Macroeconomic Determinants of Indian Outward FDI – Is Corporate Tax Rate an Influencing factor?

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Abstract

The post-1991 reforms not only spurred a significant increase in Indian Outward Foreign Direct Investment (OFDI) but also laid the groundwork for empirical investigations into the macroeconomic determinants driving this trend. While India's OFDI grew remarkably over the years, a more striking change was witnessed in the character of India's overseas investment flows. The last decade has witnessed a growing percentage of outward Indian investment flowing into countries like Mauritius, British Virgin Islands and Cayman Islands, considered as tax havens of the world. Given that corporate tax rate in India has been historically very high and trans-shipping and round-tripping of funds by the Indian firms are favoured means to escape capital gains or other taxes, this study identifies the macroeconomic determinants of Indian OFDI, including corporate tax rate. Macroeconomic and policy related factors include level of economic development, inflows of FDI, trade openness, human capital, exchange rate that are assessed as determinants of Indian OFDI in this study using Granger Causality framework. Furthermore, corporate tax rate is also assessed as a determinant for Indian outflows of FDI to assess if investing overseas by the Indian firms is more likely an exit strategy than entry strategy into the international markets. Results show that besides economic development, openness to trade, exchange rate, human capital, corporate tax rate also, Granger causes OFDI flows from India raising a concern whether learning by doing is the only underlying motive to undertake OFDI by these firms.

Keywords- Outward FDI, India, Determinants, Corporate Tax Rate, Granger-Causality

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1. Introduction

Before the 1990s, India's restrictive macroeconomic, trade, and industrial policies significantly shaped the country's inward-oriented business environment. After the fundamental economic reforms of 1991, India slowly opened up its markets through economic liberalization.

The trade policy reforms initiated in India during the early 1990 involved abolition of import licensing system, reductions in tariff rates and removal of non-tariff barriers (NTBs), etc. The 1995 guidelines articulated by the Ministry of Commerce included the objectives of government in permitting OFDI – promotion of exports and augmenting the asset base through acquisition of technology and other resources and market seeking. These policy changes drew more and more Indian firms to invest in the global market. With policies restructured, foundations for better international presence of Indian firms were laid in this period of economic liberalisation (Amann and Virmani, 2015).

Liberalisation followed by globalisation led to increased outward investments from India in the 1990's although the real take-off was witnessed after 2000, when outward investments from India reached 95 billion USD as compared to 700 million USD during 1990s. This higher growth of overseas investments was due to higher inward FDI flows, financial sector reforms and simplification of regulations for overseas investments (Khan, 2012). Significant changes in Indian OFDI policies included major relaxations in the rules and foreign exchange regulations including replacing FERA, with FEMA in June 2000, raising the limit of investments under automatic approval route, and gradually phasing out annual ceiling system with the size of investor. The OFDI flows reached their highest point at $21 billion in 2008-09. Following this peak, there was a noticeable slowdown in OFDI due to the global financial crisis.

The dynamics between international production and investment advantages is explained by Dunning (1981), through the Investment Development Path (IDP) approach. It links the level of economic development of a country with the OLI (ownership, location and internalisation) advantages, such that taking ownership and location advantages at various stages of economic development, countries begin to invest in foreign countries (Dunning 1981, 1998).Mathews (2006) explains Leverage and Linkage and Learning Mechanism (LLL) framework which highlights how emerging multinationals navigate the global

landscape differently, focusing on collaboration and learning rather than just ownership advantages. MNEs often seek to acquire advanced technologies, brands, or management expertise that are not readily available in their home markets by using overseas expansion as a springboard so as to overcome their latecomer disadvantages (Luo and Tung, 2007). The home country macroeconomic environment along with country's liberal external policy structure are found to be significant factors explaining outward FDI from emerging markets (Nayyar and Mukherjee, 2020; Verma and Brennan, 2013). In the Indian case, rapid economic growth led major Indian firms e.g. Tata group, Infosys, Ranbaxy etc. to become a part of global OFDI scenario investing heavily overseas.

A recent phenomenon that has emerged is investing overseas to avoid taxes in the domestic country. Investments into the foreign markets are also done for tax evasion and sometimes for round tripping of capital in the form of inward FDI (Chen et al, 2016). It is revealed by data that Singapore and Mauritius are the top two sources of inward FDI for India, with the former accounting for 27% and the latter accounting for 16 % of inward FDI flows into India in 2020-2021 (WIR 2022, UNCTAD).Whereas overseas investments from Indian firms have been classified as strategic asset–seeking and trade-supporting types of investment (Pradhan, 2017), the last decade has witnessed a growing percentage of outward Indian investment flowing into countries like Mauritius, Cayman Islands and British Virgin Islands, known to be tax havens of the world. A well - known fact is that corporate tax rate in India has been historically very high and trans-shipping and round-tripping of funds by the Indian firms are favoured means to escape capital gains or other taxes. Hence, institutional factors such as corporate tax rate seem to have an important bearing on OFDI from emerging economies rendering inclusion of this factor extremely important in identifying country specific determinants of OFDI.

