Impact of Fiscal Policy Shocks on the Indian Economy

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Abstract:

The prime objective of this study to analysis the impact of fiscal policy on the economy of India .For this purpose, we have taken the data from 1981 to 2010 and applied the Johansen co integration test, error correction model and variance decomposition model .our results are showing that there is long run association between GDP and other variables. The prime objective of the fiscal policy is to deal with taxations and monetary policy is helpful to control the money supply. Consequently, Fiscal policy is the way of increase or decrease the inflation .Fiscal policy is the tool to control the fiscal deficit .To run the economy, there is need of proper fiscal policy. Our paper is trying to show that fiscal policy has always long run phenomena on the growth of the economy.

Keywords*: Fiscal policy, Johansen co integration test, error correction, variance decomposition, GDP*

Introduction:

According to economic sciences, fiscal policy is known as the government revenue collection, which has influenced on the development of economy .According to Keynesian economics, aggregarte demand can be affected by changing the levels of taxation. In the business circle, the purpose of fiscal cycle is to stabilize the development of the economy .These are two important tools, which can controlled the composition of taxation .These tools has influenced on the aggregate demand and saving .According to William, Fiscal policy can be derived from the monetary policy .The prime objective of the fiscal policy is to deal with taxations and monetary policy is helpful to control the money supply .There are three main types of fiscal policy1)neutral fiscal policy2)expansionary fiscal policy3)contractionary fiscal policy .Business cycle is the way to represent the fiscal policy stance .there are some common methods of funding are as fellows.1)sale of fixed assests.2)borrowing3)consumption. The main purpose of utilize the fiscal policy is to maintain the level of aggregate demand. According to classical review, fiscal policy is the way to decrease the net exports of all the developing and under developing countries. Since the age of Adam smith, impact of fiscal policy on the development of economic growth .Landau takes into the account the association between government expenditures and economic growth .The main focus of this paper is to view the impact of fiscal policy on the development of the economic .According to neo-classical expenditure, when will increase public debt there will also increase interest rate. In all the countries, government expenditure impact on the inflation .Consequently, Fiscal policy is the way of increase or decrease the inflation .Fiscal policy is the tool to control the fiscal deficit .To run the economy, there is need of proper fiscal policy.

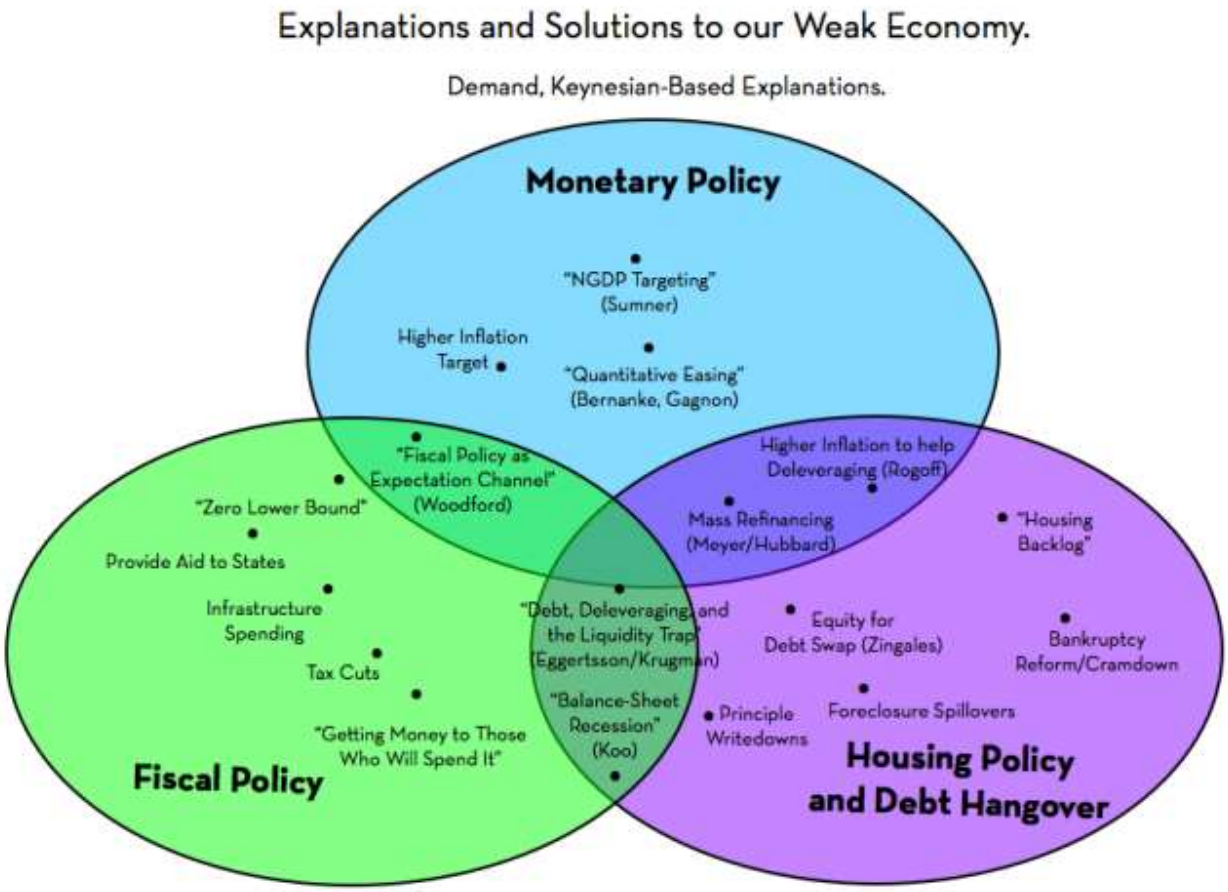
Objective:

