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Impact of Regulatory Impact Assessment on Policy Effectiveness in India: Evidence from ARDL Model

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Abstract: This study investigates the impact of Regulatory Impact Assessment (RIA) on policy effectiveness in India by employing a time-series econometric framework. Drawing on annual data for India and incorporating key governance indicators and macroeconomic controls, the study applies the Autoregressive Distributed Lag (ARDL) bounds testing approach to examine both long-run and short-run relationships. The empirical results confirm the existence of a stable long-run equilibrium among RIA, governance quality, macroeconomic variables, and policy effectiveness. The findings reveal that RIA has a statistically significant and positive effect on policy effectiveness, indicating that systematic regulatory evaluation enhances the quality, coherence, and implementation of public policies. Governance indicators such as regulatory quality, government effectiveness, rule of law, and control of corruption also significantly contribute to improved policy outcomes. Additionally, GDP per capita and trade openness are found to strengthen policy effectiveness, highlighting the role of macroeconomic conditions in institutional performance. The Error Correction Model further confirms rapid adjustment toward long-run equilibrium, reinforcing the dynamic stability of the system. Overall, the study underscores the importance of integrating regulatory evaluation mechanisms with strong institutional frameworks to improve governance outcomes in India. The findings provide important implications for policymakers seeking to strengthen evidence-based policymaking and enhance regulatory efficiency.

Keywords: Regulatory Impact Assessment (RIA); Policy Effectiveness; Governance Quality; ARDL Model; Institutional Economics

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1. Introduction

Regulatory governance has become a central element of modern public administration, particularly in efforts to improve policy design, implementation, and evaluation. Among various governance instruments, Regulatory Impact Assessment (RIA) has emerged as a widely recognized mechanism for ensuring that public policies are evidence-based, efficient, and aligned with broader socio-economic objectives. RIA provides a structured approach to evaluating the potential economic, social, and environmental consequences of proposed regulations before their adoption, thereby strengthening transparency, accountability, and rational decision-making in governance systems. Carroll (2010) emphasizes that RIA improves policy quality by systematically weighing costs and benefits, while Kirkpatrick and Parker (2004) highlight its importance as a governance reform tool, especially in developing economies where institutional capacity remains uneven.

In the context of India, regulatory reforms have accelerated alongside economic liberalization and institutional modernization. India faces complex governance challenges, including regulatory fragmentation, institutional inefficiencies, environmental pressures, and uneven implementation of public policies across regions. While several reforms have been introduced to improve regulatory quality and governance effectiveness, the actual contribution of these reforms to policy effectiveness remains insufficiently examined. This is

particularly important given evidence that regulatory frameworks can significantly influence economic efficiency, innovation, and environmental outcomes (Fan et al., 2021; Neves et al., 2020).

Theoretically, this study draws on institutional theory and evidence-based policymaking frameworks. Institutional theory argues that policy effectiveness depends on the strength and coherence of governing institutions, which shape incentives, coordination, and compliance mechanisms. Strong institutions enhance governance performance by reducing uncertainty and improving implementation efficiency. Similarly, evidence-based policymaking theory emphasizes the use of systematic data and analytical tools in decision-making processes to improve policy outcomes. Within this framework, RIA serves as a critical bridge between evidence generation and policy formulation, ensuring that regulatory decisions are grounded in empirical analysis rather than political discretion. Hertin et al. (2009) further argue that the effectiveness of such regulatory systems depends heavily on the quality of knowledge production and utilization within governance structures. Additionally, broader governance dimensions such as regulatory quality, rule of law, government effectiveness, and control of corruption are consistently identified as key determinants of policy success (Shuai & Fan, 2020; Zhang et al., 2021).

Despite the theoretical relevance of RIA and governance quality, there remains a significant empirical gap in the literature. Existing studies primarily focus on environmental regulation, green innovation, and sector-specific policy interventions rather than evaluating RIA as an integrated macro-level governance mechanism. For instance, Song et al. (2020, 2021, 2022) demonstrate that environmental regulation and green finance instruments can significantly improve innovation efficiency and resource utilization, while Liu et al. (2021, 2022) show that regulatory policies influence economic restructuring and environmental investment. However, these studies largely overlook RIA as a comprehensive policy evaluation framework. Moreover, while Zhang et al. (2020) and Xu and Li (2020) highlight the effects of regulatory instruments such as emission trading and green credit, they do not directly assess how regulatory assessment mechanisms translate into overall policy effectiveness. Another limitation in existing literature is the dominance of evidence from China and developed economies, with limited focus on South Asian countries such as India. Studies such as Biermann et al. (2022) emphasize the global policy relevance of frameworks like the Sustainable Development Goals, yet they do not provide country-specific empirical validation of regulatory assessment systems. Similarly, Fu et al. (2020) highlight the importance of perceived policy effectiveness in shaping behavioral responses, while Awewomom et al. (2024) highlight the role of preventive environmental governance. However, these studies primarily address environmental outcomes rather than broader policy effectiveness at the macro-governance level.

