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Investigating the Causes for Currency Depreciation in India: A Quantile Regression Approach

Kaveri Deb*, Shivika Agrawal** and Nishu Kumari***

India has been facing the problem of continuing depreciation of its currency against US Dollar over the past few decades. Related existing literatures have identified some factors that may have contributed to this phenomenon. The current paper determines the relative importance of each factor towards currency depreciation in India by means of quantile regression analyses. Our analyses suggest that India's increasing Current Account Deficit (CAD), oil and gold imports, and changes in domestic prices relative to world prices (considered to be an indicator of inflation) are the most significant contributors towards depreciating Indian currency. However, the effects of these factors vary across the distribution of exchange rate.

Introduction

Currency is a universally accepted form of money issued by a government and used as the basis of trade within and between countries across the world. However, every country has its own specified currency. Therefore, while transacting with the rest of the world, the issue of exchange rate and depreciation or appreciation of the domestic currency with respect to foreign currency becomes important for a country. Exchange rate is defined to be the amount of domestic currency required to buy a unit of foreign currency. Depreciation or appreciation of domestic currency therefore refers to the fall or rise in the value of domestic currency in the international market, as the amount of domestic currency required to buy a unit of foreign currency rises or falls. Depreciation is suggested for a country as it has the ability to correct the Current Account Deficit (CAD) by making exports cheap and imports expensive.

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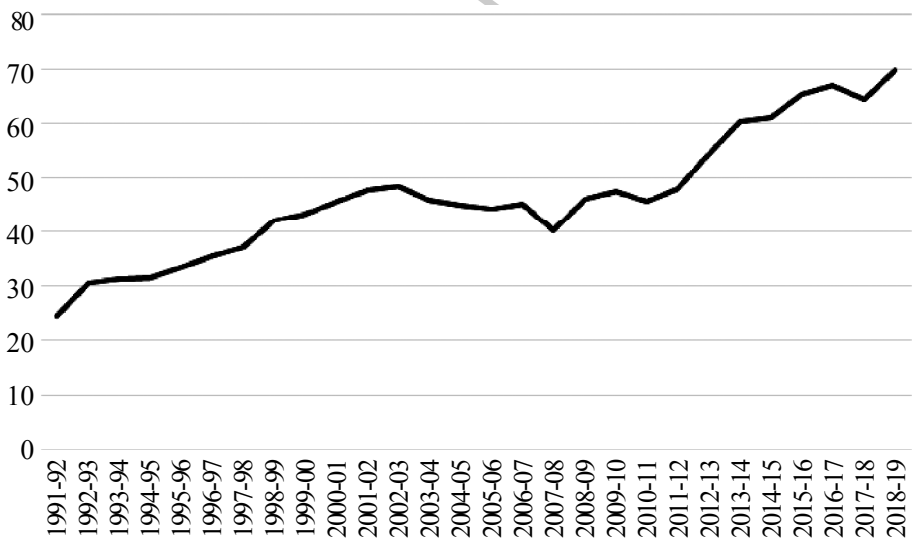
It also sends signals of a weakly performing currency in the international market, and hence, contributes to flight of foreign capital from the country. Hence, uncontrolled depreciation is definitely a matter of concern for countries. Government policies accordingly have to be oriented to prevent continuous fall in value of domestic currency in the international market.

India, since independence has been experiencing a generally depreciating domestic currency against US Dollar. At the time of independence, the value of Indian currency was ₹1 against a dollar. Between 1948 and 1966, the value of Indian rupee fell as the nominal exchange rate rose to 4.79. In 1951, after introducing the first Five-Year Plan, India started taking external loans or resorted to foreign borrowings. In 1966, economic crisis, unstable political environment, pressure from multilateral agencies, and wars with Pakistan and China, forced the Indian government to devalue Indian currency from ₹4.79 to ₹7.50 per dollar (Garg and Singh, 2018). In 1985, due to the rise in oil prices and reduced foreign investment inflows, the exchange rate was further devalued to ₹12.34 per dollar, and to ₹17.50 in 1990 (Garg and Singh, 2018). In 1991, the Indian economy faced one of its roughest times, when the CAD was 3.6% of GDP, and fiscal deficit was 7.8% of GDP (Garg and Singh, 2018). This left the country in a twin deficit situation, where both the trade balance and the government budget were in deficit. Therefore again, in 1991, the currency was devalued, and the exchange rate rose to ₹24.47 per dollar. Figure 1 traces the movement in India's currency exchange rate from 1991 onwards.

