

Inflation targeting and exchange rate pass-through in India: Lessons from international experience

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Abstract. *This paper surveys the existing literature on the relationship between inflation targeting (IT) and exchange rate pass-through (ERPT), with a focus on drawing lessons for future IT countries and estimating ERPT in India. The study finds that the main lessons emerging from the experience of IT in reducing pass-through are (a) monetary policy should focus on future inflation, (b) coordination between monetary and fiscal policy is important, and (c) IT is not a panacea. Furthermore, ERPT varies across countries and depends on the composition of the inflation index. The paper also presents a case study of Indian using Vector autoregression model. The study finds decline in ERPT during the IT period.*

Keywords: inflation targeting, exchange rate pass-through, monetary policy, VAR.

JEL Classification: E31, E52, E58, F41, F45.

1. Introduction

Inflation is one of the economic challenges affecting every individual (Reddy, 1999). The primary policy response to the management of inflation is thought to be monetary policy. The Washington Consensus emphasised the importance of low and steady inflation for market-driven prosperity. The most important element affecting inflation, according to Bernanke and colleagues (1999), is monetary policy. As a result, central banks throughout the globe struggle to develop policies that will check inflation while fostering the growth and stability of their respective economies. Inflation targeting (IT), a recent innovation in the monetary policy framework, in which price stability is the main objective.

External shocks that affect an open economy through currency rates also have an influence on consumer inflation. Changes in the exchange rate's effect on local prices have a significant impact on domestic monetary policy. The level of pass-through demonstrates the degree of monetary policy's control over inflation. The commitment of the central bank to keep the price level at a certain target in the case of IT makes the amount of pass-through more significant.

In this context, we make an effort to examine the extant literature on IT and ERPT. This will enable us to identify the aspects of the IT framework that are contributing to the drop in pass-through. We then draw conclusions for potential adopters of IT, particularly those in emerging economies.

The remainder of the paper is divided into the following sections. The second section discusses the definition of the IT framework, the justification for IT, and a few empirical research on the macroeconomic impact of IT. The third part briefly addresses the factors that affect pass-through before surveying the literature on the link between ERPT and IT and a few chosen studies on ERPT in India. The fourth portion is divided into two subsections; the first discusses the characteristics of the IT framework that make it more efficient, and the second discusses lessons for Indian IT. The research comes to an end in this part.

2.1. Inflation targeting

Inflation targeting, in its broadest sense, is a monetary policy strategy that explicitly recognises price stability as the primary long-term aim of monetary policy, as well as the public declaration of quantitative targets for the inflation rate over a defined time period. Other aspects of the operational framework include the independence of the tools and procedures, the openness of the decision-making process, and the responsibility of the monetary authority. The fundamental components of the IT framework are policy independence, a defined inflation target, transparency, and accountability (Kamber et al., 2015; Walsh, 2015). The IT framework, according to Bernanke et al. (1999), performs two crucial tasks in an economy: first, it improves communication between policymakers and the public; and second, it provides accountability and discipline in the formulation of monetary policy. These functions minimise uncertainty, allowing economic actors to make better judgements.

New Zealand was the first country to adopt the IT framework in 1989, followed by the United Kingdom, Israel, and Canada. Throughout the last three decades, around 45 nations (details in the appendix) have embraced inflation targeting (IT). The framework was also adopted by India in February 2015, when the Government of India (GoI) and the Reserve Bank of India (RBI) signed the Monetary Policy Framework Agreement. Under this agreement, the RBI is required to keep consumer price inflation (CPI) within a band of 4 +/- 2 percent.

2.2. Rationale for inflation targeting framework

In general, macroeconomic policy pursues a variety of objectives in addition to price stability. The following arguments support the notion that price stability should take precedence over other monetary policy goals in the long run. First, the majority of economists concur that inflation is the sole long-term problem that impacts monetary policy. This unanimity among economists is the outcome of monetary economics breakthroughs during the 1960s. Long-term, there is no trade-off between inflation and unemployment; the rational expectations hypothesis and the problem of time inconsistency all contribute to the consensus. Second, price stability is vital not just for its own purpose, but also to foster long-term economic expansion, productivity, and employment. The ramifications of rising inflation are well-known. Thirdly, the IT framework serves as the nominal anchor for monetary policy activity. By making inflation the nominal anchor, the central bank can communicate with the general public more effectively. Fourthly, the efficacy of the central bank in achieving the inflation objective strengthens the credibility of monetary policy.

