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Efficacy of Use of Fiscal Policy as a Stabilisation Tool: A Review of Literature

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Abstract:

This article reviews the theoretical and empirical research on the stabilization role of fiscal policy. Available literature from a variety of sources (journals, government reports and books) has been critically reviewed to understand the theoretical and empirical debate about the role of fiscal policy as a stabilization tool. An attempt is made to identify the gaps in the literature regarding the critical issues in this area relevant for the Indian economy so that some of these issues can be analyzed in this research study

3.1 Introduction

Prior to Keynesian general theory of demand (1936), classical view emphasized that in a model with fully flexible prices and vertical supply curve, there is no role for fiscal policy. Economy will automatically revert back to full employment equilibrium and supply will createits own demand (Say's Law). This article reviews the theoretical and empirical research on the stabilization role of fiscal policy. Available literature from a variety of sources (journals, government reports and books) has been critically reviewed to understand the theoretical and empirical debate about the role of fiscal policy as a stabilization tool. An attempt is made to identify the gaps in the literature regarding the critical issues in this area relevant for the Indian economy so that some of these issues can be analyzed in this research study. The literature review is divided into two broad sections: Section 3.2 covers all aspects of the related theoretical literature whereas the empirical review of literature related to the issues of cyclical structure of fiscal policy, macroeconomic effects of fiscal policy, role of automatic fiscal stabilizers and recent related literature on the Indian economy. Further, Section 3.4 identifies the gaps in the body of literature reviewed. Section3.5 presents the research issues relevant for the Indian economy. Further, Section 3.4 identifies the gaps in the body of literature reviewed. Section3.5 presents the research issues relevant for the Indian economy. Further, Section 3.4 identifies the gaps in the body of literature reviewed. Section3.5 presents the research issues relevant for the Indian economy. Further, section 3.6.

3.2) Theoretical Overview

Demand side of the problem was emphasized in the Keynesian model with sticky prices and consumption as a function of current income. In this world an expansionary fiscal policy can stimulate the economy with multiplier effects. In the simplest Keynesian model with price rigidity and excess capacity, output is determined by aggregate demand. Extending Keynesian model for crowding out through induced changes in interest rates and exchange rate would reduce the size of fiscal multiplier, but does not alter their sign.

In a closed economy IS-LM model for a given money supply level an increase in government expenditure will stimulate economic activity and output. Increase in output will increase interest rate via increase in real money demand, as increase in output will result in increase in transactions demand for money. To restore equilibrium in money market with fixed nominal money supply and price level, interest rate will increase, reducing money demand to its original level and restoring equilibrium in money market. Higher rate of interest rate will partially crowd out private investment. Crowding out will depend on how sensitive private investment is to change in rate of interest and income. Final impact of increase in government spending will be increase in output, total investment and consumption level. A fiscal expansion in form of a tax cut will boost private consumption leading to an increase in aggregate demand and output. An increase in government purchases or a reduction in net taxes raises output for any given level of the interest rate and shifts the IS curve to the right with new equilibrium at higher level of income and a higher interest rate. In an open economy model (Mundell-Flemming) with flexible exchange rate a fiscal expansion will put upward pressure on interest rate. In case of perfect capital mobility higher interest rate would result in capital inflow into the economy and higher demand for the domestic currency appreciating the exchange rate (nominal and real) as prices are sticky.

Lack of microeconomic foundation is a well-known shortcoming of the standard Keynesian models which the neo-Keynesians aim to correct. Theoretical research in macroeconomic theory is increasingly trying to derive microfounded intertemporal aggregate relations that explain the factors behind economic fluctuations. Such class of models is known as dynamic general stochastic economic (DGSE) model. DSGE models are dynamic, studying how the economy evolves over time and at the same time are also stochastic, taking into consideration the fact that the economy is affected by random shocks such as technological change, fluctuations in oil price, or macroeconomic policy shocks. These models incorporate forward looking agents and rational expectations and can broadly be divided into two categories: Real business cycle models and Neo Keynesian models.

Real business cycle models can be seen as an extension of new classical approach (Lipsey & Chrystal, 1999). Real business cycle model with assumption of flexible prices and perfect competition in all markets predict a negative effect of fiscal expansion on consumption through a positive effect on output. In a model where Ricardian Equivalence holds the forward looking consumer knows that an expansionary fiscal policy leading to increase in deficit and debt will have to be financed by higher taxes in future. The mode of financing –debt financed or tax financed – is immaterial. The origin of cyclical fluctuations in the economy are explained in RBC models from sources such as oil price changes, technical progress and changes in tastes.

The Neo Keynesian macroeconomic models assume like the New Classical approach that households and firms have rational expectations. But the two schools differ in that New Keynesian analysis usually assumes that prices and wages are sticky and firms are monopolistic competitors. Wage and price stickiness, and the other market failure in form of monopolistically competitive firms present in New Keynesian models, imply that the economy may fail to attain full employment. Therefore, New Keynesians argue that macroeconomic stabilization by the government (using fiscal policy) or by the central bank (using monetary policy) can lead to a more efficient macroeconomic outcome than a laissez faire policy would (Rotemberg and Woodford, 1997; Campbell& Mankiw,1989; Mankiw, 2000). The new DSGE models have incorporated various kinds of heterogeneity in behavior and decisions. Some examples are: Deep habits model (Zubairy, 2009); Seperable utility model; Spending reversals (Corsetti et al., 2009),

Ricardian, Non Ricardian and Rule of Thumb consumers(Mankiw,2002) to take into account the difference in individual's objectives. Chari (2010) noted that current DSGE models frequently incorporate frictional unemployment, financial market imperfections, and sticky prices and wages, and therefore imply that the macroeconomy behaves in a suboptimal way which monetary and fiscal policy may be able to improve. Table 3.1 summarises the theoretical predictions on the response of key variables to changes in fiscal policy.

