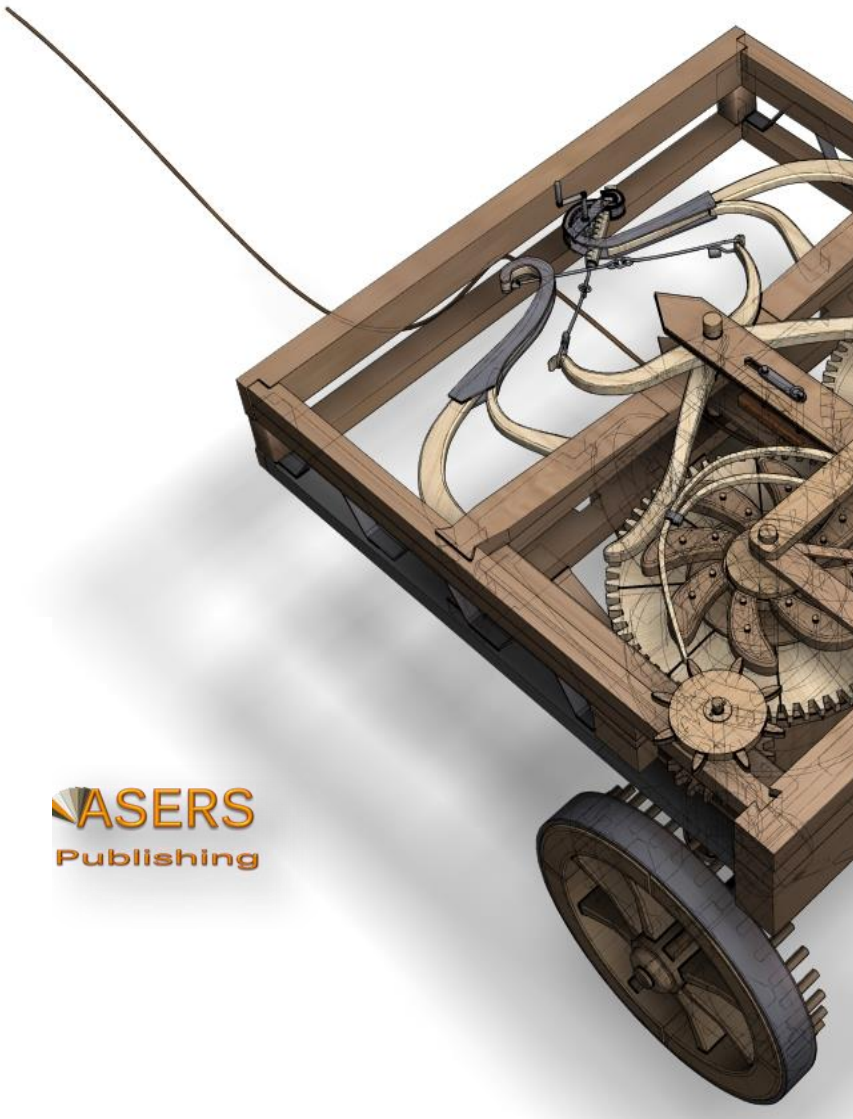
Theoretical and Practical Research in Economic Fields



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Volume XV, Issue 1(29), Summer 2024
Theoretical and Practical Research in Economic Fields

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Did the Economic Reforms Change the Macroeconomic Drivers of the Indian Economy in the Post-Reform Era? An ARDL Bounds Test Approach

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Abstract: ***Purpose:*** *The purpose of this study is to investigate the macroeconomic forces that have been driving the Indian economy during both the pre-reform and post-reform eras, that is, from 1950-1951 to 1990-1991 and from 1991-1992 to 2022-2023 respectively.*

Problem: *The Indian economy underwent significant economic and financial sector reforms in 1991-92, with the goal of reviving its stagnant growth. These reforms are intended to spur the economic growth of India. What were the main forces behind the Indian economy before and after the reforms? Is the research question. The goal of the current study is to determine if the economic reforms shifted or maintained the pre-reform era's driving forces for the Indian economy in the post-reform era.*

Design/Methodology/Approach: *The gross domestic product (GDP), the gross domestic savings (GDS), the private consumption expenditure (PFCE), the government final consumption expenditure (GFCE), the inflation rate, the exchange rate, the exports, the imports, the internal and external borrowings of the government, personal remittances, foreign direct investment (FDI), and foreign portfolio investments (FPI) are all taken into consideration in order to fill the research gap that has been identified as a result of the comprehensive review of the literature. Following an analysis of the selected variables' fundamental characteristics, an econometric model is developed using the Autoregressive Distributed Lag (ARDL) Bounds Test Model.*

Findings: *There is no evidence of long-run causation and association between the variables, but the findings of the ARDL Bounds Test showed that in the pre-reform period, PFCE is the major driver of the GDP in the short-run, with strong support from imports. However, since the reform, PFCE, GDS, and Exports are the primary short- and long-term contributors to GDP.*

Practical Implication*: These findings indicate that India's macroeconomic system is shifting. The Indian economy has undergone a dramatic shift, moving away from a reliance on imports and toward one that is consumer-driven and export-driven. As savings and consumer expenditures are the main drivers of the Indian*

economy's growth in the post-reform era, policies should be designed to increase savings and consumption as well as increase exports.

Keywords: economic growth; domestic savings; private consumption expenditure; government consumption expenditure; inflation.

JEL Classification: O11; P52; P41.

Introduction

Due to a severe economic and financial crisis, the Indian economy experienced significant shifts in the year 1991-92. The period known as the pre-reform period began with the declaration of the Independence and ended with the year that economic reforms were put into effect (1950-51 to 1991-92). The post reform period followed the implementation of the reforms (from 1991-92 to 2022-23). The Indian economy transitioned from a controlled state economy (1950-51 to 1991-92) to one that was heavily influenced by the market forces (1991-92 to 2022-23).

Following the independence, the Indian economy underwent structural changes. The Indian economy is set up to be mixed, with the public and private sectors coexisting. Increasing employment opportunities, industrialization, reducing the income disparities and decentralization of economic power are the main objectives of India's economic plans. various strategies were followed by the Planning Commission of India during the pre-reform period to achieve these objectives.

During this pre-reform period, the government was heavily involved in economic development and planning. To boost the country's economic performance, Indian policymakers instituted the Green Revolution (1960-70), which was farmers try to raise agricultural productivity by introducing high-yielding varieties of seeds, modern farming methods and better irrigation. To promote economic growth and provide financial services to the rural community, the Indian government nationalized banks in two phases. Along with establishing numerous industrial plans, India's economic planners also conducted several poverty alleviation programs to alleviate socioeconomic inequalities and provide the groundwork for the country's capital goods industry.

The Indian economy encountered several difficulties and setbacks throughout this period. Before the reforms, the country's GDP growth rate was relatively modest, averaging three to four percent annually. Inefficiencies and a lack of competition were caused by aggressive government intervention and control over many industries. Key industries were controlled by the public sector, which resulted in red tape, corruption, and poor performance. India implemented an Import Substitution Industrialization (ISI) strategy, emphasizing homegrown manufacturing of goods to reduce dependence on imports. Nevertheless, this approach frequently contributed to manufacturing of inferior goods, inefficiencies, and a loss of competition in the global marketplace. The country was struggling with a long-term imbalance in trade and falling foreign exchange reserves. The rupee's overvaluation was an aspect in this issue. Persistent high rates of inflation reduced people's purchasing power and endangered the resilience of the economy as a whole. The government's policies of funding deficit often made inflationary pressures worse. Both the growth of industry and the development of the economy were hindered by a lack of infrastructure, including electricity shortages, inadequate transportation, and an absence of modern services. Strict regulations and a great deal of bureaucratic red tape restricted the growth of companies and disappointed entrepreneurship. Investment was thwarted by the laborious procedure of obtaining licenses and approvals. Poverty and inequality persisted despite economic expansion. Due to the uneven distribution of the benefits of growth, there is a substantial disparity in wealth between different sections of the society.

India from the beginning depends on the mobilization of domestic savings especially from households and corporations to undertake capital projects. But unfortunately, due to vicious circles of poverty, a sufficient amount of savings could not be mobilized. Though the rate of domestic savings increased from 14 percent to 28 percent during the pre- and post- reform periods it is not sufficient when compared to international standards. Hence, the government of India started borrowing money from both internal and external sources. Since the savings are low, the internal borrowings are lesser than the external borrowings. India still depends on external borrowings heavily both in the pre- and post-reform period, but the nature of utilization of these borrowings has shifted. Government expenditure or public expenditure also plays an important role in the process of economic development of underdeveloped countries. Internal and external borrowings of the government form part of the government expenditure. The efficacy of the public debt can be judged based on the nature of the government spending, if the government spends the money on projects or programs that do not generate income and employment in the long run, then the very purpose of borrowing money will be wasted and that will create financial disturbances in the economy in the long-run. Recently, many economies have been characterized by

consumption-based economies rather than savings-based economies. Gross Domestic Product (GDP) is a key economic indicator that represents the total monetary value of all goods and services produced within a country's borders during a specific period, typically a year or a quarter. The most commonly used approach is Expenditure Approach to measure GDP. It measures GDP by adding up all the expenditures made within a country, which include consumption, investment, government spending, and net exports. GDP=C+I+G+ (Exports-Imports). C represents consumer spending, I represent Investment spending, and G represents government spending. The average private final consumption expenditure accounts for 80 percentage of GDP during the pre-reform era and it went down to an average of 60 percentages during the post-reform era. Private final consumption expenditure (PFCE) plays a critical role in improving the performance of the economy in both periods. India heavily depends on importing crude oil which is known as the engine of the economy and the payments are made in the US Dollars. The Balance of trade is severely affected by the changes in the crude oil prices and the exchange rates. In the process of economic growth of any economy, it is a natural phenomenon that imports are greater than exports since crude oil, technology, machinery, equipment, etc., are imported from other countries to lay foundation for the economic growth and India exports basic raw materials and agricultural products. The balance of trade has been always negative due to greater imports than exports and the devaluation of the Indian currency against the US Dollar.

