and it has no effect on gross national income per capita in Sub Sahara Africa (SSA) and East Asia Pacific (EAP) region which suggest that FDI contributes in reducing poverty in SA and CWA region. When taking into account the economic and policy variables Govt. spending contributes significantly to poverty reduction in SA, CEU, MENA, and SSA and negative or insignificant role in CWA and EAP regions. Trade openness does not have an

Table 8. Results Impact of FDI on Gross National Income Per Capita

VARI.	(1) SA	(2) SA	(3) CWA	(4) CWA	(5) CEU	(6) CEU	(7) MENA	(8) MENA	(9) SSA	(10) SSA	(11) EAP	(12) EAP
FDI	0.055*** (7.25)	0.059*** (7.67)	0.010* (1.71)	0.011 (1.64)	-0.009*** (-4.03)	-0.005*** (-3.73)	-0.046*** (-4.02)	-0.055*** (-4.33)	0.016 (0.86)	-0.005 (-0.38)	0.003 (0.68)	0.002 (0.40)
Govt.Exp	0.007*** (4.28)	0.007*** (5.04)	-0.018*** (-2.77)	-0.021*** (-3.04)	0.008*** (4.35)	0.006*** (3.87)	0.019*** (4.02)	0.019*** (4.04)	0.025*** (5.85)	0.021*** (5.39)	0.000 (0.14)	0.000 (0.01)
Openness	-0.001 (-1.08)	0.002 (1.64)	-0.006*** (-3.64)	-0.006*** (-2.91)	-0.002*** (-2.68)	-0.002*** (-2.82)	0.002 (0.85)	0.001 (0.44)	0.005 (1.31)	-0.004 (-0.73)	-0.005*** (-6.24)	-0.006*** (-5.74)
Landlock	-0.566*** (-17.10)	-0.583*** (-16.92)	0.861*** (7.02)	0.821*** (5.45)	0.260*** (4.12)	0.280*** (4.86)					-0.116 (-1.18)	-0.074 (-0.73)
Phone	0.033*** (8.45)	0.042*** (9.46)	0.059*** (11.52)	0.059*** (10.65)	0.005*** (3.14)	0.010*** (6.42)	0.021*** (4.30)	0.020*** (4.14)	-0.050 (-0.94)	-0.098 (-1.43)	-0.007 (-1.04)	-0.015** (-2.20)
Electricity	0.013*** (9.63)	0.007*** (4.32)	-0.028*** (-3.52)	-0.029*** (-3.47)	0.049 (0.50)	0.017 (0.19)	0.027*** (9.99)	0.026*** (9.63)	0.007*** (5.52)	0.004 (1.63)	0.012*** (6.37)	0.014*** (7.76)
CPI	0.027*** (12.95)	0.024*** (11.38)	0.035*** (4.87)	0.032*** (4.00)	0.032*** (13.59)	0.025*** (10.72)	0.036*** (11.12)	0.038*** (11.67)	0.002 (0.43)	-0.014 (-1.44)	0.060*** (12.82)	0.065*** (12.28)
PR	-0.007 (-0.34)	0.011 (0.48)	-0.123*** (-2.94)	-0.112** (-2.57)	0.046 (1.29)	0.047 (1.53)	0.300*** (7.04)	0.308*** (6.72)	0.003 (0.08)	-0.011 (-0.42)	0.080** (2.12)	0.067* (1.87)
CL	0.135*** (4.55)	0.082*** (2.69)	0.216*** (3.91)	0.191*** (3.04)	0.031 (0.74)	-0.028 (-0.73)	-0.105** (-2.03)	-0.102* (-1.74)	0.097*** (3.88)	0.062 (1.78)	-0.109** (-1.99)	-0.084 (-1.60)
Constant	5.896*** (42.73)	6.187*** (48.55)	9.407*** (15.72)	9.549*** (14.20)	3.005 (0.31)	6.309 (0.70)	4.078*** (11.68)	3.917*** (10.63)	6.570*** (21.25)	7.493*** (13.05)	6.582*** (28.92)	6.150*** (24.67)
Obs.	111	111	140	140	280	280	209	209	28	28	182	182
R-squared	0.960	0.971	0.733	0.754	0.637	0.705	0.771	0.780	0.932	0.994	0.879	0.893
Year FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Robust t-statistics in parentheses *** p < 0.01, ** p < 0.05, * p < 0.1

encouraging role in reducing poverty in all regions. Infrastructure development indicators like mobile phone users show a positive impact on GNI per capita in SA, CWA, CEU, and MENA regions, and access to electricity also has a positive impact on GNI in all regions except CWA. Institutional quality indicator like CPI also has a positive effect on enhancing GNI per capita which as a result reduce poverty in all regions except SSA. The risk factors indicators like political rights increase gross national income per capita in MENA and EAP and civil liberties only contribute to increasing income level in SA, and CWA and SSA region.

