**Original Research Article**

**The Relationship between Economic Freedom and Private Investment across Indian States: Evidence from Panel Data**

**ABSTRACT**

This study examines the impact of economic freedom on private investment in the formal sector across 18 Indian states from 2015 to 2019. Using the Economic Freedom Index (EFI) and its components as explanatory variables, the analysis finds that higher EFI scores are significantly associated with increased private investment. Fixed effects regression results reveal a strong positive effect of labour and business regulation on investment levels. The findings align with prior research, indicating that streamlined regulations and secure property rights foster opportunity-driven entrepreneurship. The study concludes that enhancing institutional quality can significantly boost formal sector investment across Indian states.

*Key Words: Economic Freedom Index, Private Investment, Size of Government, Legal Structure, Property Rights.*

1. **INTRODUCTION**

Economic freedom, characterized by the protection of property rights, freedom of contract, and the rule of law, plays a crucial role in fostering an environment conducive to economic growth and development. The relationship between economic freedom and economic outcomes has been extensively studied globally, with evidence suggesting that higher levels of economic freedom are often associated with increased economic prosperity through avenues such as capital accumulation and an improved investment climate (Hung et al., 2024). In India, the economic reforms initiated in the 1990s have resulted in substantial enhancements in its growth rate, positioning it as one of the fastest-growing major economies globally. The Economic Freedom Index assesses the degree to which a nation's structures and policies align with the protective function and the autonomy of individuals in making economic choices (Fraser Institute, 2019). Nations exhibiting greater economic freedom flourish as they leverage individuals' capacity for innovation and prosperity when unencumbered by stringent government regulation and taxation.
The Index of Economic Freedom provides an extensive assessment of economic liberty.

The aim of this paper is to study the association between Economic freedom index scores (EF) and Private Investment levels (INV) across eighteen major states of India covering the data from 2015–2019. Investment is generally accepted as the catalyst of economic growth, as outlined in both neoclassical and endogenous growth theories (Solow, 1956; Barro, 1991). Investment significantly contributes to economic growth by augmenting productive capacity through the accumulation of physical and human capital, and by fostering technological improvements via research, development, and innovation. Economic freedom assesses the extent to which economic institutions and policies promote voluntary exchange, individual choice, property rights protection, and competitive freedom.

1. **Need of the Study**

Comprehending the factors influencing private investment in Indian states is crucial for devising policies that foster economic growth, regional development, and industrial advancement. Private investment is essential for stimulating economic activity by increasing capital creation, creating jobs, and promoting innovation. Investment levels, however, exhibit considerable variation among states owing to disparities in infrastructure, legal frameworks, financial accessibility, governance quality, and market conditions. Analyzing these determinants enables policymakers to identify factors that attract or deter private investors, allowing for targeted interventions to address investment disparities. For instance, states with robust infrastructure, business-friendly policies, and greater ease of doing business, such as Maharashtra and Karnataka, tend to attract higher levels of private investment compared to states with bureaucratic hurdles and inadequate infrastructure. Furthermore, variations in labor market conditions, access to credit, and institutional stability influence investment decisions, making it critical to assess how these factors shape private capital inflows across regions.

States exhibiting greater economic freedom, characterized by efficient regulatory frameworks and strong infrastructure, generally attract increased private investment, hence fostering economic growth and development. Empirical studies have shown a positive relationship between economic freedom and private capital inflows, suggesting that states in India that enhance their economic freedom can potentially boost private investment (Saddique et al., 2018). The relationship between economic freedom and investment is intricate and may be affected by several factors, including public investment and policy reforms. Comprehending these dynamics can assist policymakers in Indian states in formulating more efficacious measures to promote private investment and economic growth. Private investment is an essential accelerator for economic progress, since it enables job creation, allocates resources for development, and fosters innovation (World Economic Forum, 2019).

The aim of this research is to investigate the effect of economic freedom on private domestic investment across a sample of 18 states of India selected on the basis of availability of data from 2015 to 2019. The remainder of the paper is structured as follows: Section 2 provides a review of the literature on the effects of economic freedom on private domestic investment. Section 3 presents the methodology and data. Section 4 shows the empirical results and discussion, and section 5 concludes.