The prime objective of this paper is to analysis the impact of fiscal policy on the development of India from 1981 to 2010.

Problem statement:

Impact of regulatory fiscal policy on the economic development of India.

Figure no1:



Literature review:

Saqib and Yasmin., Analyzed the impact of fiscal policy on the economy of Italy .For this purpose ,they had taken the data from 1998 to 2008 and applied the VECM .Their results were showing that there is long run association between fiscal policy and economy development .This study also suggested that Government should focus on the fiscal policy for the better improvement[1].

Hussain, M,Observed the impact of fiscal policy on the economy of UK .For this purpose ,they had taken the data from 1995 to 2005 and applied the VAR .Their results were showing that there is long run association between fiscal policy and economy development .This study also suggested that Government should focus on the fiscal policy for the better improvement[2].

Marlow, M.L,Viewed the impact of fiscal policy on the economy of USA .For this purpose, they had taken the data from 1995 to 2005 and applied the OLS model .Their results were showing that there is short run association between fiscal policy and economy development .This study also suggested that Government should focus on the fiscal policy for the better improvement [3].

Ram, R., Examined the impact of fiscal policy on the economy of China .For this purpose, they had taken the data from 1991 to 2001 and applied the Granger causality model .Their results were showing that there is long run association

between fiscal policy and economy development .This study also suggested that Government should focus on the fiscal policy for the better improvement [4].

Gupta, et al., Observed the impact of fiscal policy on the economy of France .For this purpose, they had taken the data from 1999 to 2009 and applied the ECM model .Their results were showing that there is long run association between fiscal policy and economy development .This study also suggested that Government should focus on the fiscal policy for the better improvement [5].

Hyder, K., Viewed the impact of fiscal policy on the economy of India .For this purpose, they had taken the data from 1990 to 2010 and applied the multiregrssion equation .Their results were showing that there is long run association between fiscal policy and economy development .This study also suggested that Government should focus on the fiscal policy for the better improvement [6].

Looney, R. E., Observed the impact of fiscal policy on the economy of Pakistan .For this purpose, they had taken the data from 1990 to 2010 and applied the liner regression model .Their results were showing that there is long run association between fiscal policy and economy development .This study also suggested that Government should focus on the fiscal policy for the better improvement [7].