Against this backdrop, the primary objective of this study is to empirically examine the impact of Regulatory Impact Assessment on policy effectiveness in India using secondary data from the World Bank's World Development Indicators and Worldwide Governance Indicators. Specifically, the study evaluates how RIA-related governance dimensions—such as regulatory quality, government effectiveness, rule of law, and control of corruption—affect policy effectiveness, alongside macroeconomic factors such as GDP per capita and trade openness. This integrated framework allows for a more comprehensive assessment of governance-performance linkages in a developing country context.

This study makes several important contributions. First, it extends the literature on regulatory governance by providing empirical evidence on the effectiveness of RIA in a large developing economy context, where such analysis remains limited. Second, it integrates insights from environmental regulation, institutional governance, and economic development literature into a unified analytical framework. Third, it contributes methodologically by applying macro-level secondary data analysis to evaluate governance effectiveness. Finally, the findings offer practical policy insights for strengthening regulatory systems in India, particularly in enhancing institutional capacity, improving policy coherence, and promoting evidence-based decision-making for sustainable development outcomes.

2. Literature Review

The concept of regulatory governance and its role in shaping policy effectiveness has gained significant scholarly attention in recent years. Regulatory Impact Assessment (RIA) is widely recognized as a key instrument for improving policy design, ensuring evidence-based decision-making, and enhancing governance outcomes. Carroll (2010) argues that RIA contributes to better policymaking by systematically evaluating the costs and benefits of regulatory interventions, thereby improving policy quality and implementation efficiency. Similarly, Kirkpatrick and Parker (2004) emphasize that in developing countries, RIA serves as an important governance reform tool, although its effectiveness depends heavily on institutional capacity and administrative readiness. Hertin et al. (2009) further highlight that the quality of knowledge production and utilization within RIA processes significantly influences its effectiveness, suggesting that weak knowledge systems can limit its policy impact.

A growing body of literature connects environmental and regulatory governance with broader sustainability and development outcomes. Studies such as Fan et al. (2021) and Neves et al. (2020) demonstrate that environmental regulations can significantly improve environmental quality by reducing pollution and promoting green innovation. Zhang et al. (2021) further show that environmental regulation plays a crucial role in reducing air pollution through spatial spillover effects, highlighting its broader systemic influence. In addition to environmental outcomes, regulatory governance has been linked to innovation and economic restructuring. Song et al. (2020, 2021, 2022) consistently show that environmental regulation, green credit policies, and low-carbon initiatives stimulate technological innovation and improve resource efficiency. For example, Song, Zhao, and Shang (2020) find that low-carbon city policies significantly enhance ecological efficiency through technological upgrading. Similarly, Xu and Li (2020) demonstrate that green credit policies influence firms' financing behavior and investment decisions, reinforcing the idea that regulatory frameworks shape economic behavior at both macro and micro levels.

Several studies also highlight the transitional costs and structural adjustments associated with regulatory policies. Liu et al. (2021) find that stricter environmental regulations may initially increase labor adjustment costs but ultimately lead to productivity gains through technological upgrading. Liu et al. (2022) further show that environmental tax reforms significantly increase environmental investment, suggesting that regulatory pressure can induce long-term efficiency improvements. Zhang et al. (2020) provide evidence from emission trading systems, demonstrating that market-based regulatory instruments can effectively reduce carbon emissions while maintaining economic stability. From a governance and institutional perspective, Shuai and Fan (2020) and Zhang et al. (2021) emphasize the importance of institutional quality and policy design in determining regulatory effectiveness. Their findings suggest that regional disparities in governance capacity significantly influence the success of environmental and regulatory policies. Biermann et al. (2022) further argue that global policy frameworks such as the Sustainable Development Goals (SDGs) reinforce the political relevance of regulatory governance by promoting integrated and measurable policy targets.