1. **Review of Literature**

The literature suggests that countries with higher levels of economic freedom tend to experience significantly better economic performance. This improvement is attributed to an economically free environment, which enhances productivity, fosters investment in human and physical capital, and creates more opportunities for entrepreneurial activity (De Haan and Sturm, 2000; Justesen, 2008). For example, much research has shown that economic freedom promotes economic growth (Doucouliagos and Ulubasoglu 2006; Azman-Saini et al., 2010; Farhadi et al., 2015; Malanski and Pvoa, 2021), FDI in sub-Saharan Africa (Dia and Atangana Ondoa, 2023) and entrepreneurship (BjøBjørnskov and Foss, 2008).

Hall and Lawson (2014) indicated that the Economic Freedom of the World (EFW) index was initially created by Gwartney, Block, and Lawson (Economic Freedom of the World: 1975–1995; 1996) and has been revised annually thereafter. Their study referenced 402 articles, of which 198 utilized the economic freedom index as an independent variable. It was determined that over two-thirds of these studies indicated a correlation between economic freedom and favorable outcomes, including accelerated growth, improved living standards, and increased happiness. Ullah et al. (2018) examined the correlation between economic freedom and private capital inflows in six South Asian countries (India, Pakistan, Bangladesh, Sri Lanka, Nepal, and Maldives) from 2002 to 2011, revealing a significant positive relationship and asserting that economic freedom is a crucial determinant of private capital inflows.

Literature indicates that nations with high levels of economic freedom generally exhibit significantly better economic performance. The improvement is attributed to an economically liberated environment, which augments production, promotes investment in human and physical capital, and generates additional prospects for entrepreneurial endeavors (De Haan and Sturm, 2000; Justesen, 2008). Numerous studies have demonstrated that economic freedom fosters economic growth (Doucouliagos and Ulubasoglu, 2006; Azman-Saini et al., 2010; Farhadi et al., 2015; Malanski and Pvoa, 2021), foreign direct investment in sub-Saharan Africa (Dia and Atangana Ondoa, 2023), and entrepreneurship (Bjørnskov and Foss, 2008).

**Size of Government and Private Investment**

The impact of government size, through public expenditure and taxation, on private investment has been a topic of discussion. Two principal conflicting theories arise in this discussion. Theoretical research indicates that public investment may displace private investment, either by augmenting public expenditure without adequate tax revenue or through elevated taxes (Buiter, 1977; Easterly and Rebelo, 1993).

**Legal System, Property Rights and Private Investment**

North (1990) contends that effective institutions that ensure property rights diminish the costs associated with transactions, control, and contract enforcement, hence influencing economic activity. Acemoglu et al. (2005) assert that in the absence of property rights, individuals lack the motivation to invest in physical or human capital or to adopt more efficient technologies. In contexts with insufficient protection of property rights, politicians or influential organizations are more prone to expropriate productive assets (Ojah et al., 2010). Gwartney et al. (2006) assert that investors are hesitant to allocate money in environments with uncertain property rights, apprehensive that their investment returns may be expropriated by others.

**Regulation and Private Investment**

Economic regulation denotes governmental interference or expansion in economic matters, encompassing business operations, labor markets, and credit regulation, with the objective of rectifying or replacing market functions. Literature indicates that excessive regulation may adversely affect corporate operations. Restrictive regulations may cultivate corruption by enabling officials to grant favors or impose fees on enterprises (Gwartney, 2009). Bjørnskov and Foss (2008) note that while laws can assist entrepreneurs by creating clear guidelines, excessively restrictive regulations may impose constraints, particularly on high-growth potential start-ups, by inflating start-up costs.

1. **Methodology and Data**

The dependent variables used in the study is log of private investment in the formal sector (lnINV) for 18 states of India selected on the basis of availability of data for the time period 2015 to 2019. Quality of entrepreneurship is measured by taking the amount of total investment in the private formal sector in various states of India (Agarwal et al., 2021; Manzur-Ul-Haq, 2005). The data related to the private investment (in million rupees) in the formal sector across the states of India in a given year are obtained CMIE capital expenditure (CAPEX) database for the years 2015 to 2019 for the states of India. The CAPEX database captures those projects at state level that entail a capital expenditure of Rs.10 million or more in a particular year.