2.3. Macroeconomic performance under IT

On the IT framework, several empirical investigations have been done. The studies cover a wide variety of topics, including macroeconomic performance within this framework and the circumstances and causes that influence a country's decision to adopt IT. To demonstrate how effective IT has been, we bring up a few studies.

Ball and Sheridan (2003) use data on inflation, output, and interest rates to assess the effect of IT on economic performance. The research utilises data with a quarterly frequency from 20 advanced economies collected between 1960 and 2001. Seven of the twenty are inflationary and thirteen are non-inflationary (NIT). To comprehend how well the IT framework is doing, the OLS approach is applied. When regression to the mean is taken into account, the analysis reveals no performance difference between IT and NIT nations, indicating that IT is not important in this case. Nevertheless, a number of later research that came to contrary results have questioned the paper. The sample, which only covers advanced economies, and the time frame of the study are further issues with this study.

Yet, the study highlights the crucial distinction that IT is an endogenous decision. Moreover, the association between inflation targeting and strong economic success does not imply that IT improves performance. Mishkin and Schmidt-Hebbel (2005) used instrumental variables to address the endogeneity problem, and they obtained positive results.

The author contends that there were no negative repercussions with the introduction of IT. The research, which had a larger sample and a longer time frame, may have provided a more comprehensive response to this query, the author adds. The author concludes by pointing out that because IT encourages transparent policymaking that is consistent with a democratic society, it may be more desirable from a policy standpoint.

IT's impacts on GDP growth, short-term policy rates, and core inflation were studied by Mishkin and Posen in 1997. Early IT countries like New Zealand, Canada, and the United Kingdom were represented in the sample.

According to the study, disinflation was achieved before the development of IT. The study also discovered that, compared to before IT, interest rates and inflation stayed low over the business cycle upturn. The outcome is seen as proof that the IT framework corrects the gains from disinflation. The study's reliance primarily on visual inspection is a weakness.

The first comprehensive investigation on inflation targeting was carried out by Bernanke et al. (1999) utilising a case study methodology. Because the IT strategy clearly offers advantages over conventional policy, the authors support it. The central bank can respond to changes in output and inflation thanks to the limited discretion provided by this strategy. In this paradigm, accountability and communication offer a further benefit in terms of central bank credibility.

In the countries of the IT, the study discovered low inflation and inflation expectations. This affects the low nominal interest rates. Therefore, the small pass-through effect of one-time shocks on the price level was reduced, resulting in a shock with a persistently low influence on the price level. A decrease in persistence, a low nominal interest rate, and a low ERPT, according to the authors, enhance the business environment and hence promote economic growth.

The authors stress that operational aspects like the definition and announcement of the inflation target are crucial to the effectiveness of inflation targeting. The authors warn that IT is not a magic bullet for making inflation completely predictable.

Four different methodological approaches are used by Mishkin and Schmidt-Hebbel (2007) to investigate the effect of IT on macroeconomic performance. Initially, the authors utilise quarterly data from 34 countries – 21 of which are IT and 13 of which are NIT – for the years 1989 to 2004. Second, by integrating both established and emerging economies, the sample size is balanced. Lastly, the advanced economies that performed best on the macroeconomic frontier but did not use the IT framework make up the study's control group. For statistical inference, the paper employs panel data estimates, vector autoregressive panel models, and panel impulse responses.

The study offers evidence of enhanced macroeconomic performance with the adoption of inflation targeting. For emerging markets and economies where inflation targeting becomes stationary, the advantages are greater. It has been shown that temporary shocks caused by changes in the exchange rate or oil price have less of an impact on inflation. Also, it is discovered that nations with IT seem to perform similarly to the control group, particularly during the maturity phase.

Hu (2003) makes an effort to comprehend the variables involved in an economy's choice to implement inflation targeting. The author evaluates the macroeconomic consequences of IT assessed by output (level and variability), inflation, and the trade-off between output and inflation.