Very few research studies have examined country level determinants for Indian investments overseas (Nayyar and Mukherjee, 2020; Amann and Virmani, 2015; Singh, 2017). To the best of my knowledge, the role of corporate tax rate in determining Indian OFDI flows has not been examined in any of the previous studies. Inclusion of this factor can have important bearing on policy formulations that may be required to channelize OFDI flows from India in real sectors rather than tax havens. Given the limited previous literature on the effects of macroeconomic variables on the outward investments for India, this study seeks to fulfil the research gap by examining the role of factors such as economic development

(gross domestic product per capita), exchange rate, trade openness, inward FDI, human capital and corporate tax rate, on explaining the outward FDI flows after economic reforms. A time-series analysis is employed to examine the impact of these factors. This is done for the period 1991-2019. Specifically, this study adopts the Granger Causality framework to assess the relationship between OFDI and factors specific to home country.

The study is organized as follows: the next section reviews the literature. Research objectives are specified in Section 3. Section 4 presents the analytical framework for the choice of home country variables for the study. Data sources, methodology, model specification and results are presented in Section 5. Section 6 presents the methodologies used for the study. Section 7 concludes.

2. Literature Review

In the Indian context, research on the influence of domestic macroeconomic factors on outward FDI is indeed limited.

Tolentino (2010) investigates the impact of trade openness, exchange rate and rate of interest on outward FDI. The study is for India and China. Tolentino depicts the endogenous structure of system variables and shows that this structure and time path of the variable differs for both countries. Results indicate that external factors pertaining to the domestic country can have a partial impact on the competitive advantage of firms.

In a recent study, Nayyar and Mukherjee (2020), use time series (ARDL) to examine the impact of macroeconomic factors and domestic policies on Indian outward FDI flows for the period 1984-2015. Trade openness and inward FDI flows are found to be significant determinants of Indian OFDI. The development of the stock market and banking sector are found to significantly affect outward foreign direct investment. However, they fail to find evidence of any long run relationship between economic development (GDP per capita) of the country and outward FDI flows. They also do not find any long run impact of exchange rate and outward FDI flows. Singh (2017) finds a cointegrating relationship between exports and GDP, and outward FDI for India. Whereas exports are found to be significant determinants of OFDI affecting OFDI positively, GDP is found to be insignificant in explaining OFDI from India.

Testing the IDP (Investment Development Path) theory for India, Amann and Virmani (2015), find a significant relationship between economic development and Indian OFDI position. They also find evidence of joint significance of exports, inward FDI and human capital jointly determining Indian OFDI.

In a study for India, Rajan's (2009) studies the determinants of outward FDI flows. He employs the gravity model for the period of 2000-2005. Employing panel data techniques he finds that a rise in the real exchange rate of host countries negatively impacts OFDI flows from India and Indian firms are particularly sensitive to the market size of potential host countries.

The methodologies used in the above studies vary. Tolentino (2010) employs multivariate time series analysis for his study on OFDI from India and China. Nayyar and Mukherjee (2020) examine the impact of macroeconomic factors and internal policies on Indian OFDI using time series (ARDL) techniques. Amann and Virmani (2015) use Granger causality and cointegration analysis for their study. However, Rajan (2009) employs a panel data analysis to examine determinants of Indian outward FDI.

Mixed conclusions emerge from the above literature review. While openness of home countries is generally found to have important bearing on overseas investments of firms, role of exchange rate, rate of interest and knowledge infrastructure in explaining the same is varied.

3. Research Objectives

It emerges from the above review on macro-economic determinants of Indian OFDI, that very few studies have been conducted in Indian context with no uniformity in results. They also suffer from the limitations of relevant time period of study. Either they have considered time period which does not include the time of the real take-off of Indian OFDI years or have been limited to initial years of growing Indian OFDI. More importantly, large outward FDI flows from India are going to tax havens of the world. Avoidance of high corporate tax rate could be one of the reasons resulting in such flows. Inclusion of corporate tax rate in this analysis is warranted by the consideration that a higher tax rate might be a

burden on firms which might then resort to outward FDI as an escape route to avoid taxes in home countries. However, no study has examined if corporate tax rate could be one of the factors determining outward FDI from India.

Hence, the objective of this paper is to identifying macro-economic determinants of Indian OFDI and also to test if corporate tax rate is a factor that identifies as a macro-economic determinant of Indian OFDI. This study is based on time series analysis that also takes into account the structural break, that has been neglected in most of the studies on Indian OFDI. Ignoring the structural break can produce misleading results, which is taken into account by this study.

4. Analytical Framework for the Study- Macroeconomic Factors

4.1. Economic Development

The Internationalization Development Path (IDP) approach emphasizes the critical role of economic development through location advantages in facilitating OFDI flows (Dunning 1981, 2001). As countries progress economically, the nature of location advantages evolves, influencing how firms perceive and leverage these advantages for international expansion. Effective location advantages can attract inward FDI, which further develops the local economy and enhances the capabilities of domestic firms to invest overseas.