Finally, recent studies also explore behavioral and organizational dimensions of regulatory effectiveness. Fu et al. (2020) show that perceived policy effectiveness influences environmental awareness and pro-environmental behavior, highlighting the importance of public perception in governance success. Awewomom et al. (2024) reinforce this by emphasizing the role of preventive environmental management and policy-driven environmental control mechanisms in addressing global pollution challenges. Collectively, these studies suggest that regulatory governance operates through a complex interaction of institutional, economic, environmental, and behavioral mechanisms.

Although extensive literature has examined the role of environmental regulation, governance quality, and policy instruments in shaping economic and environmental outcomes, there remains a notable gap in understanding the specific role of Regulatory

Impact Assessment (RIA) as a systematic governance tool in enhancing overall policy effectiveness, particularly in developing country contexts such as India. Existing studies predominantly focus on environmental regulations, green finance, or sector-specific policy interventions, often relying on firm-level or regional analyses, while largely neglecting macro-level, country-specific empirical assessments of RIA as an integrated policy evaluation mechanism. Furthermore, most empirical evidence is drawn from China and European Union countries, leaving South Asian economies underexplored despite their complex governance structures and rapid development trajectories. In addition, limited research integrates governance indicators such as regulatory quality, rule of law, and government effectiveness within a unified framework to evaluate how they collectively interact with RIA to influence policy outcomes. This study addresses these gaps by empirically examining the impact of Regulatory Impact Assessment on policy effectiveness in India using secondary macro-level data, thereby contributing to both governance literature and evidence-based policymaking discourse in developing economies.

H1: Regulatory Impact Assessment (RIA) has a positive and significant effect on policy effectiveness in India.

H2: Higher regulatory quality leads to improved policy effectiveness.

H3: Government effectiveness positively influences policy effectiveness.

H4: Strong rule of law enhances policy effectiveness.

H5: Control of corruption positively contributes to policy effectiveness.

H6: Economic development (GDP per capita) has a positive impact on policy effectiveness.

H7: Trade openness positively influences policy effectiveness by improving regulatory performance and institutional efficiency.

3. Methodology

This study employs a quantitative time-series research design to examine the impact of Regulatory Impact Assessment (RIA) on policy effectiveness in India. Since the study focuses on a single country over time, a macro-econometric framework is adopted using secondary data sourced from the World Bank's World Development Indicators (WDI) and Worldwide Governance Indicators (WGI). The time span of the study is determined based on data availability, covering multiple years (2000–2023). This approach allows the analysis of long-run and short-run relationships among regulatory governance indicators and policy effectiveness in a dynamic setting.

The dependent variable in this study is Policy Effectiveness (PE), which captures the extent to which government policies achieve intended economic and institutional outcomes. It is proxied using governance effectiveness indicators and related macroeconomic performance measures. The key explanatory variable is Regulatory Impact Assessment (RIA), which is operationalized through regulatory quality and related governance indicators that reflect the extent of evidence-based regulatory evaluation. In addition, several control variables are included to avoid omitted variable bias and ensure model robustness. These include regulatory quality (RQ), government effectiveness (GE), rule of law (RL), control of corruption (CC), GDP per capita (GDP), and trade openness (TO).

The empirical relationship between the variables is expressed through the following functional form:

$$PE_t = f(RIA_t, RQ_t, GE_t, RL_t, CC_t, GDP_t, TO_t), \quad [1]$$

To estimate the econometric model, the functional relationship is transformed into a log-linear time-series regression specification as follows:

$$PE_t = \beta_0 + \beta_1 RIA_t + \beta_2 RQ_t + \beta_3 GE_t + \beta_4 RL_t + \beta_5 CC_t + \beta_6 GDP_t + \beta_7 TO_t + \varepsilon_t, \quad [2]$$

where $\beta_0$represents the intercept term, $\beta_1$to $\beta_7$represent the long-run elasticities of the explanatory variables, and $\varepsilon_t$is the stochastic error term capturing unexplained variations in policy effectiveness over time.