3. Determinants of exchange rate pass-through

It is possible to think of the exchange rate pass-through to domestic inflation as a two-stage process. First, (i) the shift in import costs as a result of the unit shift in the exchange rate; then, (ii) the shift in consumer prices as a result of the shift in import costs. ERPT is an important area of concern for monetary policy. First, it informs the policymakers about the control they have on inflation. Second, it influences the degree of freedom with which the central bank can pursue an independent monetary policy with an exclusive focus on domestic objectives.

Traditionally it was assumed that the prices of tradable goods, when expressed in the same currency, were equal. However, this assumption finds little empirical support as ERPT is incomplete (Dornbusch, 1987; Krugman, 1987; Gagnon and Ihrig, 2004). Moreover, the pass-through depends on the basket's composition used for estimating the consumer price, openness of the economy and structure of imports, persistence of exchange rate shocks, and finally, the hedging for exchange rate shocks is also important.

4.1. Exchange rate pass-through and inflation targeting

Edwards (2006) investigates the relationship between IT and ERPT by using quarterly data from 1985-2005 from seven countries- two advanced and five emerging economies. The author addresses three issues related to IT: (i) the effectiveness of a nominal effective exchange rate as a shock absorber; (ii) impact of IT on exchange rate volatility and (iii) role of the exchange rate in monetary policy reaction function post IT adoption. The author uses the ordinary least square (OLS) method to estimate the effectiveness of NEER as a shock absorber.

The author finds high pass-through coefficient for tradable goods than for non-tradable ones, implying the effectiveness of NEER as a shock absorber. However, the pass-through coefficient has been found to be low under IT.

In the case when pass-through to tradable is larger than non-tradable, the research contends that NEER functions as a reliable shock absorber. Unless the economy employs a higher percentage of imported input in the manufacture of non-tradable, it is typical to assume a stronger pass-through for tradable than non-tradable. The study, however, does not offer a justification or historical illustration of a situation where pass-through was higher for non-tradable than tradable.

Eichengreen (2002) investigates the viability of IT for open and emerging economies by focusing on key policy issues – response of monetary policy to external shocks; fear of float as a result of exchange rate movements; higher level of pass-through; a greater

percentage of debt in foreign currencies; and the credibility of monetary policy due to public debt and forecasting of inflation.

The author suggests adopting a flexible version of IT so that there is less variability in inflation and output due to external shocks. The better way to incorporate exchange rate changes in modelling is to target CPI inflation rather than domestic inflation.

The author further argues that emerging economies are more sensitive to commodity prices. Moreover, the volatile component has a significant weight in the inflation index. These two factors combined make inflation forecasting difficult in these economies. IT is also not a good policy option when there is a fear that an increase in policy rate may result in maturity mismatch and hence increase the default rate among the borrowers. The Central Banks of emerging countries also lack credibility as a result of their various goals being pursued, their budgetary domination, and their inadequate institutional strength.

The paper suggests that the credibility of central banks can be enhanced by making central banks more independent in policy making, enhancing transparency by communicating with the public, and targeting the index which the public understands more clearly.

Gagnon and Ihrig (2004) explore the relationship between monetary policy and exchange rate pass-through (ERPT) in several industrialised countries. The authors find a decline in ERPT at the macroeconomic level in these countries. The theoretical model is developed in which the decline in ERPT is attributed to the shift in the responsiveness of monetary policy towards inflation. The model hypothesis is tested by employing quarterly data from 1971-2003 from twenty industrialised economies. Out of these, five are explicit inflation-targeting economies (IT).

The paper uses the ordinary least square (OLS) method to estimate the pass-through coefficient. The pass-through is examined for an individual as well as for cross-sectional data. However, there is the problem of endogeneity in the sense that the relationship between price and exchange rate is bidirectional. To address the problem, bivariate vector autoregression (VAR) is employed to compare the results with those obtained from the OLS method. The pass-through is also estimated by splitting the sample either on the date of adoption of the inflation targeting regime or on the observed behaviour of inflation.