Economic development is a significant driver of OFDI as is well-documented in various empirical studies. Studies by Andreff (2002), Das (2012), Bhasin and Jain (2013), Dunning (2001, 1981), consistently highlight economic development as a crucial factor influencing OFDI. Study by Kalotay and Sulstarova (2010) on Russia specifically identifies the size of the market in the domestic country as an important determinant of OFDI. They found that an increase GDP by 1% leads to an increase in Russian OFDI by 0.9%.

Testing the IDP theory for India, Amman and Virmani (2015) also find economic development is found to be an important determinant in explaining OFDI for India. Similarly, Verma and Brennan (2013), find GDP per capita as a significant determinant of OFDI from India. Thus, incorporating economic development as a proposed explanatory factor for outward foreign direct investment (OFDI) aligns well with existing research.

4.2. Exchange Rate

One of the factors that can significantly influence its ability to invest abroad is the domestic exchange rate. Countries with strong currency can positively affect overseas investments as compared to countries with weaker currencies. A stronger currency implies lesser amounts of foreign currency required to purchase assets abroad, leading to higher outward FDI and fewer exports (Aliber, 1970). Although, for India, studies have found a that a strong currency can lead to higher OFDI without impacting exports (Bhattacharya and Mukherjee 2014). Other studies have found a positive impact of a stronger currency on OFDI (Buckley et al., 2012; Tolentino, 2010; Varma, Bhasin and Nayyar, 2015).

4.3. Trade Openness and Inward FDI

Previous studies like Banga (2007), Dasgupta (2009), Buckley et al. (2007) and Gao et al. (2013) suggest that economic development is supported by other factors such as trade openness, and investment agreements that facilitate operation of foreign firms and increases transparency. They facilitate cross border expansions due to low trade barriers and local content requirements. In addition to that, knowledge gained through foreign export linkages is expected to lead to ownership advantage for firms attempting to venture abroad (IDP, Dunning 2001).

The relationship between trade openness and outward FDI is well-documented in literature (Amann and Virmani, 2015; Buckley et. al., 2007; Banga, 2007; Das, 2009). Policies that promote trade significantly enhance outward foreign direct investment. By allowing greater imports, trade policies intensify competition in the domestic market. Further, companies that engage in exporting often develop skills and capabilities that ease the transition to foreign direct investment. Their exporting experience can inform strategic decisions about market entry and operational management abroad (Banga, 2007; Dasgupta, 2009; Vernon, 1966). Trade flows are therefore included in the present analysis.

As posited by IDP, IFDI flows are also found to have a bearing on outward FDI mainly due to O-advantages enjoyed by domestic firms. These can be the spill- over effects of foreign firms to domestic firms through demonstration effects, enhancing their management skills and adding to technological advancements which positively affect their overseas investment capabilities (Durán and Ubeda, 2001; Dunning, 1981).Whether increase in OFDI promoting

advantages were gained from increased IFDI in India has been studied by a few scholars (Nayyar and Mukherjee, 2020; Amann and Virmani, 2015; Dasgupta, 2009). Inward FDI flows are included as another explanatory variable in present study for further insight into the relationship.

4.4. Human Capital

According to Banga (2007), existence of trade related drivers that facilitate OFDI may not be sufficient to invest overseas; the firms should also have the capability to undertake OFDI. Knowledge and information about host countries, managerial, entrepreneurial and marketing abilities and cutting-edge skills are required to compete and invest in the global market. A robust knowledge infrastructure equips firms with the necessary tools and capabilities to effectively engage in OFDI, leveraging their ownership-specific advantages in global markets (Dunning 1981). Gao et. al. (2013) that integrating knowledge capital into the IDP framework enriches its applicability and effectiveness, equipping firms to navigate the complexities of global markets more successfully. Liu et al. (2005) emphasize that to better understand outward foreign direct investment (OFDI), it is essential to advocate for a special theory that incorporates human capital alongside traditional economic indicators like gross domestic product (GDP). Studies on India also confirm the proposition that economic development has to be supported by other factors such as openness of the economy reflected in trade and inward FDI flows and human capital (Amann and Virmani, 2015; Verma and Brennan, 2013). This is particularly important for multinationals in the emerging economies like India who are latecomers in the global scenario, and aggressively seek assets to augment their knowledge base and acquire competitive skills. Both asset acquiring and asset augmenting aspects of OFDI flows require knowledge absorption and diffusion capabilities of the firms. Education and skilled personnel are therefore prerequisites for a firms' competitive advantage that is looking to venture in overseas markets (Verma and Brennan, 2013). Hence, human capital is incorporated as an explanatory variable for the study.