Economic Freedom Index along with the estimated scores of its three components have been taken as the explanatory variables in the model specification. The three components of EFI are: 1. Size of Government (AREA1), 2. Legal Structure and Security of Property Rights (AREA2), 3. Regulation of Labour and Businesses (AREA3).

The economic freedom scores obtained for the states of India is taken to be the proxy indicator for institutional framework. This variable is found to be missing for the recent years for the states of India and that is why it is estimated, as it is taken to be a very important indicator which influences the level of entrepreneurship across the states of India. Eighteen prominent Indian states have been chosen as per the availability of secondary data related to the selected variables. The variables employed for the evaluation and computation of EFI for the states are derived from the methodology utilized in the Economic Freedom of the World annual reports released by the Fraser Institute and the Economic Freedom of the States of India report by Debroy et al. (2013). The EFI for the selected states has been computed for the five-year period from 2015 to 2019. The period from March 2020 to 2022 signifies the crisis COVID-19 epidemic, making these years unusual in terms of growth patterns and labour market trends. Consequently, the examination of the pre-pandemic period is undertaken. This panel regression study is based on the usage of Harris Tzavalis unit root test. It is intended to be used on data sets with relatively short T (Harris & Tzavalis, 1999). A variance inflation factor (VIF) quantifies the degree of multicollinearity in regression analysis. When VIF is higher than 10, there is significant multicollinearity that needs to be corrected (Gujarati & Porter, 2015). The panel data integrates both time-series and cross-sectional dimensions into the economic model, enabling researchers to analyze the behavior of the dependent variable and its impacts over time and across various groups. Panel data analysis addresses issues of endogeneity, heteroscedasticity, and non-stationarity in regression models (Baltagi, 2011).

There are three generic models: the Fixed-Effects Model (FEM), the Random Effects Model (REM), and the Pooled Ordinary Least Squares Model (POLS). In order to determine which option to pursue, namely REM, FEM, or POLS, the following tests were used: First, the Redundant fixed-effects test was conducted. Next, the Lagrange multiplier test for random effects was conducted. Finally, the correlated random effects — Hausman test was conducted. The hypotheses H0 and H1 of this test are as follows:

**H0:**  *REM is preferred*.

**H1:**  *FEM is preferred*.

If the significant *p*-value is lower than the α-value of 0.05, H0 is rejected, and the fixed effects model is preferred. If the significant *p*-value is higher than the α-value of 0.05, H0 is accepted and the random effects model is preferred.

The econometric analysis examines the connection between economic freedom and private investment using panel regressions on data from 18 states for years 2015-2019. The present study employs regression analysis using Stata 14. Data used in the study have been modified by taking the log of the absolute values of the dependent variables taken in different models in the study. This is done to deal with differences in the absolute numbers. Panel regression techniques are used because the data span more than two time periods (2015–16 to 2019–20). One benefit of panel data approach is its ability to control for individual heterogeneity, or the unique features of each state.

The hypothesis tested is that whether the economic freedom scores and the level of private investment have any significant relationship across the Indian states.

**Test of Ho: There is no significant relationship between the level of economic freedom and the level of private investment in the formal sector of the economy of a given state.**

Model specification

The following model 1 assesses the impact of level of economic freedom taken as independent variable on the level of private investment being generated in the respective states keeping the control variables in the equation.

$lnINVij=α+β\_{1}EFI\_{ij}+β\_{2}lnGDPPC\_{ij} +u\_{ij}$ …………(1)

Where, $lnINV\_{ij}$= Investment in the formal private sector of the states taken in the study

Next we assess the impact of various sub- components of economic freedom index on the level of investment. Following equations show the model 2 which represents the relationship between Size of Government, Legal Structure and Security of Property Rights and Regulation of Labour and Businesses on the level of private investment in the formal sector across the states of India.