The key findings of the research may be summed up as follows: (a) In nations with low and steady rates of inflation, there is a low estimated pass-through from currency rate to consumer prices. (b) Compared to the first sub-sample period, the average long-run pass-through decreases in the second one, even though inflation's level or standard deviation decreased at the same time. (c) In the majority of nations whose monetary policy has decisively switched towards stabilising inflation, the pass-through is observed to be declining.

Lamia and Djelassi (2017) investigate the impact of the IT regime on ERPT in six emerging economies from January 1993 to July 2013. The paper uses the ARDL model to estimate the consumer price and producer price equations. According to empirical data, ERPT for both price indices has decreased with the implementation of IT. Because of the fall in ERPT, the study contends that applying the IT regime helps to maintain price stability.

The question of whether and how inflation targeting modifies the approach of exchange rate adjustments to domestic inflation is addressed in Lopez and Pourroy (2019). The Kalman filter, which permits the parameter to fluctuate without limitations, is used by the authors to estimate ERPT for a significant number of nations. The authors contend that endogeneity and self-selection bias in earlier studies of monetary policy regimes are problems. These issues are sorted by using propensity matching scores methodology. The authors find the drop in ERPT in countries with IT framework.

The study demonstrates that nations that have achieved disinflation or have a stable inflation objective have targets that fall within a tolerance range, and those with targets that are near to their targets – even if they are higher than 2% – perform better than those without these elements. These findings are consistent with those of Mishkin and Schmidt-Hebbel (2007) and Svensson (1998).

Maertens et al. (2012) examine the response of different price indices to exchange rates under IT in Peru. The paper presents a simple dynamic stochastic general equilibrium model in which adopting IT increases exchange rate volatility. The paper argues that an increase in exchange rate volatility results in decline in the number of firms setting prices in foreign currency as the share of firms setting prices in foreign currency has a direct relation with the pass-through.

The paper provides empirical evidence on the Peruvian economy's decline in pass-through after IT adoption. The study uses monthly data from April 1994-December 2007 and the time-varying vector autoregression model. The impulse response function reveals the decline in ERPT to price indices, with the highest decline for consumer prices, followed by producer and import prices.

The main thesis of the study is that exchange rate volatility leads to a reduction in pass-through. However, the authors do not provide the estimation of the coefficient of volatility before and after IT and their statistical significance. This makes the volatility argument very weak, particularly in the context of the Peruvian economy.

According to Blanchard (2004), a government with a high likelihood of defaulting on its debt may manage inflation quite well using fiscal policy. The author creates a model that includes interactions between the interest rate, the likelihood of defaulting on debt, and the currency rate. The model demonstrates that fiscal policy is a suitable instrument for reducing inflation.

The study then verifies the predictions made by the model to test the assertion using data from the Brazilian economy. Brazil's inflation control measures during the 2002 crisis were found to be consistent with the model's projections.

Svensson (1998) developed the model to address three questions about IT in an open economy. The paper compares the targeting of domestic and consumer inflation; whether to adopt a strict or flexible IT framework.

According to the model, flexible inflation targeting combined with CPI inflation is more efficient. The model also indicates a reduced responsiveness of inflation to shocks related to oil and currency rates. The credibility of monetary policy as a shift in reaction to inflation

is argued by the author. The impact of inflation is too complicated to be reflected by a single index, hence the model offers minimal support for employing MCI. Eichengreen (2002) brought attention to this issue by demonstrating that MCI might occasionally provide an erroneous message to decision-makers. The best strategy for dealing with this is to focus on CPI inflation, which includes some international inflation.

Taguchi and Sohn (2014) examine the pass-through in three East-Asian economies- South Korea, Thailand and the Philippines- using quarterly data from 1990 to 2009. The paper employs OLS and VAR methods.

The study then estimates the pass-through for each country before and after the adoption of IT. Only South Korea is affected by the pass-through loss, according to the results. The outcomes for Thailand and the Philippines are unclear. The study makes the claim that only when the policy is forward-looking does the IT framework exhibit a substantial drop or loss in pass-through. By measuring the response function for each nation, the study gives proof. The only country with a forward-looking monetary policy is determined to be Korea.

4.2. Effectiveness of the IT framework under different circumstances

Since there is no unique definition of IT, ERPT has been found to vary under different versions of the framework (Lopez, 2019). In this section, we discuss the feature under which ERPT declines more.