Table 9 columns 1–2 shows that there is a positive and significant impact of FDI on life expectancy in South Asia (SA) and the CWA region and it has a statistically insignificant or negative impact in the rest of the region. When taking into account the economic and policy variables Govt. spending contributes significantly to life expectancy only EAP region. Trade openness has an encouraging role in life expectancy in SA, MENA, and EAP. The infrastructure development indicators like mobile phone users show a positive impact on life expectancy in all regions except SSA regions, and access to electricity contributes positively to life expectancy only in MENA and EAP regions. The institutional quality indicator like CPI has a positive effect on life expectancy in CWA, CEU, and MENA regions only. The risk factors indicators like political rights contribute to life expectancy EAP region only and civil liberties do not contribute to life expectancy in any region.

The results of Table 10 show that there is a positive and significant impact of FDI on human capital development in CEU and EAP region and a negative association in MENA however, it has no role in SA, CWA, and SSA. The economic and policy variables indicate that Govt. spending contributes significantly to human capital development in CWA and rest of the regions it has no role. The infrastructure development indicators like mobile phone users contribute positively to human capital development in CWA, CEU, MENA regions only and access to electricity shows a positive impact on human capital development in SA, MENA regions, and the rest of the regions it has no impact. The institutional quality indicator like CPI do not contribute to human capital development significantly. The risk factors indicators like political rights contribute significantly in EAP, SSA, MENA, and CWA regions however, civil liberties do not contribute to human capital development in any region.

5. Robustness Checking

To check the robustness of the baseline results this study used Fully Modified Ordinary Least Square (FMOLS) and the results of Table 11, indicate that impact of foreign direct investment (FDI) on gross national income per capita in BRI countries is negative or insignificant when using total sample and when controlling the year fixed in effects which suggest that FDI playing no role on poverty reduction in BRI countries. Similarly column 3–4 also produce the same results suggesting that foreign direct investment has no role in improving human capital development. Finally, column-5-6 indicates that the impact of foreign direct investment in improving the health facilities in BRI countries is also lacking and these findings are in line with Table 7. However, Government spending in BRI countries remains useful in reducing poverty in increasing the gross national income per capita but public spending on improving human capital and improving health facilities is not encouraging. Trade openness and landlocked countries do not have a significant effect on social economic development indicators. Finally, Government spending on improving health facilities contributes positively. The infrastructure development indicators like mobile phone users and access to electricity contribute positively to increasing the gross national income per capita and health facilities for a healthier working population and the level of institutional quality of BRI countries contributes positively to social economic development. Finally the political risk factors i.e. political rights and civil liberties in BRI countries have no role in social economic development except the political rights contribute positively to gross national income per capita.

The results of FMOLS Table 12 show that there is a positive and significant impact of FDI on gross national income per capita in South Asia (SA) and Central and Western Asia (CWA) region and a negative or insignificant effect on the rest of the variables. And these findings are robust with the baseline regression results. The economic and policy indicator like Govt. spending

Table 9. Results Impact of FDI on Life Expectancy

VAR	(1) SA	(2) SA	(3) CWA	(4) CWA	(5) CEU	(6) CEU	(7) MENA	(8) MENA	(9) SSA	(10) SSA	(11) EAP	(12) EAP
FDI	0.273** (2.11)	0.360** (2.60)	0.043* (1.70)	0.043 (1.52)	-0.041** (-2.27)	-0.005 (-0.28)	-0.114*** (-2.85)	-0.038 (-0.88)	0.281 (0.57)	-0.066 (-0.58)	0.052* (1.67)	0.032 (1.37)
Govt.Exp	-0.048 (-1.44)	-0.055** (-2.11)	0.037 (0.80)	0.039 (0.83)	0.014 (0.65)	-0.007 (-0.32)	-0.007 (-0.33)	-0.020 (-1.07)	0.243* (1.84)	-0.008 (-0.30)	0.031*** (3.45)	0.033*** (3.46)
Openness	0.054** (2.25)	0.144*** (5.44)	-0.117*** (-8.63)	-0.125*** (-8.19)	-0.034*** (-5.63)	-0.034*** (-6.56)	0.001 (0.19)	0.016* (1.95)	0.090 (1.10)	-0.007 (-0.15)	0.010*** (2.69)	0.014*** (4.33)
Landlock	-1.806*** (-3.04)	-2.163*** (-3.21)	1.076* (1.82)	1.066 (1.59)	2.051*** (4.81)	2.268*** (6.32)					-3.550*** (-8.12)	-3.465*** (-11.32)
Phone	0.339*** (6.00)	0.545*** (8.23)	0.090*** (3.24)	0.080*** (3.01)	0.030* (1.80)	0.081*** (4.85)	0.041** (2.27)	0.043*** (2.72)	0.406 (0.28)	0.731 (1.45)	0.016 (0.80)	0.058*** (2.66)
Electricity	0.118*** (7.12)	-0.013 (-0.45)	-0.044 (-0.75)	-0.042 (-0.74)	0.149 (0.42)	-0.042 (-0.12)	0.265*** (18.98)	0.267*** (20.63)	0.101** (2.64)	0.019 (1.11)	0.131*** (14.12)	0.118*** (12.46)
CPI	-0.029 (-1.03)	-0.100*** (-3.50)	0.174*** (4.01)	0.171*** (3.55)	0.156*** (9.06)	0.086*** (4.47)	0.055*** (3.29)	0.030* (1.82)	0.260* (1.76)	-0.089 (-1.05)	0.093*** (7.13)	0.071*** (5.35)
PR	0.405 (1.10)	0.756** (2.62)	-0.103 (-0.40)	-0.098 (-0.41)	-0.428 (-1.54)	-0.429* (-1.71)	-0.121 (-0.70)	-0.165 (-1.17)	-0.810 (-0.69)	0.697* (2.10)	0.732*** (5.42)	0.691*** (5.40)
CL	-1.283** (-2.59)	-2.424*** (-5.83)	0.328 (0.77)	0.271 (0.66)	0.192 (0.56)	-0.373 (-1.25)	-0.748*** (-2.93)	-1.084*** (-5.39)	2.804*** (3.30)	0.245 (1.02)	-0.646*** (-3.09)	-0.573*** (-2.88)
Constant	62.121*** (28.66)	69.075*** (27.01)	72.535*** (17.89)	72.437*** (16.78)	55.681 (1.58)	76.040** (2.18)	50.858*** (26.73)	50.622*** (29.42)	35.931*** (3.71)	53.337*** (10.58)	54.554*** (52.45)	54.316*** (49.57)
Obs.	111	111	140	140	280	280	209	209	28	28	182	182
R-squared	0.773	0.867	0.701	0.722	0.454	0.575	0.825	0.867	0.765	0.999	0.933	0.945
Year FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Robust t-statistics in parentheses *** p < 0.01, ** p < 0.05, * p < 0.1