To improve the state of the economy and get over the enduring socioeconomic problems, such as the serious balance of payments crisis, declining foreign exchange reserves, mounting levels of external debt, and slower growth in the economy, the Indian government proclaimed a structural shift in the economy under the guise of globalization, privatization, and liberalization. The main driving forces that have shaped the economy since then including welcoming international corporations into the country, integrating the domestic economic and financial sectors with the rest of the world. Both foreign direct investment and foreign portfolio investments started coming to the Indian economy as a result of globalization. FDI is a long-term investment and has a long-lasting impact on the economy as portfolio investment from overseas is highly volatile and creates economic shocks. India received Rs. 39,63,879 Crore of FDI and Rs.13,67,625 Crore of FPI during the post-reform period. When migrants send home part of their earnings in the form of either cash or goods to support their families, these transfers are known as workers' or migrants' remittances. They have been growing rapidly in the past few years and now represent one of the biggest sources of foreign income for many developing countries. Personal remittances include personal transfers and compensation of the employees. Personal transfers consist of all current transfers in cash or in kind made or received by resident households to or from non-resident households. India is one of the world's largest recipients of remittances and received USD 87 Billion during the year 2020-21, and out of these 20 percentages of remittances are coming from the US as per the World Bank reports. Remittances flows tend to be more stable than foreign capital flows, and they also tend to be countercyclical – increasing during the economic downturn or after a natural disaster in the migrants' home countries. More recently remittances proved to be resilient during the financial crisis in source countries such as the US or western EU. Before the era of globalization, which can be roughly considered as before the 1990s in the case of India, the movement of people across borders was relatively limited. Remittances during this period were typically sent by Indians working in countries with historical ties, such as the Middle East, the United Kingdom, and other Commonwealth nations. During this time, remittances were significant but not as large as they became in the post-globalization era. The process of sending and receiving remittances was often more cumbersome, involving traditional banking channels and paperwork. However, these remittances played a crucial role in supporting families and sometimes even had an impact on local economies. With the advent of globalization, labor migration from India to several nations throughout the world increased significantly. For Indian workers looking for better employment possibilities, the Gulf nations, the United States, Canada, and other industrialized countries were important destinations. Remittances significantly increased as a result of this growth in labor mobility.

Since 1991–1992, these reforms have been a turning point in India's economic trajectory. Although they brought about some difficulties and adjustments, they ultimately helped to promote more economic expansion, more foreign capital inflows, and a more interconnected global economy. By focusing on the important macroeconomic factors, this research aimed to explore the primary economic forces that shaped the economy before and after the reform.

1. Literature Review

A. Theoretical Evidence

Economists developed a variety of growth models in the post-World War-II period and countries adopted different economic models which suited their socioeconomic conditions to enhance the economic growth process. For the classical economists from Adam Smith, and notably, Ricardo, Marx, and Malthus understanding the process of economic growth and what determines then rate of growth is a central issue in development economics (Stern 1991). According to the neo-classical theory of economic growth (Solow 1956), economies will expand more quickly in nations with higher savings rates and lower population growth rates (N.Gregory Mankiw, David Romer, 1992).

Financial resources play a paradigm role in the economic development of any nation. At the early stage of economic development, domestic savings are the major source for driving the economy (Kuznets 1955), and sourcing financial resources internally by mobilizing the savings of the various sectors of the economy for economic development has been propounded by Harrod (1939) - Domar (1946). The reason behind giving top priority to domestic savings for economic development is the policymakers believed that economic growth achieved with domestic savings is more sustainable than the growth that is achieved through borrowed capital (Patra *et al.* 2017a). Higher savings lead to higher investment which in turn will increase real output and employment (Lewis W.A. 1954). But the domestic savings again will depend on economic growth and other macroeconomic factors, hence without achieving a sufficient amount of economic growth, it is not possible to enhance the domestic savings which will again lead the economic growth. During the pre-reform era, the average rate of domestic savings was 14 percent of the GDP which was not sufficient to encourage economic growth. Poverty and unemployment discouraged domestic savings during this period (Martin Muhleisen 1997). When governments fail to meet their growth needs, they are obliged to welcome financial assistance mostly from the external sector (Dey and Tareque 2020). Borrowings by the government either from inside or outside the nation is another important source of money for economic development which is known as external or internal public debt. Too much public debt reduces economic growth performance. The external borrowings should be used for long-term growth and create employment opportunities, on the contrary, if this debt is used for non-growth purposes, it will create fiscal imbalances and the country will be vulnerable to external shocks and crisis (Poirson 1998; Gazi M Hassan and Mark J Holmes 2013). The average public debt was around 37 percentage of the gross domestic product of India during the pre-reform period which was used mainly for poverty alleviation and non-capital expenditure purpose and hence the public debt could not achieve its targeted purpose.

Poor countries with sound economic policies benefit directly from the policies and in this environment, foreign aid accelerates growth (Dollar 2014). Most underdeveloped countries depend heavily on external resources to increase their per capita income (Hollis B Chenery 1966). In case the domestic resources fall short of what has to be raised, it is rational to seek foreign aid from foreign sources. The implication is that foreign aid positively contributes to the economic growth of many developing countries (Hollis B Chenery 1966).

Apart from domestic and external finance, another important macroeconomic driver is the Government Final Consumption Expenditure (GFCE), and the relationship between GFCE and GDP has received much attention in recent years as economists and politicians try to figure out how government spending affects the growth of an economy (Segun and O. A. 2015). Empirical studies revealed that government expenditure has been rising across economies and across times but this increase has not produced the same effect across time and regions leading to doubt as to the efficacy and potency of the Keynesian fiscal policy as a veritable instrument of economic stabilization (Matthew and Dada 2013). The government undertakes expenditures to pursue a variety of goals, one of which may be an increase in per-capita income (Devarajan *et al.* 1996). The efficiency of government expenditure can be judged when these resources are utilized to the maximum extent and this public expenditure is more effective in promoting economic growth when these resources are secured from external sources (Kimaro *et al.* 2017). In the case of developing economies like India, government spending tends to diminish economic growth since the majority of public projects rely on the importation of technology and other compulsory resources (Prasetyo and Zuhdi 2013). The share of imports out of the public expenditure during the pre-reform period was around 87 percent and it increased to 213 percentage during the post-reform era. A striking feature of the recent economic development of many countries is that government investment plays a relatively minor role (Kharroubi and Kohlscheen 2017).

Apart from Public spending, private consumption expenditure also plays a key role in Keynesian economics and the relationship between private consumption expenditure and GDP has been the focus of much research in economics (Hong and Seng 2019). As such, Keynes (1936) argues that changes in aggregate private

consumption are caused primarily by changes in the current real national income. Keynes suggested that individuals tend to increase consumption as their income increases, but to a lesser extent and the modern economies are developing to a greater extent of modernization and the standard of living is rising, the levels of consumption and income increase (Deacon and Maha 2015). GDP growth has increasingly been led by consumption and private consumption has been one of the key drivers of demand growth in the past few years in many economies (Kharroubi and Kohlscheen 2017).

Among all the macroeconomic variables, International trade has a great role in the process of reaching desired economic growth (Ezzaher *et al.* 2022). Trade liberalization is a prerequisite to a transition from relatively closed to relatively open economies (Pradeep Agarwal 2014). It has been widely argued that public debt can stimulate aggregate demand and have a positive growth effect in the short-run and this public debt crowds out private investment and deteriorates economic performance in the long run (Calderón and Fuentes 2013). Neoclassical economists have observed since the 1960s that tax hikes to pay for interest on the nation's rising domestic and international government debt harm gross capital stock formation (Peter A. Diamond*, 1965).

As noted by Alfaro and Charlton (1996), Borensztein, E., De Gregorio J. (1998), Hirschman A. (1958), the rate of growth of a lower-income country depends on the extent to which this country adopts and implements advanced technologies applied in higher-income countries. FDI by multinational corporations based in higher-income countries is considered a major mechanism through which lower-income countries may access advanced technologies (Findlay 1978). FDI is widely regarded as a composite bundle of capital inflows, knowledge, and technology transfers. FDI can promote growth through productivity gains resulting from spillovers to local firms (Balasubramanyam 1996). The nexus between FDI and economic growth has remained vexing and inconclusive in the history of pre and post-liberalization studies of development economics (Jana *et al.* 2019). FDI and economic growth relationship cannot be generalized mainly because it is highly subject to alteration with changing institutional, policy, and regulatory environment (Herzer *et al.* 2008). The relationship between inflation and economic growth in developing countries is a subject on which there are still very wide differences of opinions (Wai 1959) The economists believe that appropriate rate of inflation is essential for economic growth, whereas the monetarists see inflation is detrimental to economic progress (Salian, n.d.) (Atigala *et al.* 2022).