Given the time-series nature of the data, the first step of the empirical analysis involves testing the stationarity properties of all variables using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests. These tests help determine whether the variables are stationary at level I(0) or first difference I(1), which is essential for selecting the appropriate econometric technique. The ADF test is specified as:

$$\Delta Y_t = \alpha_0 + \alpha_1 t + \gamma Y_{t-1} + \sum_{i=1}^{p} \delta_i \Delta Y_{t-i} + \varepsilon_t, \qquad [3]$$

where $\gamma$is used to test the presence of a unit root.

If the variables are found to be integrated of mixed order I(0) and I(1), the Auto-Regressive Distributed Lag (ARDL) bounds testing approach is applied to examine the existence of a long-run cointegration relationship among the variables. The ARDL model is specified as:

$$\Delta PE_t = \alpha_0 + \sum_{i=1}^{p} \alpha_1 \Delta PE_{t-i} + \sum_{i=0}^{p} \alpha_2 \Delta RIA_{t-i} + \sum_{i=0}^{p} \alpha_3 \Delta RQ_{t-i} + \sum_{i=0}^{p} \alpha_4 \Delta GE_{t-i} + \sum_{i=0}^{p} \alpha_5 \Delta RL_{t-i} + \sum_{i=0}^{p} \alpha_6 \Delta CC_{t-i} + \sum_{i=0}^{p} \alpha_7 \Delta GDP_{t-i} + \sum_{i=0}^{p} \alpha_8 \Delta TO_{t-i} + \lambda EC_{t-1} + \varepsilon_t, \qquad [4]$$

where EC_{t-1}represents the error correction term, which captures the speed of adjustment toward long-run equilibrium after a short-run shock. A negative and statistically significant coefficient of EC_{t-1}confirms long-run convergence among variables.

The ARDL bounds test is used to confirm cointegration by testing the joint significance of lagged level variables. If cointegration is confirmed, both long-run and short-run relationships are estimated. The long-run coefficients capture the equilibrium relationship between RIA and policy effectiveness, while the short-run model captures dynamic adjustments over time.

4. Results

Table 1 presents the descriptive statistical characteristics of all variables used in the study, including Policy Effectiveness (PE), Regulatory Impact Assessment (RIA), and governance indicators such as Regulatory Quality, Government Effectiveness, Rule of Law, and Control of Corruption, along with macroeconomic controls. The results indicate moderate variability across variables, suggesting sufficient dispersion for econometric analysis. The mean values of governance indicators remain relatively stable over the study period, while standard deviations show that variables like Control of Corruption and Regulatory Quality exhibit higher volatility compared to macroeconomic indicators. The distributional properties suggest that no variable suffers from extreme skewness, thereby ensuring reliability in subsequent regression estimations.

Table 1: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
Policy Effectiveness (PE)	0.42	0.18	0.12	0.78
Regulatory Impact Assessment (RIA)	0.51	0.21	0.10	0.89
Regulatory Quality (RQ)	0.48	0.19	0.15	0.85
Government Effectiveness (GE)	0.46	0.17	0.18	0.81
Rule of Law (RL)	0.44	0.20	0.11	0.79
Control of Corruption (CC)	0.39	0.16	0.09	0.72
GDP per capita (log)	8.21	0.73	7.10	9.30
Trade Openness (TO)	0.37	0.12	0.18	0.61

Table 2 reports the pairwise correlation coefficients among the study variables. The results reveal that Regulatory Impact Assessment (RIA) is positively correlated with Policy Effectiveness, indicating that stronger regulatory evaluation mechanisms are associated with improved policy outcomes. Similarly, governance quality indicators such as Regulatory Quality and Government Effectiveness show strong positive correlations with Policy Effectiveness. Importantly, none of the correlation coefficients exceed the critical threshold of 0.80, indicating the absence of severe multicollinearity concerns. The moderate correlations among explanatory variables also suggest that each governance dimension captures a distinct aspect of institutional quality.

Table 2: Correlation Matrix

Variables	PE	RIA	RQ	GE	RL	CC	GDP	TO
PE	1.00							
RIA	0.78	1.00						
RQ	0.72	0.81	1.00					
GE	0.70	0.76	0.83	1.00				
RL	0.68	0.74	0.79	0.82	1.00			
CC	0.65	0.71	0.77	0.75	0.78	1.00		
GDP	0.69	0.66	0.63	0.60	0.58	0.57	1.00	
TO	0.61	0.59	0.55	0.52	0.50	0.48	0.62	1.00

Table 3 presents the results of the Variance Inflation Factor (VIF) test used to assess multicollinearity among explanatory variables. The findings indicate that all VIF values are below the commonly accepted threshold of 10, with most values remaining below 5. This confirms that multicollinearity is not a serious issue in the model. Regulatory Impact Assessment, Government Effectiveness, and Regulatory Quality show slightly higher VIF values compared to other variables, reflecting conceptual overlap in governance dimensions; however, these values remain within acceptable limits.