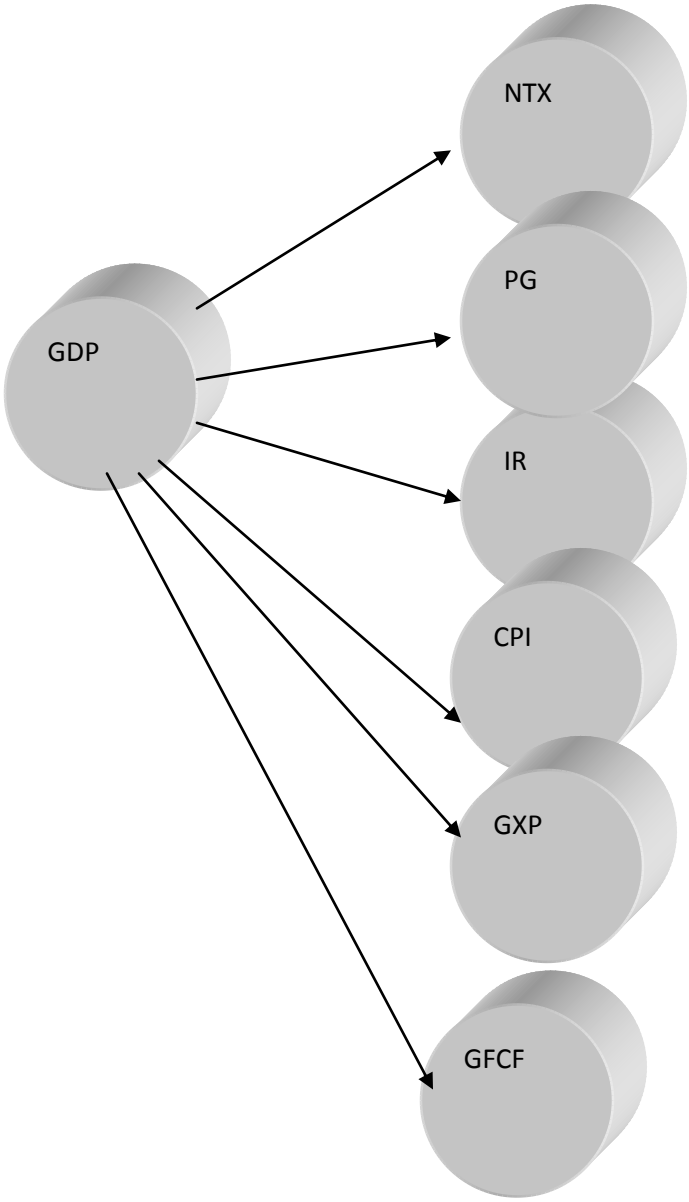
Haque, Nadeem U. and Montiel, Peter., Viewed the impact of fiscal policy on the economy of Malaysia .For this purpose, they had taken the data from 1996 to 2006 and applied the Garch model. Their results were showing that there is long run association between fiscal policy and economy development .This study also suggested that Government should focus on the fiscal policy for the better improvement [8].

Kelly, T, Analyzed the impact of fiscal policy on the economy of India .For this purpose, they had taken the data from 1998 to 2008 and applied the VAR model .Their results were showing that there is long run association between fiscal policy and economy development .This study also suggested that Government should focus on the fiscal policy for the better improvement [9].

Aschauer, D. A., Observed the impact of fiscal policy on the economy of India .For this purpose, they had taken the data from 1993 to 2003 and applied the ECM model .Their results were showing that there is long run association between fiscal policy and economy development .This study also suggested that Government should focus on the fiscal policy for the better improvement [10}.

Theoretical framework:

Figure no2:


NTX
PG
GDP
IR
CPI
GXP
GFCF

Methodology:

The prime objective of this paper is to analyses that influence of fiscal policy on the development of economy of India .In this study, we have utilized the fiscal variables for the purpose of model comprise.

Equation:

$Y = \alpha + \beta 1\ (NTX) + \beta 2\ (IR) + \beta 3\ (CPI) + \beta 4\ (GXP) + \beta 5\ (PG) + \beta 6\ (GFCF) + \mu i$ (1)

where:

Y = Annual growth rate Gross Domestic Product
NTX = Net Tax Revenue
PG = Population Growth rate
IR = Real Interest Rate
CPI = Consumer Price Index
GXP = Government Expenditure
GFCF = Gross Fixed Capital Formation
μi = Error Correction Term