Table 10. Impact of FDI on Education

VAR.	(1) SA	(2) SA	(3) CWA	(4) CWA	(5) CEU	(6) CEU	(7) MENA	(8) MENA	(9) SSA	(10) SSA	(11) EAP	(12) EAP
FDI	0.595 (1.33)	0.737 (1.57)	0.077 (1.17)	0.099 (1.64)	0.162** (2.30)	0.206*** (2.83)	-0.705*** (-5.14)	-0.725*** (-4.56)	1.009 (0.97)	0.283 (0.63)	0.210*** (3.64)	0.172*** (3.28)
Govt.Exp	-0.073 (-0.74)	-0.084 (-0.83)	0.402*** (3.63)	0.359*** (3.05)	-0.371*** (-3.23)	-0.394*** (-3.16)	0.104 (1.56)	0.098 (1.57)	0.061 (0.17)	0.520** (2.53)	-0.012 (-0.22)	-0.007 (-0.13)
Openness	0.060 (0.59)	0.176 (1.64)	-0.007 (-0.23)	0.033 (1.09)	0.012 (0.60)	0.015 (0.77)	0.001 (0.02)	-0.007 (-0.24)	0.369** (2.16)	0.320 (1.36)	-0.035*** (-3.11)	-0.028** (-2.36)
Landlock	32.279*** (11.19)	31.925*** (10.75)	1.368 (0.95)	-2.087 (-1.17)	2.197 (1.21)	2.261 (1.19)					-2.732 (-1.36)	-2.480 (-1.17)
Phone	-0.026 (-0.15)	0.273 (1.30)	0.295*** (4.47)	0.291*** (4.55)	0.229*** (3.14)	0.273*** (3.16)	0.315*** (4.12)	0.321*** (4.11)	-7.466** (-2.52)	-9.578*** (-4.88)	-0.251*** (-3.52)	-0.187* (-1.93)
Electricity	0.297*** (6.12)	0.115 (1.23)	-0.450*** (-2.80)	-0.448*** (-2.99)	2.770 (0.86)	2.770 (0.85)	0.585*** (9.27)	0.586*** (8.99)	-0.123 (-1.16)	0.383*** (4.67)	-0.198*** (-4.42)	-0.220*** (-4.24)
CPI	-0.802*** (-7.21)	-0.895*** (-7.64)	-0.013 (-0.20)	-0.251*** (-3.04)	0.074 (0.86)	0.011 (0.15)	-0.199*** (-3.94)	-0.195*** (-3.58)	-0.748 (-1.65)	0.936* (2.17)	0.133*** (2.92)	0.100* (1.75)
PR	0.957 (0.78)	1.267 (1.16)	2.025*** (4.38)	2.863*** (8.12)	-3.017* (-1.76)	-3.083* (-1.77)	1.958*** (3.57)	2.018*** (3.60)	13.555*** (4.74)	8.284** (3.53)	2.935*** (4.44)	2.842*** (4.26)
CL	-14.418*** (-8.40)	-15.760*** (-9.39)	-2.335*** (-3.05)	-3.947*** (-5.59)	2.055 (1.03)	1.660 (0.90)	-1.678** (-2.08)	-1.630* (-1.89)	0.845 (0.31)	6.116*** (4.32)	-6.088*** (-5.61)	-5.900*** (-5.27)
Constant	155.120*** (25.71)	164.441*** (19.82)	133.372*** (8.32)	140.038*** (9.38)	-176.800 (-0.55)	-175.537 (-0.54)	43.836*** (5.23)	42.448*** (4.60)	59.183*** (2.97)	9.211 (0.34)	136.285*** (24.23)	135.387*** (19.80)
Obs.	111	111	140	140	280	280	209	209	28	28	182	182
R-squared	0.777	0.794	0.453	0.529	0.104	0.111	0.635	0.643	0.753	0.989	0.515	0.533
Year FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Robust t-statistics in parentheses *** p < 0.01, ** p < 0.05, * p < 0.1