Figure 1: Movement of Rupee Against US Dollar



Source: Handbook of Statistics on Indian Economy, RBI

Figure 1 demonstrates a rising trend in exchange rate between rupee and dollar from 1991-92, with some minor fluctuations in a few places. Between 2002-03 and 2007-08, a declining trend in exchange rate is observable. 2007-08 was marked by huge inflow of

foreign investments into the country, contributing to the significant drop in exchange rate around that time (Garg and Singh, 2018). From 2008 onwards, rupee continued to decline due to a series of events like the global economic crisis, high CAD, high inflation, fear of US-China trade war, and rise in crude oil prices (Garg and Singh, 2018).

The demonstrated movement of rupee against US Dollar is a matter worthy of consideration by the Indian policymakers. A few research papers in this regard have tried to determine the factors contributing to steadily depreciating Indian currency (Singh, 2009; Kaur and Sirohi, 2013; Saket, 2013; Singh, 2013; Arora, 2014; and Garg and Singh, 2018). Determination of such factors is important as they help in adopting a proper policy framework to control the situation. Some of the factors listed by the authors are burgeoning CAD initiated by high import prices for oil, dependence on oil imports and excessive gold imports, inflation in the Indian economy, flight of foreign funds from the Indian market, Quantitative Easing (QE) by the US, and interest differential between India and US. A few existing studies, empirically by means of time series modeling, have tried to ascertain the effects of various factors on the real exchange rate movements in India (Chowdhury, 2000; Jayraj, 2000; Mehta, 2000; Suthar, 2008; and Ranadive and Burange 2013). But they do not examine the effects of those factors at different quantiles of the distribution of the nominal exchange rate, which we determine in this paper by means of quantile regression analysis. Different factors may differently impact the explained variable at different points of its distribution. Such differences in impacts cannot be ascertained on the basis of estimation of the average value of the explained variable from given observations on explanatory variables. Identification of how different factors significantly influence exchange rate at different points of its distribution, will aid in the formulation of more targeted policies in the future. The objective of this paper is therefore to factor out the most dominant economic indicators responsible for steadily depreciating Indian rupee in the international market, and whether their impacts have remained same along the distribution of our explained variable. Our data analysis suggests that increasing CADs, increases in imports of oil and gold, and changes in domestic prices relative to world prices (taken to be an indicator of inflation), have significantly influenced the movement of rupee against US Dollar over the considered years. However, while the effect of oil import was significant across all the considered points on the distribution of nominal exchange rate, the same was not observed in case of CAD, gold import and changes in domestic prices relative to world price.

Henceforth, the structure of the paper is as follows. Based on the available literature, the paper discusses the role played by various economic indicators in influencing depreciation of rupee against US Dollar. Then, the methods and data to be used for addressing the objective are presented. The results are presented next. Finally the paper ends with summary and conclusion.

Reasons for Rupee Depreciation

Available literatures have identified a number of factors contributing to currency depreciation in India. The role played by each of these factors in devaluing rupee is taken up in this section.

Current Account Deficit

The current account includes all the transactions involving export and import of merchandise, services, as well as payment and receipts of dividends, interest, royalties, associated with international flows of capital. A deficit in the current account of a country implies consumption and spending in excess of income from international transactions. This results in an increase in foreign liabilities, and a consequent increase in demand for foreign currencies to pay for imports, interests, or dividend incomes on foreign borrowings or investments. The final result is currency depreciation for the country. A number of studies have documented the role of CAD in domestic currency depreciation. Blanchard *et al.* (2005) in their paper recognized the role of CAD in the US on dollar depreciation via two channels – an increase in US demand for foreign goods; and an increase in foreign demand for US assets. In a model with imperfect substitutability between the US and foreign goods and assets, they demonstrated that both the channels lead to dollar depreciation in the steady state. But a closer look at the dynamics of adjustment reveals that an increase in US demand for foreign goods leads to slow and steady dollar depreciation over time. An increase in foreign demand for US assets on the other hand leads to initial dollar appreciation, with slow and steady depreciation over time. In a more recent paper by Sandu (2015), the contribution of CAD towards Romanian currency depreciation was assessed.

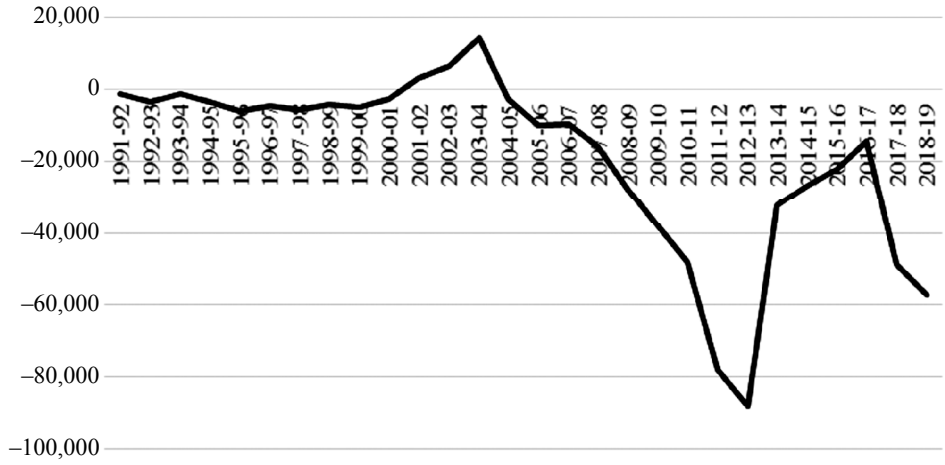
Jayraj (2000), Singh (2009), Kaur and Sirohi (2013), Singh (2013), Arora (2014) and Garg and Singh (2018) have recognized the growing Indian CAD as a possible factor for rupee depreciation.