$lnINVij=α+β\_{1}AREA1\_{ij}+β\_{2}AREA2\_{ij}+β\_{3}AREA3\_{ij}+β\_{4}lnGDPPC\_{ij}+ u\_{ij}$ ……..(2)

Where, AREA1ij represents the size of government in a given state i for a given time period j, AREA2ij represents legal structure and security of property rights in a given state i for a given time period j, AREA3ij represents regulation of labour and businesses in a given state i for a given time period j.

**Results and Analysis**

The information concerning private investment across the states of India is sourced from the CMIE capex database. CapEx is a repository of investment initiatives focused on establishing new capacities. An investment project entails capital expenditure and capacity increase. The CapEx database includes only projects with a capital expenditure of Rs.10 million or greater in a given year. Projects with investments below Rs.10 million are excluded. The CapEx database is established and revised using publicly accessible information. The database is constructed from all accessible reliable sources. The CapEx database is developed by CMIE. Using the private investment data obtained from CMIE, figure 1 depicts the zonal distribution of private investment among the states of India taken into consideration in the study

**Figure 1: Zonal Distribution of Private Investment across the states of India in the year 2019**

Source: Author’s Calculations

The North region exhibits significant fluctuations in private investment. After a substantial increase in 2016, investment dipped in the following years, especially in 2018. However, there was a dramatic surge in 2019, with investments reaching their highest level across the years, indicating possible large-scale projects, favorable policy changes, or economic incentives that attracted private capital. The South region shows a more consistent investment pattern, though there are some declines, especially from 2015 to 2016. Investments picked up again in 2017 and 2019, albeit not reaching the 2015 peak levels. This could reflect structural adjustments in the region’s economy, shifting priorities in sectors, or gradual recovery from economic slowdowns.

The East region shows the most volatility, with large swings in investment from year to year. After a significant boost in 2016, investment plummeted to just ₹366,084 million in 2017. It bounced back again in 2018 but then dropped sharply in 2019. This instability could indicate challenges related to infrastructure, governance, or regional policy, or the presence of fewer stable sectors attracting consistent private investment.

The West region, like the North, exhibits significant variation, with high investments in 2015 and 2016, followed by a considerable decline in 2017 and 2018. However, investments rebounded sharply in 2019, reaching the highest level of the period. This suggests the region is an attractive destination for private investment, likely due to its industrial base and urban infrastructure, despite short-term economic challenges or market corrections in 2017 and 2018.

North and West regions experienced significant recoveries in 2019, which may be attributed to new policies, large infrastructure projects, or improved business environments. This sharp rise in 2019 suggests a significant recovery or newfound confidence among investors in this region. South region remained more stable, indicating a relatively consistent investment climate but no major surge. East region saw extreme volatility, suggesting underlying economic or governance issues, making it less predictable for sustained private investment. This inconsistency may reflect structural economic challenges and lower investor confidence.

To assess the impact the relationship between level of private investment in formal sector and the growth level of the states of India measured using GDP levels of the respective states, a scatter plot is used as depicted in figure 2. This analysis aims to estimate the correlation between the logarithm of private investment and GDP for the financial year 2019-20 across various states.

**Figure 2: Estimation of relationship between log of private investment and GDP at constant prices for the year 2019-20 for states of India taken in the study**

3.00

4.00

5.00

6.00

7.00

4.50

5.00

5.50

lnGDP

lnINV

Fitted values

Source: Author’s calculations

The scatter plot in figure 2 depicts a positive relationship between GDP at state level and the total private investment in the states taken under consideration in the study for the year 2019-20.

Correlation matrix

Table 1 reports the correlation matrix of variables used for empirical analysis. The indicator of gross domestic product per capita (GDPPC) has the highest correlation (0.475).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 1: Correlation matrix between lnINV and EFI sub-indices**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | lnINV | AREA1 | AREA2 | AREA3 | lnGDPPC |
| lnINV | 1.00 |  |  |  |  |
| AREA1 | 0.18 | 1.00 |  |  |  |
| AREA2 | -0.05 | -0.04 | 1.00 |  |  |
| AREA3 | 0.32 | 0.23 | 0.29 | 1.00 |  |
| lnGDPPC | -0.02 | 0.25 | 0.47 | 0.32 | 1.00 |

 |

Source: Author's calculations

The multi- collinearity among the factors is not found to be much higher as the value of the coefficients is found to be lower than 0.6.