Table 1 ADF Unit Root Test

	Level		1st Difference		
Variables	Constant	Constant and Trend	Constant	Constant and Trend	**Result**
LNY	-2.485244	-3.467658	-6.597275*	-6.961928*	I(1)
LNCPI	-2.406273	-2.331618	-4.583078*	-4.535237*	I(1)
LNGFCF	-2.518049	-2.459379	-4.111896*	-3.899454*	I(1)
LNGXP	0.543354	-0.334161	-5.288337*	-5.710210*	I(1)
LNNTX	1.311866	-1.127357	-4.075671*	-4.494378*	I(1)
LNPG	-0.916122	-2.246036	-5.461928*	-5.365015*	I(1)
LNRI	-2.751141	-2.718963	-5.102694*	-4.993575*	I(1)

Note: the data is stationary at 5% significance level at critical value "-2.976263" for constant and critical value "-3.580623" for constant and trend.

Table 2 Johansen Co-integration Test

(a): Trace statistics.

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.890474	218.1864	139.2754	0.0000
At most 1 *	0.864648	160.6854	107.3467	0.0000
At most 2 *	0.810435	108.6888	79.34146	0.0002
At most 3 *	0.748914	65.45023	55.24579	0.0048
At most 4	0.532918	29.51938	35.01091	0.1717
At most 5	0.309936	9.726903	18.39772	0.5072
At most 6	0.003138	0.081678	3.841467	0.7751

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

(b): Max-Eigenvalues.

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.890474	57.50114	49.58634	0.0063
At most 1 *	0.864648	51.99664	43.41978	0.0048
At most 2 *	0.810435	43.23849	37.16358	0.0088
At most 3 *	0.748914	35.93086	30.81508	0.0108
At most 4	0.532918	19.79248	24.25203	0.1746
At most 5	0.309936	9.645224	17.14768	0.4309
At most 6	0.003138	0.081679	3.841467	0.7751

Max-eigenvalue test indicates 4 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table 3 Vector Error Correction Model

Error Correction:	D(GDPGR)	D(CPI)	D(GFCF)	D(GXP)	D(NTX)	D(PG)	D(RI)
CointEq1	0.418788	1.771452	0.128688	-0.105638	-15431051	-0.001458	-1.199
	(0.28538)	(0.42056)	(0.15810)	(0.09709)	(3.431257)	(0.02288)	(0.31325)
	[1.46747]	[4.21212]	[0.81397]	[-1.08802]	[-0.44972]	[-0.06376]	3.8294
D(GDPGR(-1))	-1.216144	-0.855058	-0.034853	0.038911	2.4429692	-0.027866	1.071316
	(0.27905)	(0.41123)	(0.15458)	(0.09494)	(3.35503)	(0.02238)	0.30628
	[-4.35831]	[-2.07935]	[-0.22546]	[0.40988]	[0.72816]	[-1.24559]	[3.49767]
D(CPI(-1))	-0.651136	-1.238769	-0.164332	0.041128	3.4273718	-0.005299	0.005013
	(0.27518)	(0.40552)	(0.15245)	(0.09363)	(3.30848)	(0.02207)	(0.30205)
	[-2.36633]	[-3.05485]	[-1.07798]	[0.43935]	[1.03595]	[-0.24018]	0.01659
D(GFCF(-1))	0.130824	0.328839	0.467848	0.218709	3.7633299	0.029967	-0.098961
	(0.40848)	(0.60198)	(0.22631)	(0.13899)	(4.11489)	(0.03276)	0.00838
	[0.32027]	[0.54626]	[2.06735]	[1.57373]	[0.91124]	[0.91502]	[-0.22071]
D(GXP(-1))	0.507048	1.805176	0.479151	-0.147734	-3.7289396	0.062314	1.068835
	(0.77648)	(1.14428)	(0.43017)	(0.26418)	(9.33686)	(0.06226)	(0.85232)