B. Empirical Evidence

Patra *et al.* (2017b), Pravakar Sahoo (2016), Jangili (2011) investigated the relationship between the Gross Domestic Product and domestic savings and discovered a causal relationship that runs from GDP to domestic savings. Their findings are consistent with the idea that economic growth affects saving. However, Sinha and Sinha (1998) found that there is no causality between them. Verma (2015), Yadav *et al.* (2018) found that domestic savings strongly affect the gross domestic product and causality is directed from savings to growth. Besides increasing the savings, strengthening the financial markets which converts the savings into investments is advocated by Patra *et al.* (2017b), Seth *et al.* (2020). Bidirectional causality is found between domestic savings and economic growth (Hashmi and Sedai, 2016) and in their study savings are positively associated with GDP growth and quite opposite results are found in (Upendra M, 2007) which states that there is not relation between them.

Ahuja and Pandit (2020), Manoj Kumar DAS (2020), Devarajan *et al.* (1996) found that there is a unidirectional causality running from public expenditure to economic growth, and the results support the Keynesian framework that government expenditure stimulates economic growth, but the results (Landau 2013) showed that there is a negative association between government expenditure and economic growth. Export-led growth hypothesis (ELGH) has been proved in the result of (Pradeep Agarwal 2014) and causality is running from exports to economic growth during the post-reform period. Reddy (2020) found that both exports and imports increase economic growth in India. But in another study (Raghuramapatruni and Reddy 2020) exports are positively associated with economic growth while imports are negatively related to economic growth in India

Barik and Sahu (2022), Manik and Khan (2018) found that both internal and external debt has a significant negative effect on economic growth in India in the long run, but Singh (2018) found that the effect of domestic debt on economic growth in India is neutral which supports the Ricardian equivalence hypothesis. Rangarajan and Srivastava (2005) argued that recent growth has been negatively impacted by substantial structural primary deficits and interest payments relative to GDP. It is obvious that the ratio of total debt to GDP, which is currently above 80% of GDP, needs to be reduced and even (Bal and Rath 2014) results also supports that central government debt, total factor productivity growth and debt services are affecting the economic growth in the short-run.

Causality is running from GDP to FDI (Chakraborty and Mukherjee 2012) and the trade liberalization policy of the Indian government had some positive short-run impact on the FDI flows and quite opposite results are found in (V.Reddy Dondeti and Bindu B. Mohanty, 2007) where causality is running from FDI to GDP and the study confirmed that FDI promotes economic growth, but Real Effective Exchange Rate is negatively affecting FDI inflows (Manoj Kumar DAS, 2020). A one percent increase in FDI would result in a 0.07 percent increase in GDP in China and a 0.02 percent increase in Indian GDP (Agrawal and Khan 2011). This indicates that India is not able to take immediate advantage of the FDI in increasing the GP, but may become possible in the long run. FDI flows into India improved the total factor productivity growth through a positive spillover effect (Choi and Baek 2017). Sahoo and Sethi (2017) finds that in the long-run domestic investment has shown a significant positive impact on economic development whereas Official Development Aid (ODA), and FDI have shown a negative impact on the GDP of 14 countries. Government final consumption expenditure and foreign direct investments have a positive and significant impact on the economic growth and exchange rate and foreign aid harms economic growth (Manoj Kumar DAS, 2020). Inflation harms GDP in India (Salian, n.d.). Veni and Choudhury (2007) found in their results that economic growth and inflation are independent of each other. The oil prices, the wholesale price Index (WPI), Consumer Price Index (CPI) inflaiton rates and industrialization positively affect India's economic growth (Al Dulaimi 2022).

It is also found that energy use, trade, capital flows, labour, human capital development and FDI play a positive and significant impact on the economic growth of large economies including India (Rahman and Alam 2021). (Gulshan Farooq Bhar 2022) found that gross fixed capital formation rate, exports played a vital role in the economic growth of China, Japan, South Korea and India and suggested that improvement in technology, reduction in corruption are recognized for the benefit of growth and development. Gulshan Farooq Bhar (2022) indentified in their research that environmental sustainability, renewal energy practices and regulatory pressure and ecofriendly polcies and sustainable use of natural resources considered as green economic growth and environmental sustainability.

2. Research Gap

Reviewing the substantial amount of previous research work on the macroeconomic drivers of the Indian economy done in this field reveals that there is a significant knowledge gap in the outcome of the analysis, which means that the previous conclusions on the macroeconomic factors of India contradict one another. The vast majority of previous research has been centered on domestic savings, foreign direct investments, and their impact on economic growth. Based on the extensive review of past research work, apart from the above-mentioned variables, some other macroeconomic variables like Private Final Consumption Expenditure (PFCE), Government Final Consumption Expenditure (GFCE), Internal and external borrowings of the government, exchange rate, inflation rate, exports, imports, foreign portfolio investments, personal remittances also affect the performance of the Indian economy. However, previous research has given these factors the least amount of weight possible. There has been very little research done on the macroeconomic drivers of the Indian economy before and after the economic reforms to examine the changes in the drivers of the Indian economy during these two periods. As a consequence of this, the research in question makes use of voluminous macroeconomic data and divides the investigation into two parts, such as before and after the economic reforms, to investigate the possibility of a regime shift.

3. Research Objectives and Rationale of the Study

The purpose of this research paper as well as the motivation behind it, is to investigate the primary macroeconomic drivers of the Indian economy both before and after the implementation of the economic reforms in 1991 - 92. It is hypothesized that the economic reforms changed the macroeconomic drivers in the post-reform period. This research is being carried out to evaluate this notion. For the study, the 1950 - 51 to 1990 - 91 period is known as the pre-reform period, while the 1991 - 92 to 2022 - 23 period is known as the post-reform period.

4. Research Methodology

4.1. Variables and Data

The following macroeconomic variables have been identified based on the review of the literature and to address the research gap. Gross Domestic Product(GDP), Gross Domestic Savings (GDS), Government Final Consumption Expenditure (GFCE), Private Final Consumption Expenditure (PFCE), Government Internal Borrowings (Internal Debt), Government External Debt (ED), Exchange Rate (ER), Exports, Imports, Inflation

Rate are the hypothesized variables that drove the Indian economy during the pre-reform period and apart from the previously mentioned variables, Foreign Direct Investments (FDI), Foreign Portfolio Investments (FPI) and Personal Remittances Paid by India (PRP) are identified as other key drivers of the Indian economy during the post-reform era. Annual time series observations for these variables have been collected from the Economic Survey Reports, Handbook of Statistics of the Indian Economy, and Report on Currency and Finance of Reserve Bank of India (RBI).

4.2. Research Design

In light of the fact the data is related to the time series, an appropriate econometric model ought to be developed to conduct further research. To get a normal distribution for the data, the original values of all the variables are transformed into natural logarithm form. As a result, the prefix "differenced log" (DL) is added to the beginning of each variable such as DL GDP. To design a suitable econometric model, it is necessary to apply fundamental tests of features such as Normality, Autocorrelation, Homoscedasticity, and Multicollinearity. The data and the variables are cleaned according to the results of the tests that were run previously. A test of stationarity is carried out so that the Johansen Cointegration or Auto-Regressive Conditional Heteroscedasticity (ARDL) test can be selected. If all the variables are stationary in the same order either at the original data I (0) or at the first difference I (1), then the Johansen Cointegration test is the appropriate model. If, on the other hand, the variables are integrated in different orders, then the ARDL model should be used to investigate short-run and long-run association among the variables. ARDL Bounds test for long-run association and Error Correction Model for returning to the equilibrium or speed of adjustment is conducted after the ARDL Test. The Engle-Granger Causality test is conducted to understand the cause and effect among the variables. The target variable is Gross Domestic Product (DLGDP) which is used as a proxy for the measurement of the economic performance of a nation and the other variables are considered as independent variables for this study.

Not much study was done to identify the economic drivers during the two phases of the Indian economy's transition. Owing to the limited number of variables to examine and the identical intgration order, earlier studies used the Johansen cointegration test. The present research is novel in that it divides the period into two parts and incorporates significant macroeconomic variables that were considered in previous research. Because of this, the variables have different orders of integration, and the Autoregressive Distributed Lag (ARDL) Bounds Test is an appropriate cointegration test. The Autoregressive Distributed Lag (ARDL) Bounds test can be used to a larger set of variables under consideration. To provide more accurate inferences in finite samples, this ARDL Bounds Test uses critical values that are specific to the number of included lagged differences in the model. This model is less sensitive to the choice of lag length and is considered to be robust in the presence of structural breaks.

4.3 Econometric Model

ARDL Bounds Test Model:

$$\Delta Y_t = \left(\beta_0 + \sum_{i=1}^{p} \lambda_i \, \Delta Y_{t-i} + \sum_{i=0}^{q} \delta_i \, \Delta X_{t-i} \right) + \left(\varphi_1 Y_{t-1} + \varphi_2 X_{t-1} + \nu_t \right)$$

Short-run equation — long-run equation

5. Research Results and Discussion

Conducting a test of normality on the grouped time series data is the very first thing that is done in the process of developing a suitable econometric model. If the p-value of the Jarque-bera test is not statistically significant, then the null hypothesis that the residuals have a normal distribution will be accepted. Both Figure 1 and Figure 2 demonstrate the aggregate data are normally distributed. Since the p-value (Pre-reform period 0.486653) (post-reform period 0.6111914) is statistically significant, the null hypothesis cannot be rejected rather it should be accepted. Breusch-Godfrey Serial Correlation test findings are shown in Table 2, and for both the pre- and post-reform periods, the probability value of the Chi-square is not statistically significant. Thus, it is not possible to rule out the null hypothesis that the residuals are not serially connected. Bruesch-Pagan-Godfrey Results of the heteroscedasticity test are displayed in Table 3. The p-value is statistically insignificant; hence the null hypothesis of the residuals is homoscedastic and cannot be rejected. The Variance Inflation Factor (VIF) test is conducted to check whether the independent variables are correlated with each other or not. If the calculated value of Centered VIF is lower than 10, then there exists no correlation and if is above 10 there is a correlation. The results of Centered VIF (Table 4) demonstrated that there is no correlation among the independent variables

during the pre-and post-reform periods., indicating that there is no Multicollinearity among the independent variables. Finally, the Ramsey RESET Model Specification test is conducted to understand the error specifications in the proposed model and the results are displayed in Table 5 which shows that the p-value of the F-statistic is not statistically significant indicating that the null hypothesis of no specification errors in the model should not be rejected.