**Ordinary Least Square Model**

As a logical way, initially the OLS model is employed to test the hypothesis that the economic freedom is a determinant of the regional differences in the entrepreneurship across the states of India measured through the private investment across the major states of India taken in the study.

Table 2: Impact of Economic Freedom and its Components on Private Investment in the Formal Sector using POLS

|  |  |  |
| --- | --- | --- |
| Dep. Variable: (lnINV) | Model 1 | Model 2 |
| AREA1 |  | .89 |
| AREA2 |  | .79 |
| AREA3 |  | 3.17\*\*\* |
| EFI | 0.81\* |  |
| lnGDPPC | -1.05 | -.67 |
| Constant | 6.97\*\* | 4.44 |
| Number of obs. | 90 | 90 |
| R2F-stat | 0.2255.32 | 0.2489.54 |
| Prob>fRedundant Fixed Effect Likelihood RatioBreusch Pagan LM test | 0.06F =7.65(0.00)ꭓ2= 19.76(0.03) | 0.04F =21.87(0.00)ꭓ2= 21.89(0.01) |

Source: Author’s calculations

Note: \*\*\*significant at 1 per cent level; \*\*significant at 5percentage level and \* significant at 10 per cent level and the values in the parentheses are p values respectively

The total EFI depicts a statistically significant positive impact on the private sector investment as capital expenditure in the formal sector across the cross-sectional states of India. This implies that the improvement in the economic freedom levels has a significant positive impact on the quality of entrepreneurship being generated in the economy. More freedom in the institutional framework of the state attracts more amount of investment.

Improved economic freedom provides a suitable environment for increased level of investment taking place in an economy. When individuals have the freedom to start and invest more in the businesses without excessive regulatory burdens, they are more likely to take entrepreneurial risks. This kind of positive relationship between the regulatory framework and the private investment is supported by empirical evidence. Developed nations have empirically shown to have positive relationship between the level of EFI and the growth oriented business investment. The private investment is taken as a proxy of opportunity based entrepreneurship.

 The analysis of model 1 which deals with the impact of level of economic freedom on the investment taking gross domestic product per capita as the control variable. With a coefficient of 0.81, it suggests that increase in the overall economic freedom index is associated with increase in the level of private investment. This coefficient is statistically significant at the 0.05 significance level (p-value = 0.01). EFI is statistically significant, indicating its significant impact on lnINV. The value of the R-square is 0.225, indicating that approximately 22.5% of the variability in lnINV is explained by the independent variables in the model.

Next we will analyse the model 5.2 using components of EFI with control variables as the explanatory variables. The coefficient of Regulation of Labour and Business (AREA3) is found to be 3.17. This indicates that an improvement in regulation of labour and business is associated with an increase in lnINV. It is statistically significant at the 0.01 significance level (p-value = 0.004). R-squared value is 0.248, indicating that approximately 24.8% of the variability in lnINV is explained by the independent variables in the model. Among the independent variables, only Regulation of Labour and Business (AREA3) has a statistically significant positive impact on lnINV. The overall model is statistically significant, indicating that the included independent variables collectively have a significant effect on lnINV.

**5.6.1d Panel Regression**

**Table 3: Impact of Economic Freedom and its Components on Private Investment in the Formal Sector using Fixed Effect Regression**

|  |  |  |
| --- | --- | --- |
| lnINV | Model 1 |  Model 2 |
| AREA1 |  | .92 |
| AREA2 |  | .87 |
| AREA3 |  | 2.47\*\* |
| EFI | 1.08\* |  |
| lnGDPPC | -0.97 | -1.31 |
| Constant | 5.87\*\* | 5.21 |
| R-squareF-stat  | 0.3856.33 | 0.4499.67 |
| Number of obs.Hausman TestProb> ꭓ2 |  90ꭓ2 = 22.65 ( 0.008) |  90 ꭓ2= 23.62 (0.004) |