Figure 2 presents the trend in India's CAD from 1991 onwards. The current account continued to remain in deficit for most of the years, excepting for a brief period between 2001-02 and 2003-04. A surge in demand for software exports from India was the reason for the surplus in current account between 2001 and 2004. After 2004, growing imports again outweighed exports, to put the current account into deficit. The CAD reached its bottom peak in the year 2012-13. The situation began to improve thereafter. However, the CAD again started to widen from 2017-18, because of the rise in global crude oil prices and the increase in imports of electronic goods, precious stones, coal, etc.

Although multiple factors could be held responsible for a country's CAD, historically, however, the balance in the merchandise trade account has determined India's current account balance (RBI, 2019). Two of the notable items in the merchandise trade account contributing to trade imbalance are oil and gold imports.

As documented by Singh (2009), Kaur and Sirohi (2013), Saket (2013), Singh (2013), Arora (2014) and Garg and Singh (2018), increasing global crude oil prices along with India's dependence on oil imports are the major reasons behind rupee depreciation. To satisfy the local demands of oil within the country, India must import a massive amount of oil from oil-producing countries. According to Kaur and Sirohi (2013), India can meet only 20% of the domestic demand for oil from domestic crude oil production. The rest 80% are imported from various oil-producing countries. Hence, increases in oil imports can exert some effect

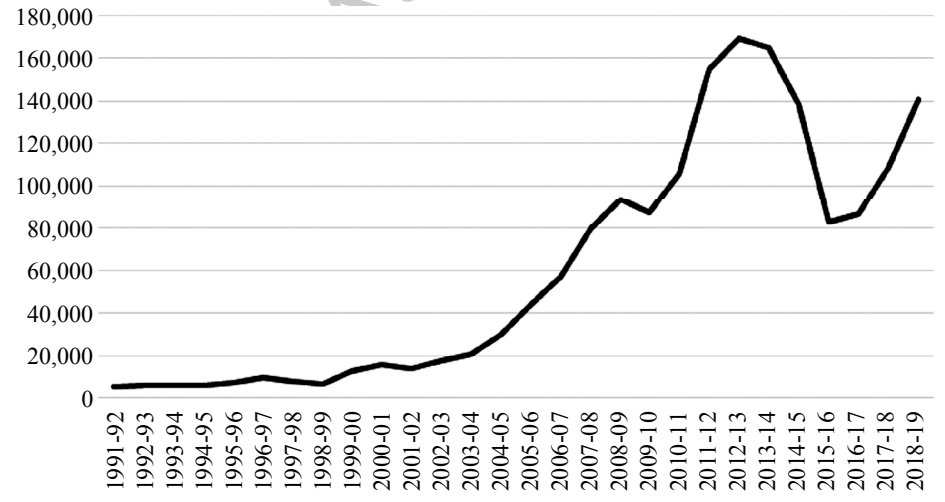
Figure 2: India's Current Account Deficit ($ mn)



Source: Handbook of Statistics on Indian Economy, RBI

on the value of rupee by increasing the outflow of dollar from India. Figure 3 shows the trend in oil imports into India, which has been rising till 2012-13. Between 2012-13 and 2015-16, a declining trend in oil import bill is observable due to a fall in global crude oil prices, induced by an increase in oil production in the US and falling demand from emerging economies, particularly China (Friedman, 2014). The trend is however reversed in 2015-16.