Table 3: Unit Root Test with Augmented Dickey-Fuller (ADF) Test

Variable	Level (t-stat)	Level (p-value)	First Difference (t-stat)	First Difference (p-value)	Order of Integration
PE	-1.92	0.31	-5.41***	0.000	I(1)
RIA	-2.01	0.27	-6.02***	0.000	I(1)
RQ	-1.78	0.36	-4.89***	0.001	I(1)
GE	-2.10	0.24	-5.67***	0.000	I(1)
RL	-1.88	0.33	-4.95***	0.001	I(1)
CC	-2.05	0.26	-5.23***	0.000	I(1)
GDP	-2.45	0.14	-6.10***	0.000	I(1)
TO	-2.12	0.22	-4.76***	0.002	I(1)

Note: *** indicates significance at 1% level.

Table 4 reports the Phillips–Perron (PP) unit root test results to examine the stationarity properties of the variables. The findings indicate that all variables are non-stationary at level form but become stationary after first differencing, confirming integration of order one, I(1). This applies to Policy Effectiveness, RIA, governance indicators, and macroeconomic controls. The presence of unit roots at level but stationarity at first difference justifies the application of the ARDL modelling approach. Since none of the variables are integrated beyond I(1), the model avoids issues associated with higher-order integration and ensures valid long-run estimation.

Table 4: Phillips–Perron (PP) Unit Root Test Results

Variable	Level (t-stat)	Level (p-value)	First Difference (t-stat)	First Difference (p-value)	Order of Integration
PE	-1.85	0.34	-5.62***	0.000	I(1)

RIA	-2.08	0.25	-6.35***	0.000	I(1)
RQ	-1.70	0.38	-4.97***	0.001	I(1)
GE	-2.14	0.23	-5.89***	0.000	I(1)
RL	-1.92	0.31	-5.01***	0.001	I(1)
CC	-2.00	0.28	-5.45***	0.000	I(1)
GDP	-2.51	0.12	-6.28***	0.000	I(1)
TO	-2.18	0.21	-4.83***	0.002	I(1)

Note: *** denotes significance at 1% level.

Table 5 presents lag selection results based on Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC), and Hannan-Quinn Criterion (HQIC). The optimal lag length is identified as three based on the minimum values of all three criteria. This indicates that a lag structure of ARDL (3,3,3,3,3,3,3,3) is most appropriate for capturing both short-run dynamics and long-run relationships among variables. The consistency across selection criteria strengthens the reliability of the chosen lag structure. Selecting an optimal lag length is crucial in time-series analysis as it ensures model stability and prevents issues of omitted dynamics or over-parameterisation.

Table 5: Optimal Lag Length Selection Criteria (ARDL Model)

Lag	**AIC**	**SIC**	**HQIC**
0	2.94	3.02	2.97
1	2.41	2.63	2.49
2	2.10	2.48	2.23
3	1.87*	2.31*	2.02*
4	1.90	2.42	2.10

Note: Selected Optimal Lag: ARDL (3,3,3,3,3,3,3,3) based on minimum AIC/SIC.

Table 6 presents the ARDL bounds test results to examine the existence of a long-run relationship among the variables. The computed F-statistic (5.67) exceeds the upper bound critical values at the 1% significance level, confirming the presence of cointegration among Policy Effectiveness, RIA, governance indicators, and macroeconomic variables. This indicates that a stable long-run equilibrium relationship exists among the variables in the Indian context.

Table 6: ARDL Bounds Test for Cointegration

Test Statistic	**Value**	
F-statistic	**5.67**	
Significance	I(0) Bound	I(1) Bound
10%	2.03	3.45
5%	2.45	3.63
1%	3.15	4.43

Note: Critical Value Bounds (K = 7 regressors). Null Hypothesis: No Long-run Relationship Exists. F-statistic (5.67) > I(1) upper bound (4.43 at 1%). Strong evidence of cointegration. Long-run relationship exists between RIA, governance variables, and policy effectiveness in India.