Strict versus Flexible IT

One of the issues the policy makers face is whether to adopt strict or flexible IT. Flexible IT is better for minimising variability in output. This is because monetary policy puts some positive weight on output. However, flexible targeting has been found to be a good policy option as far as exchange rate volatility and ERPT are concerned. Svensson (1998) showed that by adopting flexible targeting, the central bank could minimise the variability not only in output but also in the exchange rate. This will result in a low ERPT. Eichengreen (2002) also the IT framework of emerging and open economies at length. The author also supports the framework of flexible IT. Similarly, Edward (2006) argues for flexible IT with a weight depending on macroeconomic characteristics to ensure less volatility in the economy.

Monetary Condition Index

In an open and emerging economy, consumer inflation also includes some components of foreign inflation. The foreign component of inflation is transmitted through exchange rate changes. Under IT, the central bank commits to maintaining inflation around a target. The exchange rate changes make forecasting inflation and achieving targets difficult. The central banks designed the monetary condition index (MCI) to incorporate the change in exchange rate into the monetary policy reaction function. Svensson (1998) showed that such an indicator is not good for capturing the dynamics of the exchange rate change. He further argues that the exchange rate is a complex phenomenon that is caused by different factors at different times. Therefore, using MCI for each shock without understanding the source and nature of the shock is not a good way to model monetary policy.

Eichengreen (2002) also highlighted the issues of MCI and showed that it is not optimal to use it. He further shows the situation under which the index sends the wrong signal. The paper argues that the IT central bank should adjust policy instruments less in response to the same shocks. Further, the central bank should only smooth the exchange rate movements but not prevent the exchange rate from adjusting.

Targeting CPI inflation

One of the important decisions in IT is regarding the index that monetary policy should target. Initially, there was debate about targeting headline inflation or core inflation; however, with the increase in openness and globalisation, the consumption basket of consumers also changed. The monetary policymakers now face the additional challenge of imported components of consumer inflation. Most authors who are critical of using MCI emphasise targeting CPI inflation, not domestic inflation. Svensson (1998) argued in favour of targeting consumer inflation rather than domestic inflation. The benefits, according to him, are two-fold. First, it is the appropriate index of inflation that the consumers face. Second, the monetary policy does not have to consider the exchange rate exclusively by targeting CPI inflation. Eichengreen (2002) is also in favour of using CPI inflation.

Inflation target with tolerance band

One of the debates in inflation targeting is credibility versus flexibility. Credibility is enhanced when monetary policy can hit the target with a minimum deviation. However, flexibility is also needed to enhance the policy outcomes regarding low variance in output and the exchange rate. Many IT countries announce their targets with the band to benefit from flexibility and credibility. Lopez and Pourroy (2019) found low exchange rate pass-through in countries having inflation targets with tolerance bands even if the target was greater than 2%. This is important in that emerging economies should target a level of inflation compatible with the macroeconomic fundamentals of the economy. However, the tolerance band should be there to allow monetary policy flexibility.

4.3. Lessons from international experience for future targeters

Forward-looking monetary policy

One of the important features of IT is that monetary policy should be made in a forward-looking manner rather than responding to past conditions. However, in some cases, Taguchi and Sohn (2014) found loss in pass-through only in the case of Korea and not in Thailand and the Philippines though all three were IT economies. While estimating the reaction functions of these economies individually, the author found forward-looking policy-making in Korea but not in the other two East Asian economies. The forward-looking nature of the monetary policy is important because the difference between IT and price level targeting is that IT bygones are bygones, while the same is not the case with price level targeting. Therefore, the monetary policy is more concerned with future inflation than target misses in the previous period.