To choose the suitable econometric model for analyzing the long-run and short-run causation, it is necessary to first determine whether the data variables are stationary or not for that the Augmented Dickey-Fuller (ADF) Test is applied, and the results are shown in Table 6 contains a summary of the ADF test results for each variable. The findings of the ADF Test demonstrated that some of the variables are stationary at the level I(0) and that the remaining variables are stationary after the first difference I(1). The ideal model in this situation is the Autoregressive Conditional Heteroscedasticity Test (ARDL) Test. Personal Remittances Received (DL PRR) is stationary at the second difference, hence it is deleted from the model.

The results of Autoregressive Conditional Heteroscedasticity (ARDL) and ARDL Bounds test for the pre- and post-reform period are displayed separately in Table 7.1 and Table 7.2. DL GDP is the dependent variable in both periods. Conditional Error Correction Regression results demonstrate the short-run association and Unrestricted Constant and No-trend results of the ARDL Bounds Test display the long-run association among the variables.

The conditional Error Correction Regression equation of the ARDL Bounds Test results (Table 8.1) demonstrates that the DLPFCE positively affects the GDP and one-year lagged GDP (GDP-1) negatively affects the current year DLGDP in the short-run. However, in the long run, none of the independent variables affect the DLGDP in any direction. For every one percent increase in DLPFCE, the DLGDP increased by 0.67 percent and vice versa, and for every one percent increase in the current year's DLGDP, the DLGDP of the subsequent year will be decreased by 1.16 percent and vice versa. The long-run association of the variables is analyzed with the Unrestricted Constant and No Trend equation of the ARDL Bounds Test. There is no evidence of long-run causality from any independent variable to the DLGDP as the p-values are not statistically significant. The long-run association of the selected variables is tested with the Bounds test. The calculated F-statistic (1.240) and T-statistic (-2.212) absolute values are lower than the lower bound I(0) values of F-statistic (2.14) and T-statistic (-2.86) values representing that there is no long-run association among the variables. When there is no long-run association among the variables, the Error Correction Mechanism need not be tested. The Engle-Granger causality test is conducted to study the direction of causality among the variables and the results (Table 9) show that there was a bidirectional causality between the DLGDP and DLGDS, but unidirectional causality running from DLPFCE to DLGDP.

It is important to note that this period was characterized by a mixed economy with a significant degree of government controls and regulations, which had both positive and negative consequences. Due to a lack of competition, inefficiencies in the public sectors, and rigid government policies, the growth rate was below 5%, and sometimes times Indian economy experienced a negative growth rate. As a result, the economy's overall growth rate was constrained. Inefficient public sector, bureaucratic red tape, trade barriers, subsidies and price controls, monetary policy issues, fiscal deficit, lack of incentives for innovations and new venture creations, low foreign investment, and agriculture dominance were the persisting issues that suppressed the economic growth rate during this period. The growth of the Indian economy primarily depended on imports during this period. pharmaceuticals and chemicals, food and agriculture products, consumer goods like electronics, automobiles, and luxury items, crude oil and petroleum products, and intermediate goods were the major imports during this period and these imports supported the private consumption expenditure and which drove the Indian economy in the short-run only. Vicious circles of poverty prevailed during this period. The Indian government pursued a policy of repressed inflation, which means that it kept prices artificially low for essential goods and services by regulating and controlling various sectors of the economy. This was done to maintain affordability for the masses but often led to demand outstripping supply, resulting in inflationary pressures building up, and inflation was imported from global markets. The Indian economy was not as open to the global markets as it is today, but fluctuations in global commodity prices, especially for oil, could still have a significant impact on domestic inflation. Finally, during this period, imports drive the economy through private consumption expenditure.

After that, the long-run and short-run causality among the variables is tested for the post-reform period by taking the DLGDP as the dependent and others are independent variables, and the results are displayed in Table 8.2. The short-run causality from the independent variables to the dependent variables can be analyzed with Conditional Error Correction Regression equation of the ARDL Bounds Test. Current year Exports, internal borrowings of the government (DLID) one-year lagged DLGDS (DLGDS-1), DLPFCE (DLPFCE-1) are strongly

supporting the current year DLGDP and one-year lagged DLGDP (DLGDP-1) and DLGFCE (DLGFCE-1) are negatively affecting the current year DLGDP. For every one percentage increase in current-year exports, and one-year lagged DLGDS (DLGDS-1) and DLPFCE(DLPFCE-1), the current year DLGDP will increase by 0.20, 0.49, and 2.13 percent respectively. And for every one percent increase in one-year lagged DLGFCE (DLGFCE-1), the current year DLGDP decreases by 0.03 percent and vice versa. Domestic savings (DLGDS), private final consumption expenditure (DLPFCE), and exports (DL Exports) are the key short-run drivers of the Gross Domestic Product (DLGDP) in the post-reform period. The level equation of the Unrestricted Constant and No Trend is studied for the long-run causality and the result signifies that DLPFCE, DLGDS, and DL Exports are positively affecting the DLGDP and the DLGFCE negatively affect the DLGDP in the long-run. DLPFCE (0.83), DLGDS (0.19), and DL Exports (0.07) support the DLGDP in the long-run during the post-reform era. The null hypothesis of no long-run association is rejected when the calculated F-statistic and T-statistic values are greater than the upper bound I(1) values of F-statistic (2.06) and T-statistic (-4.03), otherwise the null hypothesis is accepted. The calculated values of F-statistic (3.348) and T-statistics (-4.26) are greater than the upper bound I (1) values representing there is a strong long-run association among the variables during the post-reform period. The Error Correction Model is applied to study the speed of adjustment of the dependent variable and the results are shown in Table 8. Whenever there is disequilibrium in the dependent variable (DLGDP) *i.e.*, deviates from the equilibrium path, the inflation rate, domestic savings, internal borrowings by the government and private final consumption expenditure bring it to the equilibrium path with a speed of adjustment of -2.565. The Engle-Granger Causality test results support the same representing that the causality is running from domestic savings (DLGDS) to gross domestic product (DLGDP) and not in opposite. Even the unidirectional causality is running from GFCE to DLGDP. There is a bidirectional causality running between DLGDP and DLGDS.

Since most of the prior research in India concentrated on the factors influencing the Indian economic growth solely during the post-reform era. Analysis of the macroeconomic drivers during the two regimes is either unresearched or under researched. Thus, there are diverse outcomes.

The current results contracts with the previous research conducted by Anh Tru Nguyen (2022), Gupta et al., (2022), Shaik and Rao (2020) and Hayat (2019), who found that FDI, Exchange Rate and trade openness drive the Indian economy. One finding is that during the post-reform era, government spending had a detrimental impact on the economic growth, and this is consistent with the results of Hook et al. (2021), Mohsin et al., (2021) and Manik and Khan (2018). Exports are one of the components of trade openness and in the above results, exports have a coefficient with the economic growth and this outcome strongly supports the resent findings of Arif (2020), Dinh (2019) and Guntukula (2018), but inconsistent with the result of Rahman and Alam, 2021) or Kumari and Saleem (2023) who found that trade openness and economic growth are not associated with each other. Inflation as measured in the form of Consumer Price Index (CPI) and exchange rate did not exert any influence on the economic growth in the above results and these findings are contradictory with the findings of Samsuddin and Amar (2020), but strongly supports the results of Makur (2023).

Structural changes in the Indian economy began from 1991-92 onwards due to various economic issues like severe balance of payment crisis, stagnant economy, high inflation, high fiscal deficit, inefficiency of the government enterprises due to excessive regulations and controls and government of India embarked on economic reforms to remove all economic and financial weakness of the Indian economy. Indian Financial sector is integrated with the global financial markets and this integration brought in foreign direct investment in the financial sector and healthy competition among the financial institutions in India. The healthy competition enables financial institutions to mobilize savings from different sectors of the economy and channel them towards capital formation. This is evident that savings in the household sector increase gradually and investment in financial assets is an indication that savings are contributing to the growth of the economy. Foreign enterprises entered into the economy by bringing direct investments which has a multifaced effect on the economy. FDI generated employment opportunities, increased the productivity and efficiency of the economy, reduced imports, and strengthened the manufacturing and services sectors' contribution to the GDP. FDI harms the economy as it increases the money supply in the economy which leads to an increase in inflation. Information Technology (IT) and Enabled Services (ES) industry is an emerging industry in the post-reform period that strongly supports the growth of the Indian economy by exporting software and other IT services. India is a leading country in exporting software services in the world. In the recent past, there has been a transformation like the Indian economy from savings driven economy to a consumption-driven economy and it is clear in the ARDL Bounds Test. Private Consumption Expenditure (PFCE) is the major driver of the Indian economy in the long run. Due to changes in the living standards of the people, the size of the elite and middle class has been increased and poverty is gradually reduced. Private consumption expenditure is strongly supported by elite and middle-class people.