Table 11. Results of FMOLS using Total Sample

VARI	(1) GNI	(2) GNI	(3) Education	(4) Education	(5) Life Exp.	(6) Life Exp.
FDI	−0.005 (−0.58)	−0.004 (−0.47)	0.006 (0.04)	0.014 (0.08)	−0.032 (−0.91)	−0.015 (−0.37)
Govt.Exp	0.010** (2.16)	0.009** (2.04)	−0.086 (−0.80)	−0.090 (−0.84)	0.021 (1.00)	0.016 (0.69)
Openness	−0.001 (−0.91)	−0.001 (−0.87)	−0.026 (−0.76)	−0.026 (−0.75)	−0.000 (−0.02)	0.002 (0.20)
Landlock	−0.174 (−1.43)	−0.156 (−1.30)	3.893 (1.40)	3.853 (1.39)	−2.561*** (−4.61)	−2.668*** (−4.43)
Phone	0.012** (2.34)	0.013*** (2.61)	−0.219* (−1.88)	−0.222* (−1.87)	0.034 (1.47)	0.048* (1.87)
Electricity	0.019*** (5.72)	0.018*** (5.49)	−0.040 (−0.53)	−0.037 (−0.48)	0.148*** (9.87)	0.139*** (8.34)
CPI	0.039*** (8.36)	0.038*** (8.10)	0.109 (1.03)	0.109 (1.01)	0.125*** (5.93)	0.113*** (4.80)
PR	0.097 (1.57)	0.106* (1.73)	−0.293 (−0.21)	−0.300 (−0.21)	−0.023 (−0.08)	0.030 (0.10)
CL	0.002 (0.03)	−0.009 (−0.12)	−0.586 (−0.33)	−0.605 (−0.34)	−0.016 (−0.05)	−0.095 (−0.25)
Constant	5.496*** (15.75)	5.345*** (14.16)	111.073*** (13.91)	109.090*** (12.49)	54.009*** (33.97)	53.584*** (28.23)
Obs.	949	949	949	949	949	949
R-squared	0.063	−0.005	0.022	0.024	0.093	0.117
Year FE	No	Yes	No	Yes	Yes	Yes

z-statistics in parentheses *** p < 0.01, ** p < 0.05, * p < 0.1

contributes significantly to poverty reduction in SA, CEU, MENA, and SSA and negative or insignificant role in CWA and EAP regions and these findings support the baseline results. Trade openness does not have an encouraging role in reducing poverty in all regions. Infrastructure development indicators like mobile phone users show a positive impact on GNI per capita in SA, CWA, CEU, and MENA regions, and access to electricity also has a positive impact on GNI in all regions except CWA. The institutional quality indicator like CPI also has a positive effect on enhancing GNI per capita which as a result reduce poverty in all regions except SSA. The risk factors indicators like political rights increase gross national income per capita in MENA and EAP and civil liberties only contribute to increasing income level in SA, and CWA and SSA region an these findings are also robust and in line with Table-9.

Similarly, FMOLS Table 13 indicates that FDI has a significant impact on life expectancy in South Asia (SA) and CWA region and it has a statistically insignificant or negative impact in the rest of the region which imply that improved health facilities produce healthier working population as a result income level increased and rest of the regions do not get a strong effect. The economic and policy variables like Govt. spending contribute significantly to life expectancy in only EAP region. Trade openness paying an encouraging role in life expectancy in SA, MENA, and EAP. The infrastructure development indicators like mobile phone users show a positive impact on life expectancy in all regions except SSA regions, and access to electricity contributes positively to life expectancy only in MENA and EAP regions. The institutional quality indicator like CPI has a positive effect on life expectancy in CWA, CEU, and MENA regions only. The risk factors indicators like political rights