4.5. Corporate Tax Rate

Inclusion of corporate tax rate in the present analysis is warranted by the consideration that a higher tax rate can impose significant regulatory burdens on firms, potentially leading them to resort to outward FDI as an escape route to avoid taxes in home countries. It has been shown for a country like Malaysia where higher corporate tax rate has caused firms to invest overseas as an exit strategy rather than a global entry strategy (Chen et al., 2016). India is one of the countries which have a history of high, corporate tax rate with surcharges. Tax revenue has been the primary source of government revenue, required to fund larger scale public investments in India (Pattnaik et al., 2009). Although, the tax structure was simplified, and corporate tax rate was reduced in 1991, it has still been very high (close to 25%) in comparison to the countries that are like India in terms of development. Moreover, it has been established that the inefficiently high tax rate, led to large scale tax induced distortions in investment and financing decisions in the private sector in India (Poirson, 2006). As already entailed earlier, large outward FDI flows from India are going to tax havens of the world. Avoidance of high corporate tax rate could be one of the reasons resulting in such flows. Therefore, corporate tax rate is included in this study to examine if this could be one of the policy related factors determining outward FDI from India.

Based on the above discussion, the next section gives the definitions of variables chosen for the study and also presents the important trends in these variables.

5. Variables, Data Sources, Period of Study and Methodology (Macro-economic Determinants)

The variables, used in the study are defined as follows:

- rofdi: OFDI flows are measured as real outward FDI flows, at constant 2012 USD million
- rgdppc: economic development as measured by real GDP per capita
- rifdi: Inward FDI flows measured as real inward FDI flows, at constant 2012 USD million
- exchange: Exchange rate as measured as direct quote of Indian rupee against USD
- trade: Trade volumes measured as Merchandise Trade (exports+imports) to GDP ratio

- humancapital: Human capital as measured by enrolment in tertiary school
- tax rate: Corporate tax rate

Nominal values of outward and inward FDI flows have been deflated by the relevant price indices. RBI Handbook of Statistics provides data for real GDP per capita, trade, tax rate and exchange rate whereas data for real inward FDI and outward FDI flows and human capital are obtained from the World Development Indicators, World Bank, for the period 1991-2019.

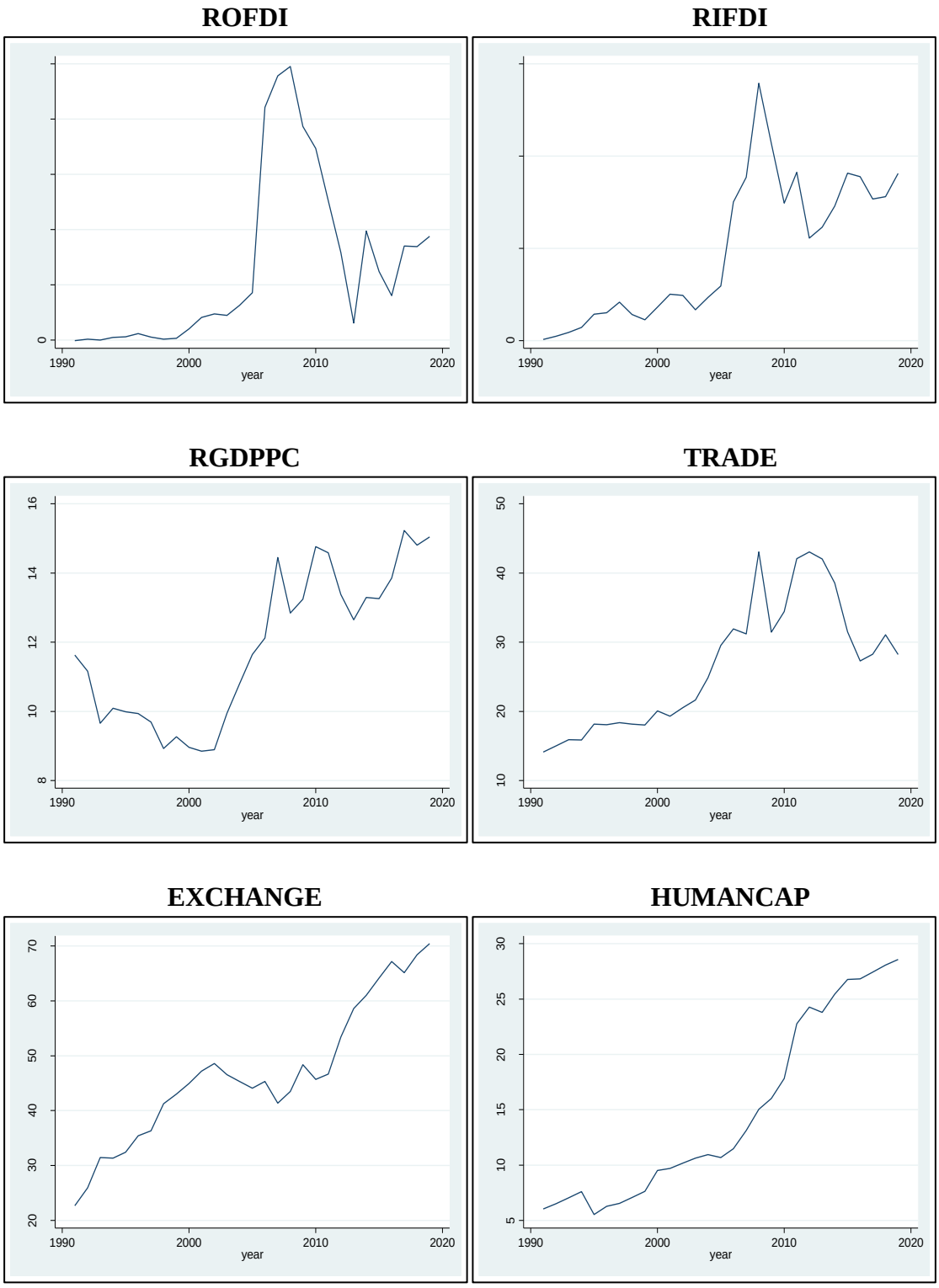
The period of study chosen, 1991-2019, is the post reforms period, when significant domestic and structural changes were initiated in the Indian economy. The study employs multivariate time series technique on the yearly data for the time period of 1991-2019.