6. Key Findings

To revitalize the Indian economy, policymakers were forced to implement significant economic and fiscal reforms in the years 1991–1992. The current study aims to identify any macroeconomic regime change by analyzing the main economic drivers of the Indian economy before and during the reform period.

During the pre-reform period, no significant macroeconomic drivers were identified in the ARDL Bounds Test in the long-run, but PFCE supported the growth in the short-run. The growth of the Indian economy primarily depended on imports during this period, consumer goods, crude oil, textile products, and fertilizers were major chunks of imports. These imported goods strongly supported and enhanced private consumption (PFCE). The gradual increase in PFCE increased the GDP during this period. The increased GDP started increasing domestic savings. There was no role for the exchange rate during the pre-reform period since the exchange rate was under the control of RBI. But this exchange acts as a fulcrum and is influenced by domestic savings, government final expenditure (GFCE), and private expenditure (PFCE).

But in the post-reform period, the drivers of the Indian economy changed. The Indian economy has been transformed from an import-oriented economy to a savings-based, consumption-based, and exported-oriented economy. Private expenditure (PFCE), followed by domestic savings (GDS) and Exports are the major drivers of the Indian economy. India adopted a variable exchange rate regime and the determination of exchange rates of Indian currency was purely left to the market forces. The advent of foreign capital in the form of direct investment and portfolio investments and government borrowings in foreign currencies boosted the money circulation in the economy, this excess money circulation often led to higher inflation rates. The economic reforms started giving fruits in the form of the creation of employment opportunities, increasing productivity, the establishment of new businesses, improving the performance of the industrial and services sector, and integration with the international economies. The increased domestic savings and foreign capital have been converted into effective capital formation. New-generation companies like IT, Telecom, and Software companies came into existence. Industries are freed from the cobweb of restrictions. Industries started exporting the surplus production and services to other countries. Even though, exports started their momentum, still India imported technology, equipment, chemicals, etc., but the nature of imports shifted from importing consumer goods to capital goods to create a long-lasting impact on economic growth. These heavy imports devalued the Indian currency. Exporting firms benefited from this devaluation of Indian currency and earned a huge number of profits. Thus, the disposable income of the people has been increased which led to the growth of private consumption. Through the exchange rate and foreign capital inflows and exports, the private consumption expenditure (PFCE) and domestic savings (GDS) strongly support the growth of the Indian economy.

Conclusion

The central macroeconomic variable during the two periods is the rate of inflation which affect the GDP directly and indirectly with other variables negatively and positively during the pre- and post-reform period respectively. The major drivers of the Indian economy during the pre-reform period were PFCE. Imports of consumer goods and the inflation rate positively affected the PFCE. The money circulation was less during the pre-reform period, due to restrictions on the entry of foreign capital. Hence, the rate of inflation was relatively moderate during the initial periods of Independence because the country followed import substitution and self-reliance. Due to oil price shocks (the 1970s) and the balance of payment crisis in the 1980s, India faced a severe financial crisis. The government took steps like devaluation of currency and borrowings from international financial agencies, which impacted prices and inflation. The nature of the inflation rate during this period is a combination of demand-pull and cost-push factors. The demand-pull inflation occurred because of increased government spending and this is also evident in the results that CPI positively affected the GFCE during this period. However, in the post-reform period, inflation has a positive impact on the GDP and a negative impact on FDI. FDI brings in huge amounts of foreign capital that increases the money circulation in the economy leading to an increase in the inflation rate. Moderate inflation can encourage consumer spending because people choose to spend their money rather than save it. When people spend more, it can boost aggregate demand, leading to an increase in GDP. The rate of inflation has been under control for most of the years in the post-reform period, a controlled level of inflation can make a country's exports more competitive in the global market. This increase in exports contributed to the GDP. Hence, the rate of inflation should be at the tolerance level.

Policy Recommendations

The RBI should adopt appropriate monetary policies to stabilize the prices so that the rate of inflation can be controlled. However, stabilization of the prices depends on the money supply in the economy. The demand and

supply of money within the boundaries of the nation can be controlled by changing the policy rates, but sudden inflow or outflow of foreign capital cannot be controlled with those monetary policies. Foreign capital comes in two ways, *i.e.*, direct investment and portfolio investment. The prior is the long-term investment, and the latter is the short-term investment. Quality FDI enhances the productivity of the economy and supports the GDP by creating jobs, and transfer of technology and knowledge. However, most of the FDI that comes to the Indian economy is quantitative FDI which does not support the GDP. Even the FPI does not support the growth of the economy as it is hot money evaporates easily. Hence, the policymakers should try to make FDI policies that attract quality FDI that support economic growth, and at the same time, the money circulation should be kept under control, so that inflation will not cross the minimum tolerance level.

The current study's limitations are as follows. It is applicable to the Indian economy from 1950-51 to 2022-23. Another significant research gap that the current study aims to fill is the absence of prior studies on the study of the drivers of the Indian economy under two regimes.

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Credit Authorship Contribution Statement

Pujari Sudharsana Reddy: This first author, Dr. Pujari Sudharsana Reddy, has contributed to the present research work by designing the research methodology and research results and discussion.
Chaya Bagrecha: She has contributed to the literature review, identified the research, and prepared the research objective.
Muthu Gopala Krishnan has contributed to the introductory part of the research work.

Declaration of Competing Interest

The authors declare that they have no known financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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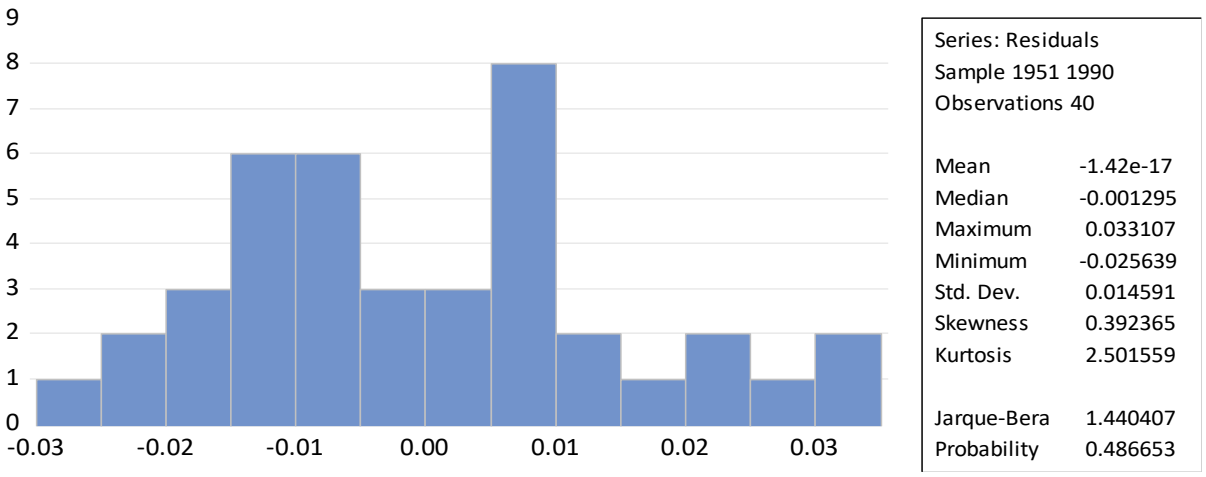
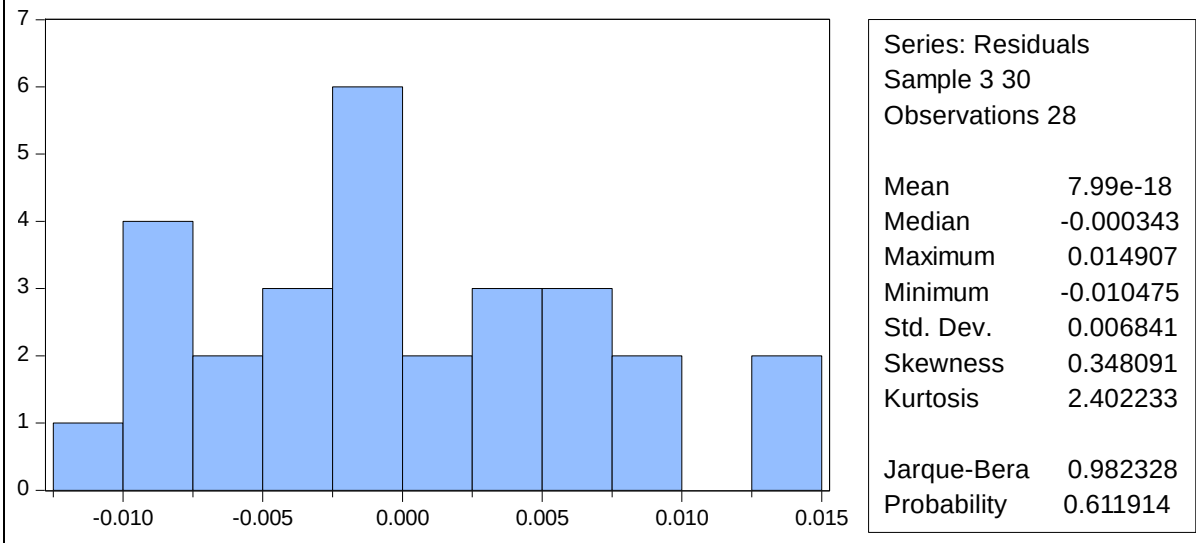
Appendix:

Figure 1. Normality Test Results (Pre-reform Period)



Source: Authors calculations using EViews@12

Figure 2. Normality Test Results for Post-reform period



Source: Authors calculations using EViews@12

Table 1: OLS Regression Test Results Summary								
Dependent Variable: DLGDP								
Method: Least Squares								
	Pre-reform era (1951-1990)				**Post-Reform era (1991-2022)**			
Variable	Coefficient	Std. Error	t-Statistic	p-value	Coefficient	Std. Error	t-Statistic	p-value
DLGDS	**0.058001**	**0.030456**	**1.904400**	**0.0662***	**0.171108**	**0.036338**	**4.708795**	**0.0003***
DLGFCE	0.012001	0.033347	0.359876	0.7214	-0.002142	0.003187	-0.672021	0.5118
DLPFCE	**0.796675**	**0.056918**	**13.996910**	**0.0000***	**0.591066**	**0.100854**	**5.860593**	**0.0000***
DL_EXTERNAL_DEBT	-0.009240	0.014499	-0.637253	0.5286	-0.024294	0.011777	-2.062945	0.0569*
DL EXCHANGE RATE	0.040019	0.041798	0.957444	0.3458	-0.025051	0.041884	-0.598109	0.5587
DL EXPORTS	0.048822	0.030625	1.597444	0.1210	0.040006	0.043090	0.928425	0.3679
DL IMPORTS	-0.025913	0.023898	-1.084305	0.2866	0.026138	0.041108	0.635827	0.5345
DL INTERNAL DEBT	0.064279	0.052127	1.233128	0.2268	-0.089235	0.098066	-0.909951	0.3772
DFPI					0.000005	0.0000001	0.299687	0.7685
DLFDI					-0.000313	0.006164	-0.050768	0.9602
DLPRP					0.003374	0.004063	0.830467	0.4193
CPI	**-0.001228**	**0.000634**	**-1.938856**	**0.062**	**0.031046**	**0.015100**	**2.056510**	**0.0506***
CONSTANT	0.007680	0.008698	0.883026	0.384000	0.007790	0.013956	0.558182	0.5850
R-squared				0.928764				0.971819
Adjusted R-squared				0.910380				0.949274
F-statistic				50.521540				43.106140
prob (F-statistic)				0.000000				0.000000
Durbin-Watson stat				2.099701				2.322267
Source: Author's calculations using Eviews@12								

Table 2: Breusch-Godfrey Serial Correlation LM Test Results Summary				
H_0= Residuals are not serially correlated H_1 = Residuals are serially correlated				
Pre-reform Era (1950-51 to 1990-91)				
F-statistic	0.872377	Prob.F(2,29)		0.4286
Obs*R-Squared	2.269987	Prob.Chi-square(2)		0.3214
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID(-1)	-0.11148	0.202792	-0.549726	0.5867
RESID(-2)	-0.258269	0.2025694	-1.274181	0.2127
Post-reform Era (1991-92 to 2021-22)				
F-statistic	0.890754	Prob.F(2,29)		0.4340
Obs*R-Squared	3.374638	Prob.Chi-square(2)		0.1850
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID(-1)	-0.047788	0.334209	-0.1430	0.8885
RESID(-2)	-0.488468	0.365972	-1.3347	0.2049
Source: Author's calculations using Eviews@12				

Table 3: Heteroscedasticity Test Results Summary: Breusch-Pagan-Godfrey			
H_0= Residuals are homoscedastic			
H_1 = Residuals are heteroscedastic			
Pre-reform Era (1950-51 to 1990-91)			
F-statistic	0.575935	Prob.F(2,29)	0.7895
Obs*R-Squared	5.175854	Prob.Chi-square(12)	0.7386
Scaled Explained SS	2.333984	Prob. Chi-Square (12)	0.9690
Post-reform Era (1991-92 to 2021-22)			
F-statistic	0.625299	Prob.F(2,29)	0.7911
Obs*R-Squared	9.336308	Prob.Chi-square(12)	0.6740
Scaled Explained SS	1.87859	Prob. Chi-Square (12)	0.9996
Source: Author's calculations using Eviews@12			

Table 4: Multicollinearity Test (Variance Inflation Factor) Test Results Summary						
Pre-reform era (1951-1990)				Post-reform era (1992-2022)		
Variable	Coefficient Variance	Uncentered VIF	Centered VIF	Coefficient Variance	Uncentered VIF	Centered VIF
DLGDS	0.000928	3.385845	1.267907	0.001551	11.151690	2.987170
DLGFCE	0.001112	3.520074	1.189564	0.000012	1.581493	1.524846
DLPFCE	0.003240	6.006026	1.758992	0.005418	25.725120	2.500285
DLETERNAL DEBT	0.000210	2.119914	1.301423	0.000159	3.049596	2.542397
DL EXCHANGE RATE	0.001747	1.767202	1.369522	0.002200	3.036224	2.348041
DL EXPORTS	0.000938	3.234095	1.825573	0.002055	20.439150	6.440443

Table 4: Multicollinearity Test (Variance Inflation Factor) Test Results Summary						
Pre-reform era (1951-1990)				Post-reform era (1992-2022)		
DL IMPORTS	0.000571	3.330039	2.377680	0.001824	20.133190	8.081646
DL INTERNAL DEBT	0.002717	7.257119	1.509139	0.011592	61.583990	2.019619
DFPI				0.000003	3.049596	2.542397
DLFDI				0.000038	1.893752	1.319356
DLPRP				0.000020	2.742921	2.641729
DLPRR				0.000399	4.324811	2.554525
CPI	0.0000004	4.827945	2.558757	0.000228	56.288730	2.773643
CONSTANT	0.000000	11.297320	NA	0.000252	83.711400	NA
Source: Author's calculations using Eviews@12						

Table 5: Ramsey RESET Model Specification Test Result Summary			
H_0= No specification errors in the model			
Pre-reform Era (1950-51 to 1990-91)			
	Value	df	probability
t-statistic	1.864192	30	0.0721
F-statistic	3.475212	(1,30)	0.0721
Likelihood Ratio	4.384314	1	0.0363
Post-reform Era (1991-92 to 2021-22)			
t-statistic	1.863831	14	0.0835
F-statistic	3.473865	(1,14)	0.0835
Likelihood Ratio	6.206172	1	0.0127
Source: Author's calculations using Eviews@12			

Table 6: Results Summary of Augmented Dickey Fuller (ADF) Unit Root Test										
	When the variable is Constant			When the variable is constant and linear trend			When there is no trend and constant			Result
Variable	ADF Statistic value	T-Statistic value @5%	probability Value	ADF Statistic value	T-Statistic value @5%	probability Value	ADF Statistic value	T-Statistic value @5%	probability Value	
With Original Data I(0) (PRE-REFORM ERA- 1950-51 TO 1990-91)										
DLGDP	-1.517111	-2.95711	0.5123	-3.84874	-3.54849	0.0258*	1.459638	-1.951687	0.9612	Unit root
DLGDS	-5.231208	-2.938987	0.0001*	-5.836743	-3.529758	0.0001*	0.000495	-1.950394	0.6762	Unit root
DLGFCE	-7.531246	-2.938987	0.0000*	-8.336209	-3.529758	0.0000*	-0.300594	-1.950394	0.5704	Unit root
DLPFCE	-1.562815	-2.95711	0.4895	-4.457162	-3.54849	0.0061*	1.156661	-1.951687	0.9327	Unit root
DLED	-1.343528	-2.954021	0.5974	-1.263112	-3.552973	0.8796	-1.435276	-1.951332	0.1383	Unit root
DLID	-1.399212	-2.948404	0.5715	-6.57789	-3.529758	0.0000*	0.457192	-1.950687	0.8081	Unit root
DLER	-4.417631	-2.938987	0.0011*	-5.197718	-3.529758	0.0000*	-0.561579	-1.950117	0.4671	Unit root
DLEXPORTS	-4.2498223	-2.938987	0.0018*	-5.600738	-3.529758	0.0002*	-2.954034	-1.949609	0.0042*	No Unit root
DLIMPORTS	-5.465582	-2.938987	0.0001*	-6.098247	-3.529758	0.0001*	-4.400165	-1.949609	0.0001*	No Unit root
CPI	-3.757249	-2.938987	0.0068*	-4.056774	-3.536601	0.0152*	-0.016712	-1.951	0.6702	Unit root
With Original Data I(0) (POST-REFORM ERA 1990-91 TO 2021-22)										
DFPI	-1.58997	-2.991878	0.4721	-1.932308	-3.612199	0.6068	-1.68493	-1.955681	0.0864	Unit root
DLED	-3.434993	-2.963972	0.0175*	-3.314514	-3.568379	0.0832	-2.628606	-1.952473	0.0104*	Unit root
DLER	-6.51728	-2.963972	0.0000*	-6.292239	-3.568379	0.0001*	-5.168038	-1.952473	0.0000*	No Unit root
DLEXPORTS	-4.855607	-2.963972	0.0005*	-5.162699	-3.568379	0.0012*	-1.090551	-1.95291	0.243	Unit root
DLFDI	-3.735985	-2.963972	0.0085*	-3.992548	-3.568379	0.0200*	-3.481457	-1.952473	0.0011*	No Unit root
DLGDP	-3.745274	-2.963972	0.0083*	-3.795338	-3.568379	0.0309*	-0.862934	-1.953381	0.3332	Unit root
DLGDS	-3.261755	-2.971853	0.0267*	-4.31616	-3.580623	0.0102*	-1.232367	-1.953858	0.1944	Unit root
DLGFCE	-8.260666	-2.981038	0.0000*	-1.64977	-3.595026	0.0000*	-3.843683	-1.953381	0.0004*	No Unit root
DL INTERNAL DEBT	-3.533719	-2.963972	0.0139*	-4.415273	-3.568379	0.0076*	-0.983633	-1.95291	0.2837	Unit root
DL IMPORTS	-4.251684	-2.963972	0.0023*	-4.275087	-3.568379	0.0105*	-1.143977	-1.953858	0.2235	Unit root
DL PFCE	-3.858406	-2.963972	0.0063*	-3.798119	-3.568379	0.0307*	-0.680497	-1.953381	0.4131	Unit root
DL PRP	-4.242706	-2.991878	0.0031*	-11.698489	-3.632896	0.0000*	-4.522444	-1.953381	0.0001*	No Unit root
DL PRR	-14.5829	-2.9637	1.0000	13.5699	-3.5684	1.0000	2.3444	-1.9529	0.9940	Unit root
LCPI	-6.1869	-2.9981	0.0000*	-6.5607	-3.6220	0.0001*	-1.0754	-1.9525	0.2488	Unit root