Table 12. Results (FMOLS) Impact of FDI on Gross National Income Per Capita

VARI.	(1) SA	(2) SA	(3) CWA	(4) CWA	(5) CEU	(6) CEU	(7) MENA	(8) MENA	(9) SSA	(10) SSA	(11) EAP	(12) EAP
FDI	0.055*** (7.25)	0.059*** (7.67)	0.010* (1.71)	0.011 (1.64)	-0.009*** (-4.03)	-0.005*** (-3.73)	-0.046*** (-4.02)	-0.055*** (-4.33)	0.016 (0.86)	-0.005 (-0.38)	0.003 (0.68)	0.002 (0.40)
Govt.Exp	0.007*** (4.28)	0.007*** (5.04)	-0.018*** (-2.77)	-0.021*** (-3.04)	0.008*** (4.35)	0.006*** (3.87)	0.019*** (4.02)	0.019*** (4.04)	0.025*** (5.85)	0.021*** (5.39)	0.000 (0.14)	0.000 (0.01)
Openness	-0.001 (-1.08)	0.002 (1.64)	-0.006*** (-3.64)	-0.006*** (-2.91)	-0.002*** (-2.68)	-0.002*** (-2.82)	0.002 (0.85)	0.001 (0.44)	0.005 (1.31)	-0.004 (-0.73)	-0.005*** (-6.24)	-0.006*** (-5.74)
Landlock	-0.566*** (-17.10)	-0.583*** (-16.92)	0.861*** (7.02)	0.821*** (5.45)	0.260*** (4.12)	0.280*** (4.86)					-0.116 (-1.18)	-0.074 (-0.73)
Phone	0.033*** (8.45)	0.042*** (9.46)	0.059*** (11.52)	0.059*** (10.65)	0.005*** (3.14)	0.010*** (6.42)	0.021*** (4.30)	0.020*** (4.14)	-0.050 (-0.94)	-0.098 (-1.43)	-0.007 (-1.04)	-0.015** (-2.20)
Electricity	0.013*** (9.63)	0.007*** (4.32)	-0.028*** (-3.52)	-0.029*** (-3.47)	0.049 (0.50)	0.017 (0.19)	0.027*** (9.99)	0.026*** (9.63)	0.007*** (5.52)	0.004 (1.63)	0.012*** (6.37)	0.014*** (7.76)
CPI	0.027*** (12.95)	0.024*** (11.38)	0.035*** (4.87)	0.032*** (4.00)	0.032*** (13.59)	0.025*** (10.72)	0.036*** (11.12)	0.038*** (11.67)	0.002 (0.43)	-0.014 (-1.44)	0.060*** (12.82)	0.065*** (12.28)
PR	-0.007 (-0.34)	0.011 (0.48)	-0.123*** (-2.94)	-0.112** (-2.57)	0.046 (1.29)	0.047 (1.53)	0.300*** (7.04)	0.308*** (6.72)	0.003 (0.08)	-0.011 (-0.42)	0.080** (2.12)	0.067* (1.87)
CL	0.135*** (4.55)	0.082*** (2.69)	0.216*** (3.91)	0.191*** (3.04)	0.031 (0.74)	-0.028 (-0.73)	-0.105** (-2.03)	-0.102* (-1.74)	0.097*** (3.88)	0.062 (1.78)	-0.109** (-1.99)	-0.084 (-1.60)
Constant	5.896*** (42.73)	6.187*** (48.55)	9.407*** (15.72)	9.549*** (14.20)	3.005 (0.31)	6.309 (0.70)	4.078*** (11.68)	3.917*** (10.63)	6.570*** (21.25)	7.493*** (13.05)	6.582*** (28.92)	6.150*** (24.67)
Obs.	111	111	140	140	280	280	209	209	28	28	182	182
R-squared	0.960	0.971	0.733	0.754	0.637	0.705	0.771	0.780	0.932	0.994	0.879	0.893
Year FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Robust t-statistics in parentheses *** p < 0.01, ** p < 0.05, * p < 0.1

Table 13. Results (FMOLS) Impact of FDI on Life Expectancy

VARI.	(1) SA	(2) SA	(3) CWA	(4) CWA	(5) CEU	(6) CEU	(7) MENA	(8) MENA	(9) SSA	(10) SSA	(11) EAP	(12) EAP
FDI	0.273** (2.11)	0.360** (2.60)	0.043* (1.70)	0.043 (1.52)	-0.041** (-2.27)	-0.005 (-0.28)	-0.114*** (-2.85)	-0.038 (-0.88)	0.281 (0.57)	-0.066 (-0.58)	0.052* (1.67)	0.032 (1.37)
Govtexp	-0.048 (-1.44)	-0.055** (-2.11)	0.037 (0.80)	0.039 (0.83)	0.014 (0.65)	-0.007 (-0.32)	-0.007 (-0.33)	-0.020 (-1.07)	0.243* (1.84)	-0.008 (-0.30)	0.031*** (3.45)	0.033*** (3.46)
Openness	0.054** (2.25)	0.144*** (5.44)	-0.117*** (-8.63)	-0.125*** (-8.19)	-0.034*** (-5.63)	-0.034*** (-6.56)	0.001 (0.19)	0.016* (1.95)	0.090 (1.10)	-0.007 (-0.15)	0.010*** (2.69)	0.014*** (4.33)
Landlock	-1.806*** (-3.04)	-2.163*** (-3.21)	1.076* (1.82)	1.066 (1.59)	2.051*** (4.81)	2.268*** (6.32)					-3.550*** (-8.12)	-3.465*** (-11.32)
Phone	0.339*** (6.00)	0.545*** (8.23)	0.090*** (3.24)	0.080*** (3.01)	0.030* (1.80)	0.081*** (4.85)	0.041** (2.27)	0.043*** (2.72)	0.406 (0.28)	0.731 (1.45)	0.016 (0.80)	0.058*** (2.66)
Electricity	0.118*** (7.12)	-0.013 (-0.45)	-0.044 (-0.75)	-0.042 (-0.74)	0.149 (0.42)	-0.042 (-0.12)	0.265*** (18.98)	0.267*** (20.63)	0.101** (2.64)	0.019 (1.11)	0.131*** (14.12)	0.118*** (12.46)
CPI	-0.029 (-1.03)	-0.100*** (-3.50)	0.174*** (4.01)	0.171*** (3.55)	0.156*** (9.06)	0.086*** (4.47)	0.055*** (3.29)	0.030* (1.82)	0.260* (1.76)	-0.089 (-1.05)	0.093*** (7.13)	0.071*** (5.35)
PR	0.405 (1.10)	0.756** (2.62)	-0.103 (-0.40)	-0.098 (-0.41)	-0.428 (-1.54)	-0.429* (-1.71)	-0.121 (-0.70)	-0.165 (-1.17)	-0.810 (-0.69)	0.697* (2.10)	0.732*** (5.42)	0.691*** (5.40)
CL	-1.283** (-2.59)	-2.424*** (-5.83)	0.328 (0.77)	0.271 (0.66)	0.192 (0.56)	-0.373 (-1.25)	-0.748*** (-2.93)	-1.084*** (-5.39)	2.804*** (3.30)	0.245 (1.02)	-0.646*** (-3.09)	-0.573*** (-2.88)
Constant	62.121*** (28.66)	69.075*** (27.01)	72.535*** (17.89)	72.437*** (16.78)	55.681 (1.58)	76.040** (2.18)	50.858*** (26.73)	50.622*** (29.42)	35.931*** (3.71)	53.337*** (10.58)	54.554*** (52.45)	54.316*** (49.57)
Obs.	111	111	140	140	280	280	209	209	28	28	182	182
R-squared	0.773	0.867	0.701	0.722	0.454	0.575	0.825	0.867	0.765	0.999	0.933	0.945
Year FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Robust t-statistics in parentheses *** p < 0.01, ** p < 0.05, * p < 0.1