	[0.65302]	[1.57758]	[1.11389]	[-0.55925]	[-0.399423	[1.00200]	1.25405]
D(NTX(-1))	-2.832568	-1.375498	-1.056586	-4.100531	0.293700	-6.846342	4.718076
	(2.35754)	(3.32132)	(1.248574)	(7.66753)	(0.27099)	(1.80687)	(2.47388)
	[-1.25683]	[-0.41415]	[-0.84646]	[-0.53478]	[1.08423]	[-0.37892]	[0.19073]
D(PG(-1))	13.51342	10.19115	1.469577	-0.784362	-2.321839	0.263144	12.08659
	(4.24949)	(6.26238)	(2.35421)	(1.44575)	(5.10894)	(0.34068)	(4.66454)
	[3.18002]	[1.62737]	[0.62425]	[-0.54255	[-0.45444]	[0.77238]	2.59118
D(RI(-1))	-0.338776	-0.757297	-0.168793	0.045599	2.849195	-0.008265	0.256148
	(0.22382)	(0.32983)	(0.12398)	(0.07615)	(2.690956	(0.01795)	0.24568
	[-1.51369]	[-2.29607]	[-1.36134]	[0.59886]	[1.05881]	[-0.46058]	[1.04267]
C	1.276975	1.271785	0.119568	0.182014	9.527719	-0.046698	1.045926
	(0.65933)	(0.97164)	(0.36527)	(0.22432)	(7.92731)	(0.05287)	(0.72373)
	[1.93681]	[1.30893]	[0.32736]	[0.81144]	[1.20187]	[-0.88345]	1.44522

Note: error term in ( ) and t-statistics in [ ].

Table no 4

Variance Decomposition of GDPGR:

Period	S.E.	GDPGR	CPI	GFCF	GXP	NTX	PG	RI
1	2.631067	200.0000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
2	5.954803	62.51107	4.308234	2.439729	8.670298	6.927812	7.716570	1.426292
3	5.432245	81.61113	3.952566	4.759873	8.740676	5.841887	6.830658	4.263213
4	6.054921	82.52501	3.287645	3.894317	8.218220	5.498115	.882800	3.593896
5	5.487693	73.82098	2.035909	3.399125	6.353045	4.503124	7.1009	

Variance Decomposition of CPI:

Period	S.E.	GDPGR	CPI	GFCF	GXP	NTX	PG	RI
1	3.877359	0.355546	99.64446	0.000000	0.000000	0.000000	0.000000	0.000000
2	7.205541	6.068266	48.12075	11.58618	0.143598	21.06908	0.047752	12.96441
3	10.21069	5.844155	25.22922	14.91759	1.681989	35.95283	0.492338	15.88194
4	12.16339	5.274008	18.62901	18.29368	2.963186	39.35538	0.536621	14.94812
5	13.41212	4.568749	18.88099	20.83803	3.496644	37.545889	0.562906	14.10683

Variance Decomposition of GFCF:

Period	S.E.	GDPGR	CPI	GFCF	GXP	NTX	PG	RI
1	1.457605	0.604533	40.81293	58.58256	0.000000	0.000000	0.000000	0.000000
2	2.526429	1.039366	40.43825	54.77608	0.399328	3.197084	0.084771	0.065123
3	3.456391	0.844197	37.76138	52.70488	0.220362	8.086822	0.307395	0.074972
4	4.266423	0.962961	35.28899	50.88039	0.217147	12.24498	0.317895	0.087674
5	4.993926	1.046349	34.01324	48.08463	0.159665	16.26315	0.368246	0.064751

Variance Decomposition of GXP:

Period	S.E.	GDPGR	CPI	GFCF	GXP	NTX	PG	RI
1	0.895130	0.828882	34.64456	1.749467	62.77709	0.000000	0.000000	0.000000
2	1.196086	1.597541	22.34154	6.789191	67.51163	0.104331	0.003619	1.652145
3	1.567887	1.211777	16.04071	12.46864	65.18877	0.569286	0.061819	4.458992
4	1.880701	1.062808	14.48553	15.92300	62.95820	0.423394	0.212867	4.934204
5	2.145425	0.818989	12.74129	17.84326	63.06458	0.646086	0.0212	

Variance Decomposition of NTX:

Period	S.E.	GDPGR	CPI	GFCF	GXP	NTX	PG	RI
1	3.17E+08	0.463137	1.002783	0.493036	4.995168	93.05589	0.000001	0.000000
2	5.27E+08	0.234175	0.566792	2.080755	4.005944	92.79208	0.084348	0.245902
3	6.72E+08	0.979315	2.703619	2.517975	4.160699	88.93641	0.071219	0.640783
4	7.85E+08	0.870017	4.053136	3.840998	3.843673	86.80191	0.059695	0.540592
5	9.17E+08	0.873904	4.329649	4.764837	3.945892	85.63058	0.045981	0.429175