Table 6: Results Summary of Augmented Dickey Fuller (ADF) Unit Root Test										
	When the variable is Constant			When the variable is constant and linear trend			When there is no trend and constant			Result
Variable	ADF Statistic value	T-Statistic value @5%	probability Value	ADF Statistic value	T-Statistic value @5%	probability Value	ADF Statistic value	T-Statistic value @5%	probability Value	
With First Differenced Data I(1) (PRE-REFORM ERA 1950-51 TO 1990-91)										
DLGDP	-4.89162	-2.95711	0.0004*	-3.587235	-3.574244	0.0487*	-5.208386	-1.951332	0.0000*	No Unit root
DLGDS	-8.016973	-2.945842	0.0000*	-7.876892	-3.540328	0.0000*	-8.036114	-1.950394	0.0000*	No Unit root
DLGFCE	-6.642468	-2.945842	0.0000*	-6.595437	-3.540328	0.000*	-6.700186	-1.950394	0.0000*	No Unit root
DLPFCE	-3.661076	-2.967767	0.0104*	-4.163793	-3.574244	0.0140*	-5.27813	-1.951687	0.0000*	No Unit root
DLED	-5.57891	-2.954021	0.0001*	-5.367786	-3.552973	0.0006*	-5.618609	-1.951332	0.0000*	No Unit root
DLID	-4.723084	-2.948404	0.0005*	-4.621392	-3.544284	0.0039*	-4.674683	-1.950687	0.0000*	No Unit root
DLER	-7.775935	-2.943427	0.0000*	-7.778596	-3.536601	0.0000*	-7.773856	-1.950117	0.0000*	No Unit root
DCPI	-5.012639	-2.951125	0.0003*	-5.043244	-3.54849	0.0014*	-4.946411	-1.951	0.0000*	No Unit root
With First Differenced Data I(1) (POST-REFORM ERA 1991-92 TO 2021-22)										
DFPI	-5.571507	-2.991878	0.0001*	-3.661249	-4.440739	0.0474*	-5.6843	-1.955681	0.0000*	No Unit root
DLED	-6.143521	-2.967767	0.0000*	-6.209793	-3.574244	0.0001*	-6.205443	-1.95291	0.0000*	No Unit root
DLEXPORTS	-9.782633	-3.679322	0.0000*	-9.726315	-3.574244	0.0000*	-9.965586	-1.95291	0.0000*	No Unit root
DLGDP	-5.188544	-2.971853	0.0002*	-4.978632	-3.580623	0.0022*	-5.266634	-1.953381	0.0000*	No Unit root
DLGDS	-8.405627	-2.976263	0.0000*	-8.435672	-3.587527	0.0000*	-8.457225	-1.953858	0.0000*	No Unit root
DL INTERNAL DEBT	-9.511992	-2.967767	0.0000*	-9.411648	-3.574244	0.0000*	-9.614022	-1.95291	0.0000*	No Unit root
DL IMPORTS	-4.9475	-2.976263	0.0005*	-4.830969	-3.587527	0.0033*	-5.035627	-1.953858	0.0000*	No Unit root
DL PFCE	-4.949874	-2.971853	0.0004*	-4.698373	-3.580623	0.0042*	-5.054741	-1.953381	0.0000*	No Unit root
DL PRR	4.8042	-2.9763	1.0000	4.8482	-3.5875	1.0000	5.0522	-1.9539	1.0000	UNIT ROOT
DLCPI	-6.6635	-2.9678	0.0000*	-6.5980	-3.5742	0.0000*	-6.7258	-1.9529	0.00000*	No Unit root
Source: Author's calculations using Eviews@12										

Table 8.1. Results Summary of ARDL Bounds Test for Short-run and Long-run Causality				
Dependent Variable: D(DLGDP)				
Model: ARDL Long Run Form Bounds Test				
Sample: (39) 1952-1991 (Pre-reform Era)				
Independent Variable: DLGDS, DLGFCE, DLPFCE, DLED, DLER, DLEXPORTS, DLIMPORTS, DLID, DCPI				
Selection Model: ARDL (2,1,1,1,1,1,1,1,1,1)				
Conditional Error Correction Regression				
Variable	**Coefficient**	**Std.Error**	**t-Statistic**	**Prob***
CONSTANT	0.021096	0.040354	0.522787	0.615300
DLGDP(-1)	**-1.163935**	**0.526172**	**-2.212080**	**0.0579***
DLGDS(-1)	0.040288	0.152187	0.264724	0.797900
DCPI(-1)	-0.002761	0.003241	-0.851920	0.419000
DL EXCHANGE RATE(-1)	0.058453	0.148617	0.393313	0.704400
DL EXPORTS(-1)	0.025255	0.125682	0.200940	0.845780
DL EXTERNAL DEBT(-1)	-0.013380	0.046153	-0.289901	0.779300
DL GFCE(-1)	0.077179	0.093352	0.826761	0.432300
DL IMPORTS(-1)	0.022058	0.081710	0.269951	0.794000
DL INTERNAL DEBT(-1)	0.030326	0.133761	0.226721	0.826300
DL PFCE(-1)	0.805691	0.542397	1.485427	0.175700
D(DLGDP(-1)	0.247947	0.187767	1.320504	0.223200
D(DLGDS)	0.086282	0.107178	0.805031	0.444100
D(DCPI)	-0.001288	0.002161	-0.596037	0.567600
D(DL EXCHANGE RATE)	0.061519	0.077257	0.796290	0.448800
D(DL EXPORTS)	0.020506	0.067636	0.301708	0.770600
D(DL EXTERNAL DEBT)	0.005119	0.066042	0.077503	0.940100
D(DL GFCE)	0.036519	0.064193	0.568749	0.585100
D(DL IMPORTS)	0.029925	0.088189	0.339329	0.743100
D(DL INTERNAL DEBT)	0.037879	0.123603	0.306457	0.767100
D(DL PFCE)	**0.671508**	**0.265666**	**2.527642**	**0.0354***
Level Equation				
Case:3 Unrestricted Constant and No Trend				
Variable	**Coefficient**	**Std.Error**	**t-Statistic**	**Prob***
DL GDS	0.003461	0.121853	0.284058	0.7836
DCPI	-0.002372	0.002829	-0.838537	0.4261

Table 8.2. Results Summary of ARDL Bounds Test for Short-run and Long-run Causality				
Dependent Variable: D(DLGDP)				
Model: ARDL Long Run Form Bounds Test				
Sample: (32) 1991-22-2022-23				
Independent Variable: DLGDS, DLGFCE, DLPFCE, DLED, DLER, DLEXPORTS, DLIMPORTS, DLID, DCPI				
Selection Model: ARDL (1,0,1,1,0,0,1,1,1,1,1,1,1)				
Conditional Error Correction Regression				
Variable	**Coefficient**	**Std.Error**	**t-Statistic**	**Prob***
CONSTANT	-0.008817	0.018870	-0.467252	0.6600
DLGDP(-1)	**-2.565146**	**0.601156**	**-4.267020**	**0.0080***
DFPI	0.000000	0.000000	-1.740979	0.1422
DLCPI(-1)	0.029817	0.023781	1.253831	0.2653
DLED(-1)	0.002533	0.024233	0.104517	0.9208
DLER	-0.119320	0.077062	-1.548374	0.1822
DLEXPORTS	**0.201122**	**0.062859**	**3.199556**	**0.0240***
DLFDI(-1)	0.004653	0.008954	0.519645	0.6255
DLGDS(-1)	**0.497666**	**0.100841**	**4.935153**	**0.0043***
DLGFCE(-1)	**-0.038169**	**0.013065**	**-2.921363**	**0.0330***
DLID(-1)	-0.038393	0.121795	-0.315224	0.7653
DLIMPORTS	-0.083882	0.052110	-1.609711	0.1684
DLPFCE(-1)	**2.134556**	**0.554202**	**3.851585**	**0.0120***
DLPRP(-1)	-0.008722	0.006524	-1.336925	0.2388
D(DLCPI)	0.032997	0.018267	1.806354	0.1307
D(DLED)	-0.032943	0.015036	-2.191004	0.08
D(DLFDI)	0.001687	0.008599	0.196158	0.8522
D(DLGDS)	**0.220125**	**0.049306**	**4.464504**	**0.0066***
D(DLGFCE)	**-0.019826**	**0.006048**	**-3.278007**	**0.0220***
D(DLID)	**0.404021**	**0.160836**	**2.512008**	**0.0537***
D(DLIMPORTS)	-0.103058	0.048781	-2.112669	0.0883
D(DLPFCE)	**1.147845**	**0.202635**	**5.664580**	**0.0024***
D(DLPRP)	0.014172	0.006083	2.329948	0.0672
Level Equation				
Case:3 Unrestricted Constant and No Trend				
Variable	**Coefficient**	**Std.Error**	**t-Statistic**	**Prob***