contribute to life expectancy in SA and EAP region only and civil liberties have no or diminishing role in life expectancy in all regions.

Finally, human capital is considered a critical factor in the socioeconomic development of a country. The FMOLS results of Table 14 show that there is a positive and significant impact of FDI on human capital development in CEU and EAP region and a negative association in MENA however, it has no role in SA, CWA and SSA and these results are robust with the baseline results. The economic and policy indicators portray that Govt. spending has the potential to contribute significantly to human capital development in CWA and in the rest of the regions it has no role. The infrastructure development indicators like mobile phone users contribute positively to human capital development in CWA, CEU, MENA regions only and access to electricity shows a positive impact on human capital development in SA, MENA regions, and the rest of the regions it has no or negative impact on human capital development. The institutional quality variable like CPI no or negatively contribute to human capital development EAP. The risk factors indicators like political rights contribute significantly in EAP, SSA, MENA, and CWA regions and have a negative or insignificant effect on SA and CEU region however, civil liberties negatively impact human capital development in all regions except SSA.

6. Discussion and Conclusion

This study evaluates the impact of foreign direct investment on socioeconomic development in Belt and Road Countries. We analyze it in two ways first we check the impact of foreign direct investment (FDI) on socioeconomic development using a total sample of BRI countries. Gross national income per capita is used as a proxy variable for poverty reduction, education has used as a proxy to examine the effect of FDI on human capital development in BRI countries and life expectancy is also used as a proxy variable to determine the effect of FDI on improved health facilities and these variables are used as dependent variables. Furthermore, four sets of control variables like economic and policy variables, infrastructure development indicators, institutional quality, and risk factors including political risk and civil liberties are used as independent variables. Second, we do a heterogeneous analysis by dividing the total sample into six regions South Asia (SA), Central and West Asia (CWA), Central and East Europe (CEU), Middle East North Africa (MENA), Sub Sahara Africa (SSA) and East Asia Pacific (EAP). Panel Data has been used for the period (2005–2018).

A kernel distribution plot is used to check the normality of the data and it is found that the data is normal. Variance inflation factor (VIF) is used to detect multicollinearity issues in the data and it found no collinearity issue. Breuch-Pagan test is used to detect the heteroscedasticity issue in the data and results report that a heteroscedasticity issue exists in the data. Therefore, the robust standard error is used to fix the heteroscedasticity issue. Pesaran, (2004) is used to detect cross-sectional dependence and it found cross-sectional dependence. (Levin et al., 2002) Levin-Lin Chu Unit Root test is used to check the stationary in the variables and results found that all variables are stationary at a level and its first difference form. Pedroni, (2004) cointegration test is used to find a long-run relationship among the variables and the results show that there exists a long-run association among the variables. A panel data regression model is used for baseline results and a Fully Modified Ordinary Least Square (FMOLS) is used for robustness checking.