Co-ordination of fiscal and monetary policy

Under IT, the debate on monetary and fiscal policy coordination becomes more important. The Central Bank cannot control inflation when the fiscal policy is not supportive of the framework. Blanchard (2004) discussed the problem of fiscal dominance under IT. He finds that when an economy has a high level of debt, most of which is in foreign currency then under this situation, fiscal policy, not monetary policy, controls inflation appropriately. The paper argues that this happens when the central bank increases interest rates in anticipation of an increase in future inflation. The domestic debt becomes more appealing due to the increase in interest rates, which might lead to an increase in the exchange rate. However, if the probability of default is high, the increase in interest rates will only increase the level of debt and inflation due to exchange rate depreciation. The case of Brazil's economy was discussed when it faced the same situation, but the policymakers responded with fiscal policy. The interest rate was kept constant despite an increase in inflation to avoid an increase in the level of debt. Eichengreen (2003) discusses the problem of having the obligations of banks, corporations, and governments in foreign currency while their revenues are in domestic currency. The depreciation of domestic currency results in a decline in revenues. This will manifest in decline in output and employment and increasing inflation. The main lesson emerging from this paper is that the central bank should take note of foreign liabilities and the development of the domestic financial market to make inflation targeting more effective by reducing the impact of exchange rate changes.

ERPT depends on the nature of imports and the composition of the inflation index:

The literature also shows that the degree of ERPT depends on the nature of imports and the inflation index. Campa and Goldberg (2008) have found high ERPT for energy imports.

Empirical investigation of ERPT in India

In this section, we investigate the ERPT in India using the data from January 2011 to December 2021. The variables used are Consumer price index-combined (CPI-C), Nominal Effective exchange rate (NEER) and quarterly real GDP series converted to monthly frequency by employing the proportional Denton method on the seasonally adjusted index of industrial production (IIP). The data is sourced from Database on Indian Economy, RBI and is of monthly frequency. This Study is improvement of Peer and Baig (2021) by including the first full term of IT period of India.

The study employs vector autoregression (VAR) model for investigating the dynamic interaction between exchange rate and inflation. In the VAR model, all variables in the model are endogenous variables, and each variable is a function of its own lags, as well as current and lags of other endogenous variables and residual terms over time (Sims, 1980).

The following VAR model is applied:

$$Y_t = \alpha + \sum_{j=1}^J A_j Y_{t-j} + e_t \quad (1)$$

where Y_t is endogenous variables vector of 3 x 1 - GDP (GDP_t), exchange rate ($NEER_t$) and inflation (CPI_t), e_t is residual vector which captures the contemporaneous relation

between exchange rate and inflation. J is the number of lagged endogenous variables. Since the theories do not define about the number lags to be taken, so we let the data to decide on the lag, which is based on the Akaike information criterion (AIC). The optimum lag length of $K = 2$ is employed for estimation.

Further, to illustrate the tri variate VAR model for GDP_t , $NEER_t$ and CPI_t is written in matrix form for a regression equation with multivariate outcomes. Therefore, the equation (1) is written as:

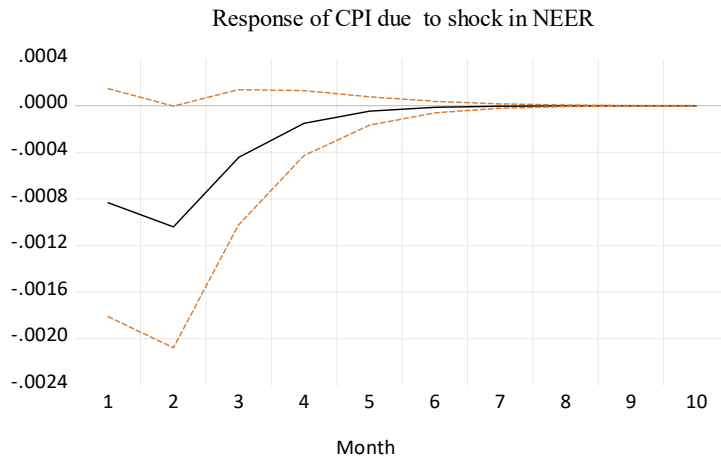
$$\begin{bmatrix} GDP_t \\ NEER_t \\ CPI_t \end{bmatrix} = \begin{bmatrix} \alpha_{GDP} \\ \alpha_{NEER} \\ \alpha_{CPI} \end{bmatrix} + \sum_{j=1}^2 A_j \begin{bmatrix} GDP_{t-j} \\ NEER_{t-j} \\ CPI_{t-j} \end{bmatrix} + \begin{bmatrix} e_{GDP,t} \\ e_{NEER,t} \\ e_{CPI,t} \end{bmatrix} \quad (2)$$