Table 8.1. Results Summary of ARDL Bounds Test for Short-run and Long-run Causality				
DL EXCHANGE RATE	0.050220	0.122236	0.410844	0.692
DL EXPORTS	0.021698	0.109794	0.197621	0.8483
DL EXTERNAL DEBT	-0.011495	0.038914	-0.295405	0.7752
DL GFCE	0.066309	0.074278	0.892713	0.3981
DL IMPORTS	0.018951	0.070079	0.270424	0.7937
DL INTERNAL DEBT	0.026055	0.115373	0.225834	0.827
DL PFCE	0.692213	0.392393	1.762736	0.116
H0= No long run relationship among the variables				
F-Bounds Test				
Test-Statistic	Value	Signif	I(0)	I(1)
F-statistic	1.240	5%	2.14	3.3
t-Bounds Test				
t-statitic	-2.212	5%	-2.86	-4.72

Table 8.2. Results Summary of ARDL Bounds Test for Short-run and Long-run Causality				
DFPI	0.000000	0.000001	-1.844879	0.1244
DLCPI	0.011624	0.009975	1.165354	0.2964
DLED	0.000987	0.009422	0.104791	0.9206
DLER	-0.046516	0.021913	-2.122775	0.0872
DLEXPORTS	**0.078406**	**0.022460**	**3.490853**	**0.0175***
DLFDI	0.001814	0.003391	0.534989	0.6156
DLGDS	**0.194011**	**0.040545**	**4.785133**	**0.0049***
DLGFCE	**-0.014880**	**0.003569**	**-4.169711**	**0.0087***
DLID	-0.014967	0.048852	-0.306376	0.7717
DLIMPORTS	-0.032701	0.022728	-1.438774	0.2097
DLPFCE	**0.832138**	**0.038523**	**21.600810**	**0.0000***
DLPRP	-0.003400	0.002369	-1.435388	0.2107
H0= No long run relationship among the variables				
F-Bounds Test				
Test-Statistic	Value	Signif	I(0)	I(1)
F-statistic	3.348715	5%	2.06	3.24
t-Bounds Test				
t-statitic	-4.26702	5%	-2.86	-4.03

Source: Author's calculations using Eviews@12

Table 8.1: ARDL Error Correction Regression Model				
Dependent Variable: D(DLGDP)				
Selected Model: ARDL (1,0,0,1,1,0,1,0,0)				
Case 3: Unrestricted Constant and No Trend				
Sample: 1950-51 to 1990-91 (Pre-reform era)				
ECM Regression				
Case 3: Unrestricted Constant and No Trend				
Variable	Coefficient	Std.Error	t-Statistic	Prob*
CONSTANT	0.015969	0.002261	7.063376	0.0000
D(DLEXPORTS)	0.028277	0.02197	1.287097	0.2094

Table 8.2: ARDL Error Correction Regression Model				
Dependent Variable: D(DLGDP)				
Selected Model: ARDL (1,0,1,1,0,1,1,1,1,1,1)				
Case 3: Unrestricted Constant and No Trend				
Sample: 1991-92 to 2020-21 (Pre-reform era)				
ECM Regression				
Case 3: Unrestricted Constant and No Trend				
Variable	Coefficient	Std.Error	t-Statistic	Prob*
CONSTANT	-0.008817	0.001007	-8.759881	0.0003*
D(DLCPI)	**0.032997**	**0.004887**	**6.752308**	**0.0011***

D(DLEXTERNAL DEBT)	0.020358	0.011815	1.722989	0.0968		**D(DLED)**	**-0.032943**	**0.004145**	**-7.947292**	**0.0005***
D(DLIMPORTS)	-0.021515	0.015206	-1.414884	0.1690		D(DLFDI)	0.001687	0.002314	0.728831	0.4988
CointEq(-1)*	-0.948203	0.038107	-24.88238	0.0000		**D(DLGDS)**	**0.220125**	**0.011792**	**18.666530**	**0.0000***
R-squared				0.963602		**D(DLGFCE)**	**-0.019826**	**0.001684**	**-11.772980**	**0.0001***
Adj R-squared				0.959320		**D(DLID)**	**0.404021**	**0.050480**	**8.003574**	**0.0005***
F-statistic				225.0287		**D(DLIMPORTS)**	**-0.103058**	**0.139880**	**-7.367682**	**0.0007***
Prob(F-statistic)				0.0000		**D(DLPFCE)**	**1.478450**	**0.528700**	**21.710680**	**0.0000***
Source: Author's Calculations using EVIews@12						**D(DLPRP)**	**0.014172**	**0.001574**	**9.005961**	**0.0003***
						CointEq(-1)*	**-2.565146**	**0.210844**	**-12.166070**	**0.0001***
						R-squared				**0.987269**
						Adjusted R-squared				0.97978
						F-statistic				131.8303
						Prob (F-statistic)				0.00000
Source: Author's Calculations using EVIews@12										

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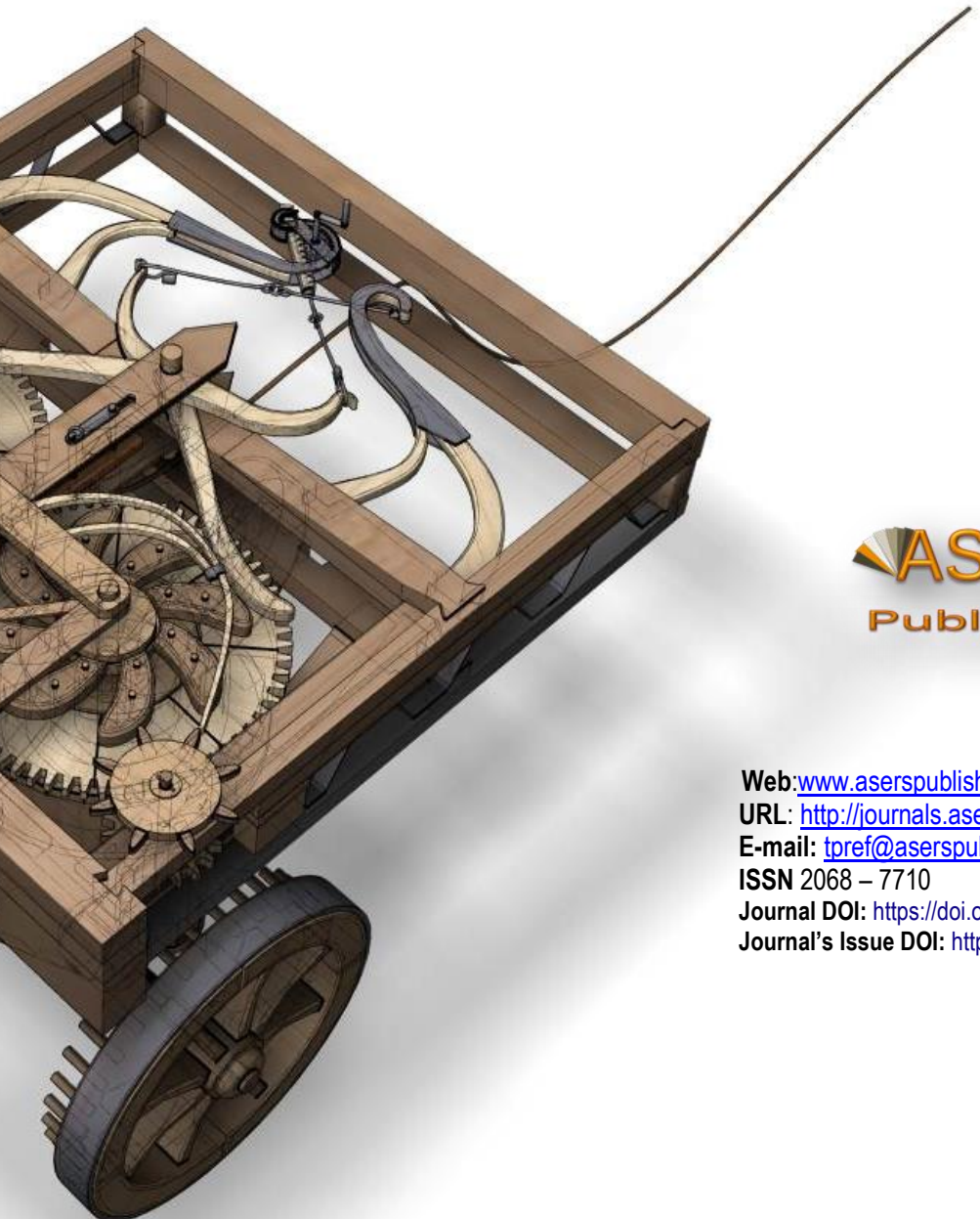

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