The study uses Granger Causality tests after testing for the presence of unit root by Augmented Dickey Fuller and Phillips- Perron tests and Chow test for a structural break. When conducting time series analysis, it's crucial to address the issue of non-stationarity, as using standard regression techniques can indeed lead to spurious results. Since vector autoregression (VAR) requires the series to be stationary, therefore, the test for unit root for each of the variables is conducted.

5.1. Variable Trends Following Policy Reforms in India (1991-2019)

Figure 1 shows the trends in each variable series used for the study. It also indicates all series to be non-stationary. Following the fundamental economic reforms of 1991, India gradually progressed towards a market-oriented economy. Reforms including abolition of licensing policy, lower import tariffs, privatisation, financial sector reforms, with major relaxations in controls of current and capital accounts, changes in exchange rate regime and major changes in OFDI policies since 2000's paved the way of Indian integration with the world economy. Country was firmly on the path to economic growth and development indicated by growth trends in GDP, trade and foreign investment. India's GDP rose from 274.84 billion USD in 1991 to 2831.55 billion USD in 2019. *Real GDP per capita* rose from 11.6 to 15.03 in the same period. With the initiation of trade liberalisation, trade as % of GDP nearly quadrupled from 14% in 1991 to nearly 43%in 2008. It stood at 28.2% in 2019 (Figure 1).

Figure 1: Yearly Data Trends of Variables: 1991-2019



TAX RATE

Figure Source- Author's own Calculations

Through liberalised exchange rate management system rupee was made partially convertible in 1992-1993. Full convertibility in trading account was further brought in 1993-1994 and complete convertibility in current account was brought in by the year 1994 to create a business-friendly environment and to promote foreign trade and investment (Jayanthi, 2015). Gradual removal of the licensing restrictions, facilitative measures for Indian and foreign firms and reduction in import duties over the years led to growing and intense competition in Indian markets, which prompted Indian firms to diversify globally. Inward FDI flows increased from nearly 74 million USD in 1991 to 50610.64 million USD in 2019, registering an average annual growth rate of 37.8 % (UNCTAD, 2021). Accordingly, major changes in the OFDI policies were initiated in 2000's such as replacing FERA with FEMA, introducing the automatic approval route and doing away with the annual investment ceiling under this route, raising the financial commitment in automatic route gradually up to 100 percent of the net worth of the investor in 2004. These changes significantly expanded the OFDI flows from India (Figure 1). OFDI flows witnessed a sharp fall after 2009, and have been showing a cyclical pattern, though with a rising trend. As can be seen from figure above, the period also witnessed changes in the institutional factors associated with economic growth and development such as human capital. Tertiary school enrolment ratio, a measure of the same, rose from nearly 6% in 1991 to 28.5 % in 2019. Post tax reforms initiated in India, corporate tax rate was reduced from an average rate of 50% in 1990's to 35% on an average, in 2000's. The average tax rate is still very high as compared to India's contemporaries, for example, corporate tax rate in Singapore is around 17%, in Thailand, it is 20%, and UAE has only recently imposed 5% tax on corporations.

5.2. Methodologies

Tests for Unit Root: Augmented Dickey Fuller (ADF) Test

The testing procedure for ADF is applied to the model

$$\Delta Y_t = \alpha + \beta t + \delta \Delta Y_{t-1} + \gamma \Delta Y_{t-1} + \cdots + \gamma \Delta Y_{t-p} + \in_t \quad (1)$$

In the ADF test the coefficient of interest is, δ in the above equation. α represents constant, β, represents coefficient of time trend, p is the lag order of the autoregressive process and $\in$ is the white noise error term. Lag length can be tested going down from high orders and examining the t-values on coefficients or an alternative approach is to examine information criteria such as the Akaike information criterion or Bayesian information criterion or Schwartz information criterion.