Baseline regression results indicate that impact of foreign direct investment (FDI) on gross national income per capita in BRI countries is negative or insignificant when using the total sample and when controlling the year fixed in effects which suggests that FDI plays no role in poverty reduction in BRI countries. But empirical literature is not conclusive on the fact that FDI contributes to poverty reduction and some studies prove that FDI does not contribute to poverty reduction. The Current finding contrast and match with Bilal Khan, Huobao et al. (2019) who found that FDI contributes positively to reducing poverty in Pakistan. (Tsai & Huang, 2007; Akinmulegun, 2012) found the insignificant effect of FDI in reducing poverty, similarly Ali et al., (2010) Huang et al., (2010) found an inverse association between FDI and poverty alleviation. Ganic, (2019) examined the nexus between poverty reduction and FDI in 12 European countries and the findings conclude that Balkan region there is a positive effect between FDI and poverty reduction and Central Europe

Table 14. Results (FMOLS) Impact of FDI on Education

VARI.	(1) SA	(2) SA	(3) CWA	(4) CWA	(5) CEU	(6) CEU	(7) MENA	(8) MENA	(9) SSA	(10) SSA	(11) EAP	(12) EAP
FDI	0.595 (1.33)	0.737 (1.57)	0.077 (1.17)	0.099 (1.64)	0.162** (2.30)	0.206*** (2.83)	-0.705*** (-5.14)	-0.725*** (-4.56)	1.009 (0.97)	0.283 (0.63)	0.172*** (3.28)	0.210*** (3.64)
Govt.Exp	-0.073 (-0.74)	-0.084 (-0.83)	0.402*** (3.63)	0.359*** (3.05)	-0.371*** (-3.23)	-0.394*** (-3.16)	0.104 (1.56)	0.098 (1.57)	0.061 (0.17)	0.520** (2.53)	-0.007 (-0.13)	-0.012 (-0.22)
Openness	0.060 (0.59)	0.176 (1.64)	-0.007 (-0.23)	0.033 (1.09)	0.012 (0.60)	0.015 (0.77)	0.001 (0.02)	-0.007 (-0.24)	0.369** (2.16)	0.320 (1.36)	-0.028** (-2.36)	-0.035*** (-3.11)
Landlock	32.279*** (11.19)	31.925*** (10.75)	1.368 (0.95)	-2.087 (-1.17)	2.197 (1.21)	2.261 (1.19)					-2.480 (-1.17)	-2.732 (-1.36)
Phone	-0.026 (-0.15)	0.273 (1.30)	0.295*** (4.47)	0.291*** (4.55)	0.229*** (3.14)	0.273*** (3.16)	0.315*** (4.12)	0.321*** (4.11)	-7.466** (-2.52)	-9.578*** (-4.88)	-0.187* (-1.93)	-0.251*** (-3.52)
Electricity	0.297*** (6.12)	0.115 (1.23)	-0.450*** (-2.80)	-0.448*** (-2.99)	2.770 (0.86)	2.770 (0.85)	0.585*** (9.27)	0.586*** (8.99)	-0.123 (-1.16)	0.383*** (4.67)	-0.220*** (-4.24)	-0.198*** (-4.42)
CPI	-0.802*** (-7.21)	-0.895*** (-7.64)	-0.013 (-0.20)	-0.251*** (-3.04)	0.074 (0.86)	0.011 (0.15)	-0.199*** (-3.94)	-0.195*** (-3.58)	-0.748 (-1.65)	0.936* (2.17)	0.100* (1.75)	0.133*** (2.92)
PR	0.957 (0.78)	1.267 (1.16)	2.025*** (4.38)	2.863*** (8.12)	-3.017* (-1.76)	-3.083* (-1.77)	1.958*** (3.57)	2.018*** (3.60)	13.555*** (4.74)	8.284** (3.53)	2.842*** (4.26)	2.935*** (4.44)
CL	-14.418*** (-8.40)	-15.760*** (-9.39)	-2.335*** (-3.05)	-3.947*** (-5.59)	2.055 (1.03)	1.660 (0.90)	-1.678** (-2.08)	-1.630* (-1.89)	0.845 (0.31)	6.116*** (4.32)	-5.900*** (-5.27)	-6.088*** (-5.61)
Constant	155.120*** (25.71)	164.441*** (19.82)	133.372*** (8.32)	140.038*** (9.38)	-176.800 (-0.55)	-175.537 (-0.54)	43.836*** (5.23)	42.448*** (4.60)	59.183*** (2.97)	9.211 (0.34)	135.387*** (19.80)	136.285*** (24.23)
Obs.	111	111	140	140	280	280	209	209	28	28	182	182
R-squared	0.777	0.794	0.453	0.529	0.104	0.111	0.635	0.643	0.753	0.989	0.533	0.515
Year FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No

Robust t-statistics in parentheses *** p < 0.01, ** p < 0.05, * p < 0.1

region there is a negative and insignificant effect of FDI on poverty alleviation. Similarly, some past studies provide mixed effects (Soumare, 2015; Ucal, 2014; Shamine et al., 2014; Gohou & Soumare, 2012, Fowowe and Shuaibu, 2014) and found a positive effect of FDI on poverty alleviation. Whereas, Ali et al., (2010), Huang et al., (2010) found a negative effect of FDI on poverty reduction. Similarly Fayyaz Ahmad, Muhammad et al., (2019) examined the effect of FDI on welfare in SAARC and ASEAN countries, and this study significant positive effect on poverty reduction in Asia but it has significant differences in various regions in Asia.