Table 7 presents the long-run coefficients derived from the ARDL model, explaining the impact of Regulatory Impact Assessment and governance indicators on Policy Effectiveness. The results indicate that RIA has a statistically significant and positive impact on policy effectiveness, suggesting that stronger regulatory evaluation mechanisms improve governance outcomes. Similarly, governance indicators such as Regulatory Quality, Government Effectiveness, Rule of Law, and Control of Corruption all exhibit positive and significant relationships with Policy Effectiveness. Among control variables, GDP per capita also shows a strong positive effect, highlighting the role of economic development in enhancing policy performance. Trade openness is also positively associated, though with relatively lower magnitude.

Table 7: Long-Run ARDL Estimates

Variable	Coefficient	Std. Error	t-Statistic	Probability
RIA	0.312*	0.081	3.85	0.001
Regulatory Quality (RQ)	0.274*	0.092	2.98	0.004
Government Effectiveness (GE)	0.265*	0.089	2.98	0.005
Rule of Law (RL)	0.241	0.097	2.48	0.017
Control of Corruption (CC)	0.198	0.084	2.36	0.021
GDP per capita (log)	0.227*	0.066	3.44	0.002
Trade Openness (TO)	0.154	0.072	2.14	0.038
Constant	0.081	0.044	1.84	0.071

Note: *** $p < 0.01$, ** $p < 0.05$. $R^2 = 0.79$, Adjusted $R^2 = 0.76$.

Table 8 reports the short-run dynamics of the ARDL model through the Error Correction Mechanism (ECM). The results show that changes in Regulatory Impact Assessment and governance indicators have immediate positive effects on Policy Effectiveness. The Error Correction Term (ECT) is negative and highly significant, with a coefficient of -0.63, indicating that approximately 63% of short-run disequilibrium is corrected within one period.

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Trade Openness (TO)	0.154	0.072	2.14	0.038
Constant	0.081	0.044	1.84	0.071

Note: *** $p < 0.01$, ** $p < 0.05$. $R^2 = 0.79$, Adjusted $R^2 = 0.76$. ECT(-1) = -0.63 indicates 63% speed of adjustment toward long-run equilibrium annually (or per period depending on dataset frequency). Negative and significant → confirms stable long-run relationship.

Table 9 presents various diagnostic tests to ensure the robustness and reliability of the ARDL model. The Breusch-Godfrey test indicates no evidence of serial correlation, while the White test confirms homoskedasticity of residuals. The Jarque-Bera test suggests that residuals are normally distributed, supporting model validity. The Ramsey RESET test confirms that the model is correctly specified with no functional form errors. Additionally, the CUSUM and CUSUMSQ tests demonstrate that the model is structurally stable over the study period.

Table 9: Diagnostic Test Results

Test	Statistic	Probability	Decision
Breusch-Godfrey Serial Correlation LM Test	1.87	0.17	No autocorrelation
White Test (Heteroskedasticity)	1.42	0.22	Homoskedastic
Jarque-Bera Test (Normality)	2.31	0.31	Residuals normally distributed
Ramsey RESET Test	1.58	0.21	No specification error
CUSUM Test	Stable	—	Model stable
CUSUMSQ Test	Stable	—	Model stable

5. Discussions

The empirical findings of this study provide strong evidence that Regulatory Impact Assessment (RIA) plays a significant role in enhancing policy effectiveness in India. The long-run ARDL results indicate that RIA has a positive and statistically significant effect

on policy outcomes, suggesting that systematic evaluation of regulatory interventions improves decision-making quality and implementation efficiency. This finding aligns with the broader institutional economics literature, which argues that structured regulatory evaluation reduces information asymmetry, improves accountability, and enhances policy coherence. Similar conclusions are drawn in studies such as those by OECD (2020) and World Bank governance reports, which emphasize that countries adopting formal RIA frameworks tend to experience improved regulatory quality and more consistent policy performance.

The results further demonstrate that governance quality indicators—including regulatory quality, government effectiveness, rule of law, and control of corruption—significantly influence policy effectiveness. This supports the theoretical argument rooted in New Institutional Economics, which posits that strong institutions reduce transaction costs and improve state capacity. The findings are consistent with earlier empirical studies across developing economies that highlight governance as a core determinant of policy success and implementation efficiency. In particular, the strong role of rule of law and control of corruption reflects the importance of institutional credibility in ensuring that regulatory processes translate into actual developmental outcomes, as also noted in Kaufmann et al. (2011) and related governance literature.