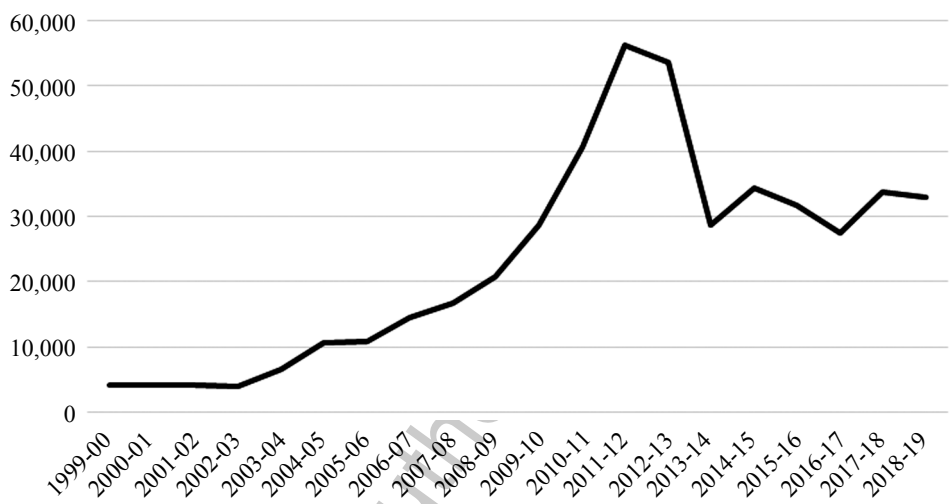
Figure 3: India's Oil Import ($ mn)



Source: Handbook of Statistics on Indian Economy, RBI

Apart from oil, gold is another component responsible for India's growing CAD. Excessive import of gold may lead to demand for dollars exceeding supply, and hence resulting in depreciation of rupee. Figure 4 shows the movements in gold import from 1999-2000 onwards. Till 2011-12, a rising trend in gold imports is visible. The import bill has however been controlled since 2012-13. The downward trend in gold imports was primarily due to various restrictive policies adopted by the Reserve Bank of India (RBI) and Government of India. These various restrictive measures included an imposition of ban on sale of gold by banks, an increase in gold import duty, ban on import of coins and medallions, and using of 20% of gold import for the manufacture of exportable products (Behera and Yadav, 2019).

Figure 4: India's Gold Import ($ mn)



Source: Handbook of Statistics on Indian Economy, RBI

Inflation

The relationship between domestic inflation rates and currency exchange rates is governed by the Purchasing Power Parity (PPP) theory. The theory states that under free international trade, perfect information and freely floating exchange rates, the prices of goods (expressed in a common currency) traded between the two countries are equalized across the countries (Ahmad and Ali, 1999b). The theory hence guides us to a relationship between nominal exchange rates (*NER*) and domestic price level (*P*) and world price level (*P**). The relationship can be expressed as:

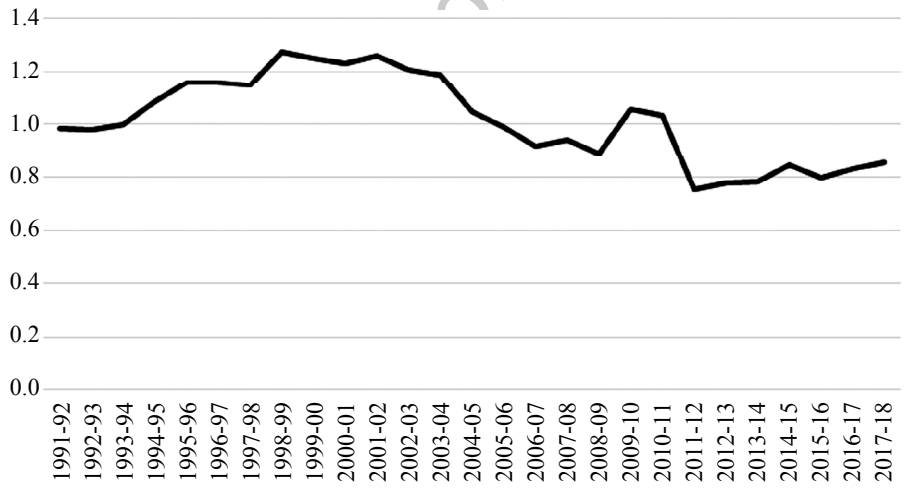
$$NER = \frac{P}{P*}$$

According to the above expression, PPP theory implies nominal exchange rate is equal to the ratio of domestic price to world price level, or in other words, the real exchange rate

$\left(NER\frac{P*}{P}\right)$ is equal to one.[1] Given the above expression, if the domestic price level rises relative to the world price level, the real exchange rate falls. A fall in real exchange rate signifies fall in international competitiveness of domestic products. Therefore, exports will fall relative to imports, resulting in declining foreign currency supply, and hence depreciation of domestic currency. However, the changes in exports in response to changes in prices, will depend upon the price elasticity of demand for exports. If a country's exports have low price elasticity in the international market, loss of competitiveness of domestic products may result in less than proportionate fall in export volumes, and hence export value may not fall to generate domestic currency depreciation. On the basis of the above arguments, fall in domestic prices relative to world prices will produce a tendency towards domestic currency appreciation, provided the demand for exports are price elastic.[2] Jayraj (2000), Mehta (2000), Saket (2013), Singh (2013), Ranadive and Burange (2013) and Garg and Singh (2018), have noted the association between rising domestic prices and Indian currency depreciation. High domestic inflation also contributes to uncertainty about future inflation rates in the economy, thereby leading to lower investment flows from other countries (Singh, 2009). Lower foreign investments into a country lowers the supply of foreign currency, hence contributing to depreciating domestic currency.