We also employ Structural Vector autoregression (SVAR). This is a data driven approach which lowers the emphasis on channels of pass-through. We split the sample into two periods. The period before IT is labelled as Pre-IT period and other as IT period. The impulse response of $\Delta NEER_t$ on ΔCPI_t is used as the estimate of ERPT in this framework. The structural identification restrictions for the SVAR estimation are based on a lower triangular matrix with the following assumptions: a) output growth does not respond immediately to inflation and exchange rate movements; and b) exchange rate and output growth cycles affect inflation contemporaneously. The Lagrange multiplier test for residual auto correlation is found to be satisfactory. All the Eigen values are inside the unit circle, confirming the stability condition. The results show that during pre IT period, the response of one unit shock to NEER results in 0.12 percent change in CPI. The impact of shock remains significant till 5 month. However, in IT period, our results show that CPI has become insensitive to NEER changes.

The other tool employed for interpreting the relationship between variables of VAR models is forecast error variance decomposition or simply variance decomposition (Lütkepohl, 2005). We also utilised this tool to understand the impact of exchange rate shocks on inflation. The results in Tables 1 and 2 show the same. In pre-IT period, the exchange rate shocks explains around 11 percent variation in inflation. However, during IT period it only explains around 4 percent variations. These results clearly point towards the fact that exchange rate pass-through has declined after the adoption of IT in India.

As already mentioned above, ERPT depends upon a number of factors of which monetary policy is one. However, the most of the studies have found the decline in ERPT after the adoption of IT, provided the policy making role is forward looking and there is effective communication with the public. Since it actually works on the expectations of economic agents such that they are less predisposed to change prices in response to a given exchange rate shock under the IT as monetary authority has a mandate to maintain price stability.

Figure 1. Impulse response function of pre-IT period



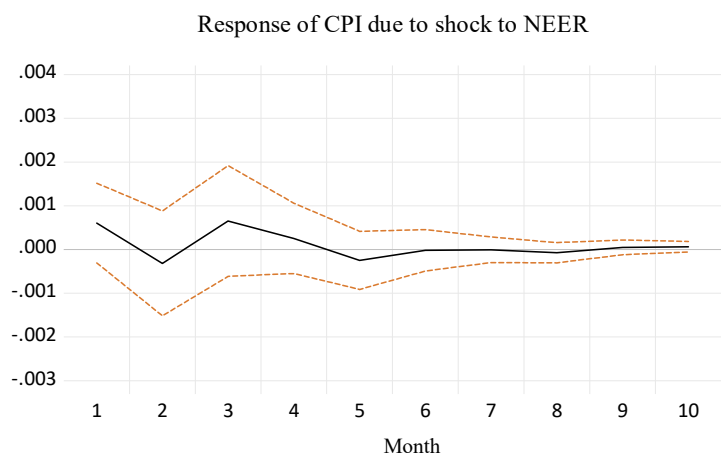
Source: Authors estimation.

Table 1. Variance decomposition of CPI-C (January 2011- October 2016)

Period	S.E.	D(GDP)	D(NEER)	D(CPI)
1	0.030874	0.051939	4.179599	95.76846
2	0.032460	0.046224	9.532358	90.42142
3	0.032622	0.047322	10.44094	89.51174
4	0.032639	0.047349	10.54632	89.40633
5	0.032641	0.047373	10.55636	89.39627
6	0.032641	0.047373	10.55721	89.39541
7	0.032641	0.047374	10.55728	89.39535
8	0.032641	0.047374	10.55728	89.39534
9	0.032641	0.047374	10.55728	89.39534
10	0.032641	0.047374	10.55728	89.39534
11	0.032641	0.047374	10.55728	89.39534
12	0.032641	0.047374	10.55728	89.39534

Source: Authors estimation.

Figure 2. Impulse response function of Pre-IT period



Source: Authors estimation.