Table 4 (continued)

Variance Decomposition of PG:

Period	S.E.	GDPGR	CPI	GFCF	GXP	NTX	PG	RI
1	0.210937	44.77766	6.366549	0.113305	24.17221	4.90859	519.66172	0.000000
2	0.291538	37.25618	7.710688	0.995152	21.23084	4.90352	627.33958	0.564029
3	0.358246	33.11169	10.33058	5.984426	15.91999	5.8991	6926.80694	1.947338
4	0.515500	35.18163	9.917921	7.333105	15.04005	4.53082	229.61663	1.779838
5	0.562830	35.83573	9.231635	9.052466	12.86994	3.749807	29.77768	1.69273

Variance Decomposition of RI:

Period	S.E.	GDPGR	CPI	GFCF	GXP	NTX	PG	RI
1	2.888045	2.358198	13.79668	16.98308	5.342568	2.000644	0.261081	59.25774
2	5.250891	3.871273	57.68997	8.224494	1.948883	9.356808	0.943036	17.96556
3	8.184877	11.02371	27.91156	12.90976	0.923785	34.06009,	0.728738	12.44241
4	10.75973	9.886967	16.16456	16.32178	3.127711	44.21014	0.503148	9.785713
5	11.92521	9.114229	14.56831	19.18994	3.763998	44.664645	0.519766	8.179136

Cholesky Ordering: GDPGR CPI GFCF GXP NTX PG RI

Table 5 Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Probability
CPI does not Granger Cause GDPGR	28	3.22243	0.08475
GDPGR does not Granger Cause CPI		0.09799	0.75687
GFCF does not Granger Cause GDPGR	28	6.35478	0.01819
GDPGR does not Granger Cause GFCF		1.55351	0.22374
GXP does not Granger Cause GDPGR	28	0.32407	0.57407
GDPGR does not Granger Cause GXP		0.88471	0.35558
NTX does not Granger Cause GDPGR	28	0.00948	0.92316
GDPGR does not Granger Cause NTX		1.46409	0.23718
PG does not Granger Cause GDPGR	28	0.61467	0.44041
GDPGR does not Granger Cause PG		5.86501	0.02304
RI does not Granger Cause GDPGR	28	1.41898	0.24434
GDPGR does not Granger Cause RI		0.58297	0.45203

Results:

The basic purpose of ADF test is to find out the variables are stationary or not .For this purpose, we have found the order of integration .We have seen that at the first difference all the series are stationary .which is showing that all the variables are integrated at I(1).We have also used the Johansen cointegation to determine the there is long run relationship or not .We have also applied the (FPE) ,(AIC) and (SC) tests .Table no 2 is showing that it is cointegartion at the level 5%.It is also showing that there is no exist the cointegation here .VECM is also showing the short run dynamic model .The basic objective of showing the there is equilibrium in the exogenous shocks .Error equation is showing that error correction term of government expenditures ,population growth .It is very difficult task for the interpreting of ECM .The purpose of variance of decomposition is to measure the forecast error variables. In the table no 4 is showing that in the first year the real GDP was 100%.After the 4 years the fluctuation was verify .it was reducing with the ratio of 75%,3%,7% ,net tax revenue is 5%.In the first period the ratio of NXT is 94%.However,the ratio of innovation is showing that there is minor changes in the 5^{th} periods. In the table no 5 is showing that Granger causality test .Here, results are showing that unidirectional causality between GDPGR and CPI .our results are also showing that there is unidirectional causality between interest rate and GDPGR.

Conclusion:

The prime aim of this study is to analysis the both short and long run impact of fiscal policies on the development of India .According to Robert(2011) there is long run association between fiscal policy and economy of any country .For the proper results, we have applied the following models such as, Johansen co integration test, error correction model and variance decomposition model .our results are showing that there is long run association between fiscal policy and economy of India and there are exogenous shocks between the variables .our paper is trying to show that fiscal policy has always long run phenomena on the growth of the economy.

Suggestions:'

1) There is need of proper fiscal policies for the development of the economy.

2) Policy makers should focus on the fiscal policies before any decision.

3) For the proper results , there is need of control interest rate.

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