In Figure 5 we map the movement in domestic prices relative to world prices over a couple of years. Domestic prices are based on Consumer Price Index data (with 1999-2000

Figure 5: Domestic to World Price Ratio



Source: OECD and RBI

[1] Another version of the theory postulates a proportional relationship between nominal exchange rate and domestic to world price ratio, signifying a constant real exchange rate.

[2] However as noted by Ahmad and Ali (1999a), the relationship between exchange rates and domestic to world price ratio is not so perfect and may be influenced by multiple factors, resulting in a modified association between considered variables.

as the base year) obtained by OECD and retrieved from FRED, the Federal Reserve Bank of St. Louise. Data on export unit value index, import unit value index, exports and imports, are obtained from the *Handbook of Statistics on Indian Economy* 2019, RBI, to determine the world price index. Following Ahmad and Ali (1999a), the world price index is calculated on the basis of harmonic mean of export and import unit value indices (with 1999-2000 as the base year), weighted by the current value of exports and imports. As Figure 5 demonstrates, domestic prices rise relative to the world prices up to 1998-99. The movement is however reversed thereafter. It is now required to determine how the observed trend may have contributed to the currency depreciation in India.

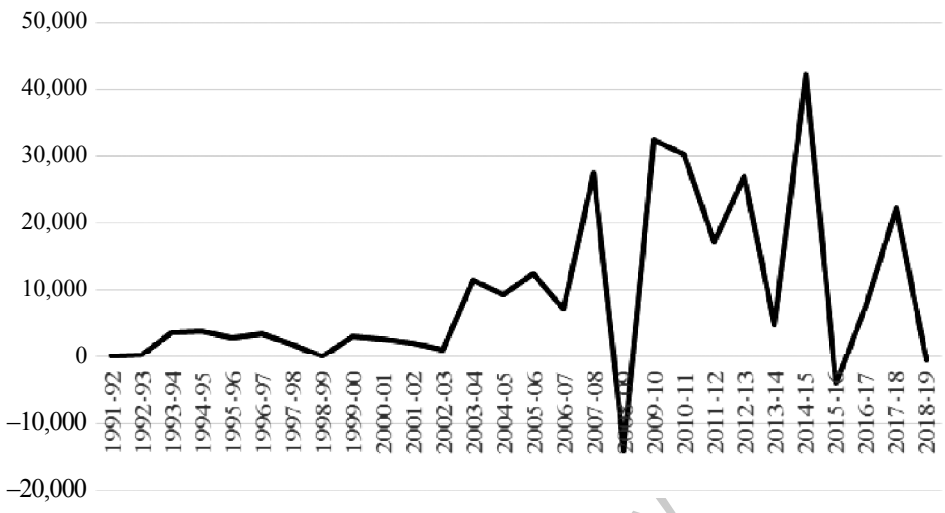
Volatility in the Equity Market

The phenomenon of volatility in the equity market and its possible adverse effect on rupee has been recognized by Chowdhury (2000), Mehta (2000), Suthar (2008), Singh (2009), Kaur and Sirohi (2013), Ranadive and Burange (2013), Saket (2013), Singh (2013), Arora (2014), and Garg and Singh (2018). Equity in this context means investment made by Foreign Institutional Investors in Indian companies. Losing the trust of foreign investors in the Indian market is an important reason for domestic currency depreciation. Due to fluctuations in the stock market and changes in interest rates, foreign investors may start withdrawing money from the Indian market, resulting in the greater outflow of dollars. Lesser supply of foreign currency will result in domestic currency depreciation, if demand for foreign currency remains unchanged.

While investment outflow may contribute to currency depreciation, investment inflows may result in domestic currency appreciation. Combes *et al*. (2012), for instance noted, the positive impact of portfolio investment inflows on the domestic currency of 42 emerging and developing countries over the period 1980-2006. Jongwanich and Kohpaiboon (2013) observed that investment inflows in the emerging Asian countries during 2000-2009, particularly in the form of portfolio investments, contributed to a faster domestic currency appreciation. The magnitude of currency appreciation however remained similar across all kinds of foreign investments. Outflow of investments in all forms from the considered countries was observed to cause domestic currency depreciation.

Figure 6 demonstrates the fluctuations in Foreign Institutional Investment (FII) net inflows (inflows less outflows) in India from 1991-92 onwards. As evident from the figure, India did not experience steady increase in inflow of foreign funds. The year following the global financial crisis witnessed the most significant drop in net inflows. FII inflows picked up its pace thereafter, probably due to the policies of lower interest rates associated with QE adopted by Federal Reserve to recover the US economy. After some fluctuations, the net inflows achieved its peak in the year 2014-15. But with the phasing out of QE by Federal Reserve in 2014, India again experienced considerable flight of foreign funds in the year 2015-16. The net inflows picked up after 2015-16, but again experienced a drop following 2017-18.