To carry out the unit root test, the null hypothesis is $\delta = 0$ against the alternative hypothesis of $\delta < 0$. Next step is computing the value for the test statistic as $DF_\tau = \delta$ / SE (δ), and comparing it to the relevant critical value for the ADF test. Since the test is asymmetrical, only the negative values of the test statistic are taken into consideration. If the calculated test statistic, DF_τ, is less (more negative) than the critical value, then the null hypothesis of $\delta = 0$ is rejected with the conclusion that no unit root is present (Enders, 2014).

The Augmented Dickey-Fuller (ADF) test is indeed a widely used tool for detecting unit roots in time series data, but it has certain limitations. The power of the ADF test can be limited, particularly in small samples. It may fail to detect a unit root when one is present. Performing the Phillips-Perron test in addition to the ADF test can enhance the robustness of the analysis regarding unit roots as it has less restrictive assumption for error terms (Enders 2014).Hence, this test is also performed for robustness.

Chow's Test for Structural Break

We compare two data sets. One is the 'primary' data set-i={1,...,n_1} ; other is the 'secondary' data set-i={ n_1+1,...,n}. The combined set is then defined as -i={1,...,n}. If there is no structural change between the primary and secondary data sets, combining them into a single regression model can be valid without worrying about biased estimators.

Consider the regression:

$$y_t = \beta_0 + \beta_1 x_{it} + \beta_2 x_{2t} + \cdots + \beta_k x_{kt} + \gamma_o D_t + \sum_k^{i=1} \gamma_i x_{it} D_t \quad (2)$$

Where i={1,...,n}.

D stands for dummy variable taking a value of 1 for i={n_1+1,...,n} and 0 otherwise.

When both data sets are explained fully by $\{\beta_0, \beta_1 \ldots\ldots \beta_k\}$ then there is no use in the dummy variable as the data set is explained fully by the restricted equation. That is, under the assumption of no structural change we have a null and alternative hypothesis of:

$$\left.\begin{aligned} H_0 &= \gamma_o, \gamma_1 \ldots\ldots \gamma_k = 0 \\ H_1 &= Otherwise \end{aligned}\right] \quad (3)$$

The null hypothesis of joint insignificance of D is tested by F-test with n- 2 (K+1) degrees of freedom (Chow, 1960). It is given by:

$$F = \frac{RSS(\text{restricted}) - RSS(unrestricted)/(K+1)}{RSS(unrestricted)/DOF} \quad (4)$$

Vector Auto Regression (VAR)

A VAR system contains a set of *m* variables, each of which is expressed as a linear function of *p* lags of itself and of all of the other *m* – 1 variables, plus an error term. With two variables, *x* and *y*, an order-*p* VAR would be the two equations (1.1)

$$\left.\begin{aligned} y_t &= \beta_{y0} + \beta_{yy1} y_{t-1} \ldots. + \beta_{yyp} y_{t-p} + \beta_{yx1} x_{t-1} + \cdots \beta_{yxp} x_{t-p} + \epsilon_t^y \\ x_t &= \beta_{x0} + \beta_{xy1} y_{t-1} \ldots + \beta_{xyp} y_{t-p} + \beta_{xx1} x_{t-1} + \ldots \beta_{xxp} x_{t-p} + \epsilon_t^x \end{aligned}\right] \quad (5)$$

where β*xyp* is the coefficient of *y* for *x* at lag *p*

Akaike information criterion or Schwartz information criterion can be used to ascertain the appropriate lag length in a VAR. The present study includes the year dummy variable to the set of equations to take the structural break into account.

The framework established by equation (1.1) is effective for both forecasting future values of *x* and *y*, and for exploring causal relationships through Granger causality analysis.

Granger Causality

A time series X is said to Granger-cause another time series Y if it can be shown, usually through a series of t-tests and F-tests on lagged values of X (and with lagged values of Y also included), that those X values contain statistically significant information about future values of Y. Testing for Granger causality in (1.1) amounts to testing the coefficients of past values in the regression equation is zero. The null hypothesis is that *x* does not Granger cause *y* or

$$H_0 = \beta_{yx1} = \beta_{yx2} = \ldots\ldots\ldots \beta_{yxp} = 0 \quad (6)$$

And testing the hypothesis that y does not granger cause x,

$$H_0 = \beta_{xy1} = \beta_{xy2} = \ldots\ldots\ldots \beta_{xyp} = 0 \quad (7)$$

Against the alternative hypothesis that null is not true. This can be tested using a standard Wald *F* or χ^2 test (Enders, 2014).

6. Results and Discussions

6.1. Results for Unit Root

The Augmented Dickey-Fuller (ADF) test is a key method for testing the presence of a unit root in time series data. Hence, this test is employed for empirical investigations. The test is conducted in the levels first and then in the first differences. For each series, this study uses the specification of the test equation that includes an intercept with zero lags. For robustness, testing by Phillips-Perron (PP) method is also carried out alongside ADF to test for the presence of unit root. Results for both tests are presented in Table 1.