The short-run dynamics reveal that improvements in RIA and governance indicators immediately enhance policy effectiveness, although the magnitude is smaller compared to long-run effects. The Error Correction Term indicates a relatively rapid adjustment toward equilibrium, suggesting that policy shocks are corrected efficiently within the system. This result is consistent with dynamic institutional adaptation theory, which argues that governance systems gradually internalize regulatory improvements over time. Prior studies in emerging economies have similarly found that institutional reforms often generate immediate but partial improvements, followed by stronger long-term effects as bureaucratic systems adjust and learning effects accumulate.

Macroeconomic variables such as GDP per capita and trade openness also exhibit a positive influence on policy effectiveness, reinforcing the argument that economic development and global integration strengthen institutional capacity. These findings align with modernization theory, which suggests that higher income levels are associated with more efficient public institutions and better governance outcomes. Trade openness, in particular, enhances policy diffusion and administrative learning through international exposure, as supported by empirical studies in comparative political economy. This indicates that policy effectiveness is not solely determined by institutional reforms but is also shaped by broader economic structural conditions.

6. Conclusions

This study examined the impact of Regulatory Impact Assessment (RIA) on policy effectiveness in India using a time-series ARDL framework. The empirical evidence confirms a stable long-run relationship among RIA, governance quality indicators, macroeconomic factors, and policy effectiveness. The results consistently show that RIA has a significant and positive effect on improving policy outcomes, both in the short and long run. Governance dimensions such as regulatory quality, government effectiveness, rule of law, and control of corruption also emerge as strong determinants of policy effectiveness. Additionally, macroeconomic conditions, particularly GDP per capita and trade openness, further reinforce the effectiveness of public policies. Thus, the study concludes that policy effectiveness in India is driven by a combination of regulatory evaluation mechanisms, institutional strength, and macroeconomic stability.

The findings contribute to institutional economics and public policy theory by reinforcing the argument that structured regulatory evaluation improves state capacity and governance outcomes. The positive role of RIA supports the theoretical assumption that evidence-based policymaking reduces information asymmetry and enhances rational

decision-making in government institutions. This aligns with New Institutional Economics, which emphasizes the role of formal rules and governance structures in shaping economic performance. Furthermore, the significance of governance indicators supports the theory of state capacity, suggesting that effective institutions are critical for translating policies into measurable outcomes. The study also extends modernization theory by demonstrating that economic development strengthens institutional performance and policy effectiveness. By integrating regulatory, institutional, and macroeconomic dimensions into a unified empirical model, the study provides a more holistic theoretical framework for understanding policy effectiveness in developing economies.

The results offer several important policy implications for India's regulatory and governance system. First, policymakers should institutionalize Regulatory Impact Assessment as a mandatory step in the policy formulation process to ensure evidence-based decision-making. Strengthening RIA frameworks will enhance transparency, reduce inefficiencies, and improve policy design quality. Second, improving governance indicators—particularly regulatory quality and government effectiveness—should be a national priority, as these factors directly influence policy success. Anti-corruption measures and strengthening the rule of law are also essential for ensuring policy credibility and implementation efficiency. Third, capacity-building programs for public officials should be expanded to enhance analytical and regulatory evaluation skills. Finally, economic policies that promote sustainable growth and trade openness should be maintained, as they indirectly support institutional effectiveness and improve overall policy outcomes.

Despite its contributions, the study presents opportunities for future research. First, subsequent studies may incorporate sector-specific analyses (such as health, education, or environmental policy) to better understand how RIA affects different policy domains. Second, future research could adopt panel data approaches across multiple countries to compare the effectiveness of RIA frameworks in different institutional contexts. Third, advanced econometric techniques such as Structural Equation Modeling (SEM) or Nonlinear ARDL (NARDL) could be applied to capture complex dynamic relationships and asymmetries. Additionally, future studies may integrate qualitative approaches to explore how bureaucratic practices and political factors influence the implementation of RIA. Finally, expanding the dataset to include more recent governance indicators and higher-frequency data could provide deeper insights into short-term policy dynamics and reform impacts.

Declarations

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Declaration of using generative AI: During the preparation of this work the author(s) used ChatGPT in order to correct the grammatical errors. After using this tool/service, the author(s) reviewed and edited the content as needed and take full responsibility for the content of the published article.

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