Figure 6: FII Net Inflows ($ mn) into India



Source: Handbook of Statistics on Indian Economy, RBI

Identification of all possible factors' contribution towards currency depreciation is just one part of the objective in this paper. In the following sections, we try to determine the significance of each detailed factor towards currency depreciation in India.

Data and Methodology

The data on Indian currency exchange rates, CAD, FII net inflows, oil import, gold import, and finally, domestic to world price ratio for the years 1991-92 to 2018-19 are collected from the various issues of *Handbook of Statistics on Indian Economy*, published by the RBI, and from FRED, the Federal Reserve Bank of St. Louise. Keeping in mind the fact that Indian economy underwent massive restructuring in 1991, which led to considerable changes in the macroeconomic environment since 1993, we consider the year 1993-94 as the base year and normalize the yearly data on CAD, FII, oil imports, and domestic to world price ratio, with that of the year 1993-94. The chosen base year is also significant considering the fact that India adopted market determined exchange rate regime in April 1993 (RBI, 2005). However, since the data for gold import are available from the year 1999-2000, the corresponding data series could be normalized with respect to the year 1999-2000 only.

We now employ statistical tools to determine the significance of each variable in influencing the currency exchange rate. We first make use of Spearman's rank correlation test to determine the relationship (positive or negative) between currency exchange rate and other variables. The rank correlation test, ranks the observations on two variables in increasing or decreasing order of magnitude, and then determines the correlation between two sets of ranks. Hence, dependence on ranks rather than on actual observations of a variable, makes the test independent of the form of the distribution of the variables. At the next stage, based on the

results of the rank correlation analysis, we try to estimate the impact of a unit change in some of the considered variables on currency exchange rates by means of quantile regression analysis.[3] Quantile regression models by default estimate, the median of the dependent variable given the values of the independent variables. Hence, the model proceeds by minimizing the sum of absolute residuals rather than the sum of the squared residuals (adopted under least squares technique). A kernel density plot of the dependent variable—normalized exchange rate, presented in the Appendix, would reveal that although the variable is approximately symmetrically distributed, it has a tendency to produce multimodal distribution. Under such circumstances, using the quantile regression technique is certainly justified. We are further interested in effect of independent variables not only on the median exchange rate, but also on the lowest (25^{th}) and the highest (75^{th}) quantiles. Hence, the application of quantile regression analysis is definitely a way forward.

The regression models that predict the effects of considered independent variables on exchange rate are presented as follows:

$$ER_{norm} = \alpha_0 + \beta_0 CAD_{norm} + u_0 \quad ...(1)$$

$$ER_{norm} = \alpha_1 + \beta_1 \, oilimp_{norm} + u_1 \quad ...(2)$$

$$ER_{norm} = \alpha_2 + \beta_2 \, goldimp_{norm} + u_2 \quad ...(3)$$

$$ER_{norm} = \alpha_3 + \beta_3 \left(\frac{P}{P*} \right)_{norm} + u_3 \quad ...(4)$$

In all the above models, *ER* stands for the exchange rate. *CAD* is the current account deficit. The independent variables *oilimp* and *goldimp* are the abbreviations for oil imports and gold imports respectively. The domestic and world price levels are represented by *P* and *P** respectively. The subscript *norm* associated with all the variables signify normalized transformation of the variables. The random error components corresponding to each regression equation are presented by u_0, u_1, u_2, and u_3 respectively.

The dependent and the independent variables corresponding to each regression models are hypothesized to be non-associated as per null hypothesis for testing the statistical significance of the estimated coefficients. The null hypothesis is tested against the alternative hypothesis of positive or negative association between the dependent and independent variables corresponding to each regression model.

Results and Discussion

In this section, we discuss our findings from the correlation and regression analyses.

[3] The considered independent variables have significant relation with the currency exchange rate as reported by the correlation analysis.

In Table 1, we present the estimated rank correlation coefficients.

Table 1: Estimated Rank Correlation Coefficients

	CAD_{norm}	FII_{norm}	$oilimp_{norm}$	$goldimp_{norm}$	$\left(\frac{P}{P*}\right)_{norm}$
ER_{norm}	0.5917*** (0.001)	0.2447 (0.210)	0.8714*** (<0.001)	0.6256*** (0.003)	–0.4444** (0.020)

Note: Figures in parentheses are *p*-values. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The number of observations considered while calculating the correlation coefficients with CAD, FII, and oil import are 28 each. The number of observations for domestic to world price ratio are 27. With gold import, the number of observations are 20. It is to be noted, while calculating the correlation between exchange rates and gold imports, the yearly data on exchange rates has been normalized with respect to the year 1999-2000, to maintain parity with the yearly data on normalized gold imports.