Table 1: Results for Stationarity

Augmented Dickey Fuller Test for Stationarity					
Variables	**t-statistic(levels)**	**t-statistic (first difference)**	**Critical value (1%)**	**Critical value (5%)**	**Critical value (10%)**
rofdi	-1.592	-4.537	-3.73	-2.992	-2.626
rifdi	-1.363	-5.158	-3.73	-2.992	-2.626
trade	-1.598	-5.901	-3.73	-2.992	-2.626
exchange	-0.619	-4.572	-3.73	-2.992	-2.626
humancap	0.845	-3.977	-3.73	-2.992	-2.626
rgdppc	-0.532	-5.279	-3.73	-2.992	-2.626
tax rate	-1.095	-6.056	-3.73	-2.992	-2.626
Phillips- Perron Test for Stationarity					
Variables	**t-statistic(levels)**	**t-statistic (first difference)**	**Critical value (1%)**	**Critical value (5%)**	**Critical value (10%)**
rofdi	-1.774	-4.548	-3.73	-2.992	-2.626
rifdi	-1.386	-5.158	-3.73	-2.992	-2.626
trade	-1.56	-5.916	-3.73	-2.992	-2.626
exchange	-0.683	-4.547	-3.73	-2.992	-2.626
humancap	-0.651	-3.935	-3.73	-2.992	-2.626
rgdppc	-0.562	-5.224	-3.73	-2.992	-2.626
tax rate	-0.917	-6.378	-3.73	-2.992	-2.626

Notes: Number of observations – 28 (ADF), 27(PP)

Both the measures have given the same result. The tests confirm that all variables are non-stationary at levels and stationary at their first differences. All variables are therefore integrated of order one i.e. I(1).

Once the series are made stationary by first differencing, the next step is to perform VAR on these series and perform Granger causality tests. It is worth noting that the graph for OFDI flows in figure 6 above points to the presence of a structural break in 2009. Therefore, before doing the Granger causality tests, Chow test is conducted to test for the presence of a structural break for the same year.

6.2. Chow Test for Structural Break

Following the global financial crisis in 2008, existence of a structural break during that time period is expected. Chow's test conducted for the current analysis for the year > 2009, reported the following statistics: $F(2, 20) = 4.61$; $Prob > F = 0.0226$.

The results validate the presence of a structural break in the mentioned year. Hence Granger causality tests are done by running a vector autoregression (VAR) with a year dummy[2] to account for this break.

[2] Dummy takes the value 0 for years 1991-2009 and 1 for years, 2010 onwards.

6.3. Results of Granger Causality Tests

The results of Granger causality tests show that economic development, openness to trade, exchange rate, human capital and corporate tax rate, granger cause OFDI flows from India (Table 2). The results are consistent with Amann and Virmani (2015) and Singh (2017) who find a positive relation between economic development (GDP per capita). Results are also in line with Dasgupta (2009) and Amann and Virmani (2015), who also find insignificant effect of inward FDI flows on OFDI.

Studies show that trade openness plays a crucial role in predicting Indian OFDI. Therefore, liberalised government foreign trade policies in India, manifested in the form of higher imports and exports may have affected OFDI. This may be the result of increasing competition with higher imports and by the process of enhanced international exposure with exports (Banga, 2007). Further, as explained by Mathews 2006, the Linkage-Leverage and Learning (LLL) mechanism can also promote OFDI flows from emerging economies like India. External linkages such as trading networks enable learning process of firms investing overseas by providing access to foreign knowledge and skills. Results are consistent with Amann and Virmani (2015), Singh (2017), Nayyar and Mukherjee (2020), who also find trade openness to be a significant factor determining Indian OFDI flows.

LLL mechanism posits that firms benefit from investing abroad, depending upon their capacity to absorb knowledge and skills implying that human capital can be a significant factor in predicting OFDI flows (Mathews, 2006). This is confirmed by the results obtained in this study. Results are consistent with Amann and Virmani (2015).

A significant finding of this study is that corporate tax rate Granger causes Indian OFDI. This result emerges out of several facts about Indian OFDI. In the first decade of the period under study, Indian OFDI had only started growing. Hence, expected factors such as economic development, trade openness, and human capital led to Indian firms investing overseas in developing countries such as Sri Lanka, UAE and Hong Kong, China. These countries had nearly 50% share in Indian OFDI with respect to developing economies during 1990-1999 (Pradhan, 2017), a period of economic growth and development and also when Indian economy opened up to the global world. But this pattern changed drastically in

favour of tax havens like Mauritius, Cayman Islands, British Virgin Islands, with Mauritius alone accounting for nearly 35 % of flows within the developing countries and 18% in the overall Indian outflows (RBI database) over the period 2009-2019. Shares of countries like Hong Kong (China) and Sri Lanka which stood at 24.7% and 5% in 1990-1999, fell significantly to 1.3% and 0.5% during 2000-2019 (RBI database). This change in pattern can be attributed to higher outflows from India to avoid high corporate tax rate and higher inflows to countries which have a much lower tax rate and an advantageous fiscal tax haven like Mauritius and Singapore, which are amongst the top 10 host countries for Indian outflows currently (RBI database). Further, largest proportion of inward FDI flows into India come from Singapore (27%) and third- largest from Mauritius (16%). To the extent, that outflows are targeted to these countries offering low tax rates and investor friendly climate and OFDI is channelled into productive sectors, the higher outflows may be beneficial for the multinational firms, but if they are meant for money laundering and round tripping, they may be redirected back to India as inward FDI flows, as indicated by reverse causality results which show that OFDI granger causes inward FDI.