Table 2. Variance decomposition of CPI (November 2016-December 2021)

Period	Standard error	GDP	NEER	CPI
1	0.004279	28.66967	1.988028	69.34230
2	0.004625	26.14071	2.177398	71.68190
3	0.004793	25.74548	3.866373	70.38814
4	0.004916	26.17951	3.939131	69.88136
5	0.004925	26.16503	4.182470	69.65250
6	0.004943	26.63922	4.153216	69.20756
7	0.004949	26.74235	4.143521	69.11413
8	0.004953	26.80484	4.160540	69.03462
9	0.004955	26.83824	4.167433	68.99433
10	0.004956	26.83184	4.181383	68.98678
11	0.004956	26.83630	4.184133	68.97957
12	0.004956	26.83613	4.186313	68.97755

Source: Authors estimation.

5. Conclusion

This paper conducted a global literature study on the relationship between IT and ERPT. The framework of IT and its distinctive traits were initially covered in the article. The literature on IT and exchange rate pass-through is then investigated. The argument that pass-through decreased with the shift to an IT-based monetary policy framework is supported by the literature. According to the study, the IT framework with flexible IT, consumer inflation as an objective, and a target with a tolerance band is more efficient at lowering ERPT. The review also shows that ERPT decline only when monetary policy is formulated in a forward looking manner. There is also a need for co-ordination between monetary policy and fiscal policy.

In the India context, The ERPT is found to have declined after the adoption of IT framework. However, India imports more than 80% of its crude oil. The crude oil prices being volatile and have implications for ERPT. Therefore, there is a need and developing a strategy in consultation with the government for managing the adverse impacts of crude oil prices.

Acknowledgements

The author is grateful to the University Grants Commission for providing the financial support to the research scholar.

The earlier version of this paper was presented at the 3rd International Conference on Economics and Finance.

Organised by Nepal Rastra Bank, Nepal on 28-29 February 2020. The draft greatly benefitted from comments during discussion.

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Appendix

List of the inflation targeting countries

Country	Exchange rate-regime	Year	Target
New Zealand	Floating	1990	1--3
Canada	Free floating	1991	2+/-1
United Kingdom	Free floating	1992	2
Australia	Free floating	1993	2---3
Sweden	Free floating	1993	2
Czech Republic	Floating	1997	3+/-1
Israel	Floating	1997	2+/-1
Poland	Free floating	1998	2.5+/-1
Brazil	Floating	1999	4.5+/-2
Colombia	Floating	1999	2---4
Chile	Free floating	1999	3+/-1
South Africa	Floating	2000	3---6
Thailand	Floating	2000	0.5---3
Hungary	Floating	2001	3+/-1
Iceland	Floating	2001	2.5+/-1.5
Korea	Floating	2001	3+/-1
Mexico	Free floating	2001	3+/-1
Norway	Free floating	2001	2.5+/-1
Peru	Floating	2002	2+/-1
Philippines	Floating	2002	4+/-1
Romania	Floating	2005	3+/-1
Guatemala	Stabilised arrangement	2005	5+/-1
Indonesia	Stabilised arrangement	2005	5+/-1
Armenia	Floating	2006	4.5+/-1.5
Turkey	Floating	2006	5.5+/-2
Serbia	Crawl-like Arrangement	2006	4---8
Ghana	Floating	2007	8.5+/-2
Uruguay	Floating	2007	3--7
Albania	Floating	2009	3+/-1
Georgia	Floating	2009	3
Paraguay	Floating	2011	4.5
Uganda	Floating	2011	5
Dominican Republic	Crawl-like Arrangement	2012	3--5
Moldova	Floating	2013	3.5--6.5
Japan	Free floating	2013	2
India	Floating	2015	2--6
Kazakhstan	Floating	2015	4
Russia	Free floating	2015	4
Ukraine	Floating	2016	6+/-2
Jamaica	Floating	2017	4--6
Costa Rica	Crawl-like Arrangement	2018	2--4
Seychelles	Floating	2021	.
Sri Lanka	Stabilised arrangement	2021	4- 6
Uzbekistan	Crawl-like Arrangement	2020	5 (10% for 2021)
Kenya	Other managed Float	2013	2.5 - 7.5%

Source: Authors compilation based on various annual report on exchange arrangements and exchange restrictions of IMF and central bank websites.