Table 1 shows that CAD, imports of oil and gold, and changes in domestic price relative to world prices are significantly related to changes in currency exchange value. However, as evident from the signs of the coefficients, while growing CAD and increasing imports of oil and gold have contributed towards rupee depreciation, changes in the domestic price level relative to the world price level had opposing effects on currency exchange rates. The underlying reason could be traced to the fact that most of the products exported by India have low price elasticity. Hence, if domestic prices fall or rise relative to the world price level, response of the volume of exports to price change will be less than proportionate, and therefore domestic currency exchange rate may move in the direction opposite to price change. Since in Figure 5, we observe the domestic prices to fall relative to world prices for most of the years under consideration, a low price elasticity of exports may have resulted in rupee depreciation than appreciation.

In Table 2, we present the results for simultaneous quantile regression with bootstrapped standard errors, only in case of variables where the rank correlation coefficients reported in Table 1 are found to be significant. It implies, the response of normalized exchange rate is assessed by considering unit changes in normalized CAD, imports of oil and gold, and lastly, domestic to world price ratio. It is to be noted that bootstrapped standard errors can handle independent but non-identically distributed errors. Hence, its purpose is similar to that of robust standard errors used in case of linear regressions.

Table 2 shows that the effect of CAD is significant only towards the lower and upper quantiles of the distribution of exchange rate. The impact of oil imports is however significant in all the quantiles of the distribution of exchange rate. The effect of gold import is significant only in the middle and upper quantiles of distribution of exchange rate. The impact of changes in domestic prices relative to world prices are significant only towards the upper quantile of the distribution of the exchange rate. Hence, although correlation analysis established a significant relationship between currency exchange rate and the considered variables, the quantile regression results demonstrate that the effect is not uniform across all the quantiles of the distribution of the explained variable.

Table 2: Estimated Coefficients for Quantile Regression Analysis

	CAD_{norm} (q25)	CAD_{norm} (q50)	CAD_{norm} (q75)	$oilimp_{norm}$ (q25)	$oilimp_{norm}$ (q50)	$oilimp_{norm}$ (q75)	$goldimp_{norm}$ (q25)	$goldimp_{norm}$ (q50)	$goldimp_{norm}$ (q75)	$\left(\frac{P}{P^*}\right)_{norm}$ (q25)	$\left(\frac{P}{P^*}\right)_{norm}$ (q50)	$\left(\frac{P}{P^*}\right)_{norm}$ (q75)
ER_{norm}	0.0047* (0.058)	0.0030 (0.279)	0.0062*** (0.006)	0.0171*** (<0.001)	0.0170*** (0.001)	0.0155*** (<0.001)	0.0143 (0.364)	0.0384** (0.038)	0.0434*** (0.001)	−0.9864 (0.146)	−0.4085 (0.445)	−1.4072*** (0.004)
Pseudo R^2	0.2195	0.1259	0.2929	0.4257	0.3218	0.4651	0.1194	0.2128	0.4682	0.0895	0.0586	0.2642
No. of Observations	28	28	28	28	28	28	20	20	20	27	27	27

Note: Figures in parentheses are the corresponding p-values. *** $p < 0.01$, ** $p < 0.05$ and * $p < 0.1$.

Conclusion

The current paper explores the factors influencing India's continuing currency depreciation. The factors identified to have possible impacts on the growing currency depreciation are CADs of India, Indian imports of oil and gold, inflation rates in India, and volatility in the equity market. Our analysis suggests that increases in CADs, imports of gold and oil, and changes in domestic prices relative to world prices (taken to be an indicator of inflation), have significantly influenced the currency depreciation in India between the period 1991-92 and 2018-19. India's CADs are driven mostly by the imbalance in the merchandise account, whose chief contributors are imports of oil and gold. Hence, it may be possible to control the falling rupee if attempts are made to reduce the CADs by specifically targeting oil and gold imports. Thus, we need to formulate policies to restrict imports of gold and oil. However, while formulating the policies, the policymakers need to take into account the fact that import of gold affects nominal exchange rates towards the middle and upper ends of the latter's distribution. Import of oil can however affect nominal exchange rate uniformly across different points in latter's distribution.

Higher import tariffs on gold can instantly put a check on imports, but it may also encourage gold smuggling. One noteworthy method for reducing gold import as suggested by Shenoy (2019), is to bring back the gold that RBI must be holding as reserves with the central banks of other countries. It is an accepted practice for the central banks over the world to keep their gold reserves with the central banks of other countries. If that gold can be brought back slowly by working on proper duration plans, it may help in reducing gold imports significantly. The accumulated gold can then be sold to the local jewelers or banks.