Reverse causality results show that outward FDI flows granger cause trade. This is in line with the theory that outward FDI can promote exports of intermediate goods that can originate in the home economy from the host markets. Parent firms can ship intermediate goods to their subsidiary firms overseas (Blomström and Kokko, 1994).

Reverse causality is absent for all other variables which can be due to the fact that though Indian OFDI has witnessed growth in recent years yet it remains small compared to the other countries like China. Also, since Indian OFDI flows have a preference for the tax haven countries, they may not have a significant impact on country level factors like GDP per capita or human capital. Results are consistent with Amman and Virmani (2015) who also find one way causality from GDP per capita, exports and human capital to OFDI and do not find reverse causality except in case of R&D expenditures.

Table 2: Granger Causality Results

	Chi- square(dof)	**p-value**
IFDI→ OFDI	4.2013 (2)	0.122
OFDI→ IFDI	14.654 (2)	0.001***
IFDI does not Granger cause OFDI but OFDI Granger causes IFDI		
TRADE→ OFDI	9.8346 (2)	0.007**
OFDI→TRADE	29.134 (2)	0.000***
Trade Granger causes OFDI and OFDI Granger causes Trade		
RGDPPC→ OFDI	15.313 (2)	0.005***
OFDI→ RGDPPC	3.414 (2)	0.181
RGDPPC Granger causes OFDI but OFDI does not Granger cause RGDPPC		
EXCHANGE→OFDI	8.8658 (2)	0.012*
OFDI→ EXCHANGE	2.5927 (2)	0.274
Exchange Granger causes OFDI but OFDI does not Granger cause Exchange		
HUMANCAP→OFDI	28.03 (2)	0.000***
OFDI→ HUMANCAP	0.5091 (2)	0.775
Humancap Granger causes OFDI but OFDI does not Granger cause Humancap		
TAX RATE→OFDI	6.7848 (2)	0.034*
OFDI→ TAX RATE	1.0513 (2)	0.591
ALL→OFDI	51.355 (12)	0.000***
All variables granger cause OFDI		

Notes: * denotes 10% level of significance, **denotes 5 %significance level and *** denotes 1 %significance level. Lag length was chosen to be 2 as selected by AIC; VAR regression includes dummy variable for structural break.

6.4. Robustness Check

Results for Granger causality are also confirmed by Wald tests. As seen from Table 3, all variables except inward FDI are found to be significant in explaining OFDI flows as suggested by the p-values.

Table 3: Wald Test for Robustness Check

	Chi-square(Dof)	**P-value**
rifdi	4.21 (2)	0.1218
trade	9.83 (2)	0.0073
rgdppc	15.31 (2)	0.0005
exchange	10.72 (2)	0.0047
humancap	28.03 (2)	0
tax rate	6.78 (2)	0.0336

Source- Author's calculations

7. Conclusion

The present study brings forward the necessity to include not only the macroeconomic factors such as economic development but policy linked factors in determining Indian OFDI. In the light of economic reforms in 1991 and the more recent destination pattern changes in OFDI flows, the study attempts to identify the determinants for the Indian OFDI over the last three decades using Granger causality framework. Chow's test confirms the existence of a structural break after global recession in 2008-2009. Incorporating the year dummy, the empirical evidence in this chapter indicates the presence of one-way causality from economic development, trade openness, human capital, exchange rate and corporate tax rate to OFDI. Reverse causality is found from inward FDI flows and trade.

Results confirm that for emerging economies like India, economic development has to be supplemented with other factors such as trade openness and human capital and that internationalization strategies of firms are not only affected by home macroeconomic environment, but also on internal home policies (Saad et al., 2014, Stoian, 2013, Amann and Virmani, 2015). Policies that boost and promote trade and enhance knowledge infrastructure can go a long way in motivating firms to venture abroad. By building knowledge infrastructure and fostering trade linkages, countries can enhance their firms' capabilities, facilitating outward FDI through the capability development and leverage and learning process (LLL).

However, significance of corporate tax rate in explaining OFDI from India raises concern about whether OFDI flows have become an exit strategy rather than entry strategy into the global world. High corporate taxes in India have probably led to firms investing in countries that have a much lower tax rate. Some of these investments can be purely for tax avoidance and can therefore not result in any productivity or knowledge gains that OFDI can generate. A revision of the corporate tax rate or the introduction of targeted incentives could significantly strengthen the internationalization strategy of Indian firms. It is also suggested that international tax reforms can promote international tax parity which can perhaps mitigate the complexity of the problem (OECD, "Action Plan on Base Erosion and Profit Shifting").

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