Furthermore, this study found that foreign direct investment has also no role on human capital development in BRI countries. The reason is that mainly FDI comes for development work like the construction of Roads, rail networks, energy and bridge construction, and transportation systems. The impact of foreign direct investment on life expectancy or improving the health facilities in BRI countries is also lacking because many BRI countries are developing countries but due to lack of funds education and health sectors are not top agenda however, sustainable development goals mainly focused on poverty reduction, access to education improve living standard and adequate health facilities to every citizen of a nation. The negative effect of foreign direct investment on life expectancy shows that public health facilities are worsening in OBOR countries. these findings are also supported by Herzer & Nagel, (2015). Government spending in BRI countries increases gross national income per capita which suggests that Government efforts and their public expenditure can reduce poverty in BRI countries but public spending on attaining human capital is not attracting. Finally, Government spending on improving health facilities contributes positively. The effect of trade openness and landlocked countries on social and economic development is not encouraging. The infrastructure indicators like mobile phone users and access to electricity contribute positively to enhancing the gross national income per capita and healthier working population and the level of institutional quality of BRI countries contributes positively to social economic development. Finally the political risk factors i.e. political rights and civil liberties in BRI countries have no role in social economic development except the political rights contribute positively to gross national income per capita. When taking heterogeneous analysis the results indicate that the impact of FDI on reducing poverty in South Asia (SA) and Central and West Asia (CWA) is positive however, in Central and East Europe (CEU) and Middle East North Africa (MEAN) it has a negative effect but it has no effect in Sub Sahara Africa (SSA) and East Asia Pacific it has no impact on reducing poverty. There is a positive and significant impact of FDI on life expectancy in South Asia (SA) and Central and West Asia (CWA) region and it has a statistically insignificant or negative impact in the rest of the region. Finally, it has been seen a positive and significant impact of FDI on human capital development in Central and East Europe (CEU) and (EAP) region and a negative association in (MENA) and it has no role in (SA, CWA, and SSA) regions. It is concluded that these findings are heterogeneous.

This study has several policy implications for the Governments of BRI countries. Socio-economic development in BRI countries can be improved by establishing multi-level socio-economic development strategies like poverty reduction strategies to uplift the people from poverty by providing basic health and welfare facilities like access to drinking water, improvement in health quality, improvement in compulsory school education enrollment, development of industries and business in rural areas, women empowerment through information technology, and improvement in technical education, labor skills, expansion in urban markets and improvement in the agriculture sector. The development of infrastructural facilities including Roads, Rails, Internet connection, mobile phone utilization, and access to social media networks in BRI can also assist to improve socio-economic development in BRI countries. Many BRI countries are developing countries and they are facing energy shortages and load-shedding issues like Pakistan due to the non-availability of electricity many industries, local markets, shopping malls, and shops are not working at their full capacity, therefore, BRI countries should focus on energy poverty. Finally, these countries have low wage rates therefore it is suggested to increase the minimum wages as per international standards. People's welfare can be improved by introducing comprehensive sustainable development poverty reduction strategies and social safety programs. Like the Pakistani Government introduced an Ehsass Program in 2019 which is a complete social safety and poverty reduction strategy that provides, conditional

and non-conditional direct cash transfers, provides targeted subsidies and it increases nutritional and health coverage. It has multi-dimensional initiatives. The Ehsaas program increases efficiency and transparency, and it has a great social impact (Michael & Muqeet, 2022). Charitable organizations and markets can play a supplementary role by providing volunteer services and resources to reduce poverty in the country. Finally, there should be political rights, civil liberties access, and freedom of speech that provide opportunities for individuals to put their basic welfare needs and demands before the Governments of their respective countries for a better living standard. It is recommended that policymakers must prioritize public health facilities, social safety programs, and poverty reduction strategies and educate the people by providing technical education, training, and skills when they looking for foreign direct investment in the country.

The limitation of this study is that it used panel data for the period 2005 to 2018 and used fully Modified Ordinary Least Square (FMOLS). Further study can be conducted to conduct to analyze the policy effects of the “Belt & Road” initiative on socio-economic development in BRI countries using the Difference-in-Difference (DID) Model or Propensity Score Matching Difference-in-Difference (PSMDID).

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Correction

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Appendix

Region	Countries name (besides China)	No. of Countries
Central and WesternAsia	Armenia, Azerbaijan, Georgia, Iran, Islamic Rep., Kazakhstan, Kyrgyz Republic, Mongolia, Tajikistan, Turkmenistan, Uzbekistan	10
East Asia & Pacific	Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Mongolia, Myanmar, Philippines, Singapore, Timor-Leste, Vietnam, Thailand	12
South Asia	Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka	8
Central and EastEurope	Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Macedonia FYR, Moldova, Montenegro, Poland, Russian Federation, Serbia, Slovak Republic, Slovenia, Ukraine	20
Middle East &North Africa	Bahrain, Djibouti, Egypt, Arab Rep., Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, Turkey,United Arab Emirates, West Bank and Gaza, Yemen, Rep.	16
Sub-Saharan Africa	Kenya, Tanzania	2



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