While making suggestions for reducing oil import bill, we first need to have a look at the factors responsible for the increased oil imports bill. According to Singh *et al*. (2014) maximum consumption of petroleum is by the transportation sector, comprising nearly 7% of annual petroleum consumption. Keeping this point in mind, consumption of oil due to transportation has to be limited. Alternatives to petroleum vehicles can be encouraged, e.g., usage of electric vehicles and promoting use of CNG to run transport vehicles. Building Metro trains in the top 70-80 cities in India may also help in reducing the dependence on personal transport, thereby easing the demand for petroleum. The government should also emphasize on increasing the use of biofuels, and start increasing the extraction of domestic crude oil by means of state-of-the-art Enhanced Oil Recovery (EOR) technology. The government has also considered the possibilities for increasing the acreage under exploration and production of oil. Several steps have already been taken in this regard. As reported by Gupta (2019), the government claims that the country has 41 billion tons of reserves of oil and oil equivalents, of which only 25% has been discovered so far. Hence, discovering the dormant oil fields and making them operational is definitely a major step towards reducing India's dependence on oil imports.

Along with putting a check on imports of oil and gold, some actions may also be taken to boost the country's export sector. Diversifying the export basket to include more of higher valued high skilled manufactures with a high price elasticity of demand in the international market, will not only help in containing the CAD, but will also help in diffusing the effect of domestic price changes on currency exchange rate.

However, with the outbreak of Covid-19, depreciation of rupee may be arrested for a while due to contraction in import demand. But as the outbreak has affected all the countries in the world, India's exports may fall as well. Hence, the actual movement of rupee in the international market will depend on the relative economic performance of different countries, and therefore on relative movements in exports and imports of India.❖

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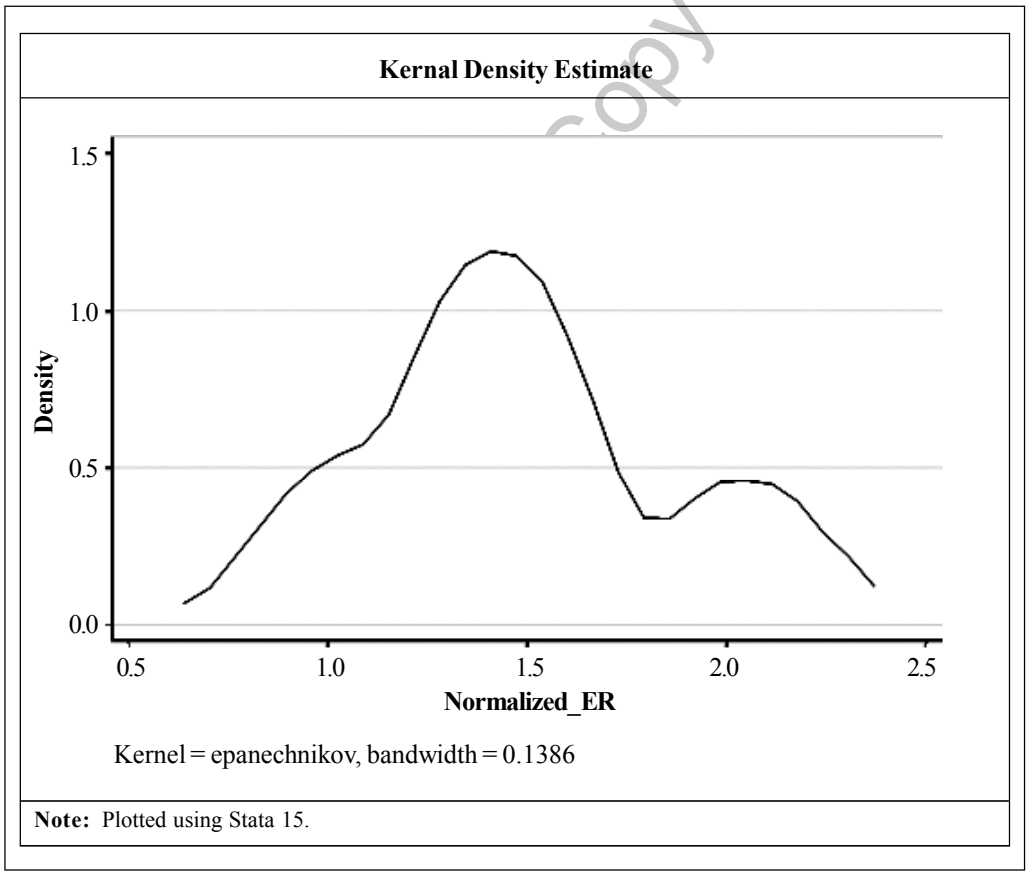
Appendix



Note: Plotted using Stata 15.

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