Source: Author’s Calculations

Note: \*\*\*significant at 1 per cent level; \*\*significant at 5percentage level and \* significant at 10 per cent level and the values in the parentheses are p values respectively

The model 1 deals with the impact of level of economic freedom on the private investment taking GDPPC as the control variables. With a coefficient of 1.08, it suggests that a 0.1 unit increase in the overall economic freedom index is associated with a 10.8 percentage increase in the level of private investment across the states of India taken in the study. This coefficient is statistically significant at the 0.05 significance level (p-value = 0.01). The value of the R-square is 0.385, indicating that approximately 38.5% of the variability in lnINV is explained by the independent variables in the model. Model 2 include components of EFI along with control variables as the explanatory variables. The coefficient of regulation of labour and business (AREA3) is found to be 2.47. This indicates that a 0.1 unit improvement in regulation of labour and business leads to 24.7 percentage increase in lnINV. R-squared value is 0.449, indicating that 44.9 % of the variability in lnINV is explained by the independent variables in the model. Among the independent variables, only regulation of labour and business has a statistically significant impact on lnINV.

The findings of this thesis correspond with previous studies (Estrin et al., 2012; Henrekson & Sanandaji, 2014) that indicate a positive correlation between growth-aspiration entrepreneurship and business-friendly regulations, such as simplified tax regulations and reduced regulatory burdens for expanding the scale of a business. The plausible explanation is that enhanced economic freedom encourages investment by providing a stable and predictable regulatory environment which can prove beneficial for the expansion of existing businesses. So basically increase in level of private investment as a result of increased level of EFI scores shows that higher levels of EFI are positively related with opportunity based expanding businesses which generate higher levels of private investment. The results suggests that hypotheses 3 cannot be accepted as there is found to be a positive and significant relationship between the level of economic freedom and the level of private investment in the formal sector of the economy of a given state. The fixed effect regression model 1 deals with the impact of level of economic freedom on the private investment taking GDPPC as the control variables. With a coefficient of 1.08, it suggests that a 0.1 unit increase in the overall economic freedom index is associated with a 10.8 percentage increase in the level of private investment across the states of India taken in the study.

Our results found a positive relation between regulation of labour and business sub-component and the level of employment and private investment. There is found to be a positive impact of labour regulation and security of property rights on the opportunity driven measures of entrepreneurial activity. This result is consistent with other works on this topic, where the factor also had a positive impact (Mcmullen et al., 2008; Sobel et al., 2007; Rumyantsev, 2021). Overregulation of labor markets, like overregulation of business entry, can also lead to large informal economies and high unemployment, as they increase barriers to formal employment and make markets too rigid to adapt to changing economic conditions. Similar results were also found in study conducted in the European region (Rumyantsev, 2021).

**Conclusion**

POLS and fixed effect regression results show that the private investment being generated at state level in India is positively associated with the level of economic freedom through the cross sections of the Indian states. This shows that the improvement in the economic freedom across the states will positively impact the level of private investment in the economy. Opportunity based businesses find it more beneficial to work in the atmosphere where there are more streamlined rules and regulations since the cost of compliance with the rules and regulations is lesser for developed businesses as compared to the necessity based low level businesses.

Improved economic freedom provides a suitable environment for increased level of private investment taking place in an economy. When individuals have the freedom to start and invest more in the businesses without excessive regulatory burdens, they are more likely to take entrepreneurial risks. Developed nations have empirically shown to have positive relationship between the level of EFI and the opportunity entrepreneurship.

Regulation of Labour and Business are found to have significant and positive impact on level of private investment across the states of India. It might well be the case that the quality of regulation has less impact on the quantitative measures of entrepreneurship, such as the number of firms registered, and that regulation is more important in a later stage of the process when the entrepreneurs improve their quality and expand their scope in terms of more private employment as well as by making more investment by making use of the expansion opportunities available to them. Improved institutions provide an atmosphere where entrepreneurs are more inclined to make significant investments, which indicate a greater level of entrepreneurial excellence (Chowdhary et al., 2018).

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