				Real	Inter	private	trade	real exchange
				Wage	Rate	investme nt	balan ce	rate
Keynesian:Clos ed					Ture			
Economy				-	+	-		
Keynesian:Flex ible				=	=	=	-	+
Exchange Rate								
Keynesian:Fixe d Exchange Rate		$\langle \rangle$		-	=	=	=	=
Real Business			_					1
Cycle				-	+	+		+
New Keynesian				+	+	·		+
Seperable Utility				•	+			-
Deep Habits				+		-	-	-
Spending								
Reversals				+	+		-	-

Source: Hebous,S. (2009), Perrotti (2005) and Beetsma (2007). The sign "+" indicates a positive effect and in case of real exchange rate an appreciation whereas the sign "-" indicates a negative effect and in case of real exchange rate a depreciation. The sign " =" indicates no effects.

Most theoretical macroeconomic models (Classical, Keynesians, DGSE) agree on positive effect of expansionary fiscal policy on output but there is no unanimity about the responses of other variables (consumption, real wages, real exchange rate, interest rate and investment). The responses are model dependent. For example, an expansionary fiscal policy will have a negative effect on consumption in a standard DGSE model in contrast to the predictions of standard Keynesian model. Whereas in an open economy Keynesian model with flexible exchange rate expansionary fiscal policy will lead to appreciation of exchange rate but in a Separable utility or Deep habits DGSE model exchange rate will tend to depreciate. In a new Keynesian DGSE model real wages increases on impact but decrease in RBC models (Hebous, 2009). Within the DGSE models the assumption about the behaviour of households, type of utility function all lead to varying results.

3.3) Review of Empirical findings

Analysis of use of fiscal policy as a stabilization tool requires information on the cyclical structure of fiscal policy, effectiveness of discretionary fiscal policy and size of automatic fiscal stabilizers. Adopting countercyclical fiscal policy is following Keynesian tradition. It has been observed that whereas the fiscal policy is contracyclical in developed countries it is procyclical in developing countries (Ilzetzki & Vegh, 2008; Lane, 2003). But whether fiscal policy is counter or pro cyclical is immaterial if the policy is not effective in influencing the level of economic activity.

Most of the research on the macroeconomic effects of fiscal policy has originated in the developed countries mainly USA, EU, NZ and Australia. Blanchard and Perotti (2002), Perotti (2005), Fatás and Mihov (2001), Fatas (2003) and Mountford and Ulhig (2002) used VARs to identify fiscal policy shocks and quantify their consequences. Kalle Kukk (2006) based on a cross-country panel study with 52 countries argues that Keynesian principles do not seem to hold as fiscal policy cannot have any remarkable impact on economy in a short run. In the long run, expansionary fiscal policies are not beneficial to the economy generally. In fact the role of fiscal policy as a stabilization tool should focus on automatic stabilizers as they are timely, efficient and non-discretionary in nature.

It will be interesting to understand the role played by empirical research in formulation of the broad macroeconomic consensus and the direction in which the empirical research is moving.

Any review of existing empirical literature on the stabilization role of fiscal policy should cover all the three aspects of fiscal policy–cyclical structure, effectiveness of discretionary fiscal policy and size of automatic fiscal stabilizers. Next three sections will focus on these aspects of fiscal policy as a stabilization tool followed by a section on recent related empirical fiscal research in India.

3.3.1 : Cyclicality of fiscal policy

All schools of economic thought whether monetarists, neoclassical, Keynesian, neo Keynesian or Marxist accept business cycle is a reality of a market economy. But the response in form of kind of stabilisation policy to be followed differs. Varvarigos (2008) argues that welfare maximisation requires a full counter-cyclical response to the occurrence of business cycles. Standard macroeconomic text also teaches that the response of fiscal policy should be countercyclical: fiscal balance should increase in booms and decrease in recessions to smooth out fluctuations in aggregate income. Empirically it has been observed that whereas the fiscal policy is contracyclical in developed countries it is procyclical in developing countries (IIzetzki and Vegh, 2008; Alessina & Tabellini, 2005; Badinger, 2008; Kaminski, Reinhart & Vegh, 2004; Lane, 2003). IIzetzki & Vegh (2008) find overwhelming evidence to support the idea that procyclical fiscal policy in developing countries is in fact truth and not fiction from the quarterly dataset for 49 countries for the period 1960-2006. Whereas Lane (2003) finds evidence that among OECD countries, nations with more volatile output are more likely to experience procyclical fiscal outcomes.

Procyclical fiscal policy amplifies economic fluctuations by reducing the effectiveness of automatic stabilizers and hence will have destabilizing impact on the economy. Gavin& Perrotti (1997), Talvi &Vegh (2000), Agenor, Mc Dermott & Prasad (1999) and Tonell & Lane (1999) all have showed that in most of the Latin American countries fiscal policy behaves in procyclical manner.

Several attempts have been made to understand why fiscal policy is generally procyclical in developing countries. Alesina & Tabellini (2005) tried to find a relationship between the level of control of corruption and cyclicality of fiscal policy. They found evidence in favour of countercyclical fiscal policy in OECD countries and procyclical fiscal policy in Sub-Saharan and Latin American developing countries. Due to high level of corruption the voters in developing countries of the sample do not trust their government. They demand tax cut and increase in productive expenditure during good times and do not allow government to built reserves. The nature of political regime and electoral rules also determine the government ability or inability to respond to economic shocks in timely manner (Person, 2001; Person&Tabellini,2001 and Lane,2003).

Availability and cost of domestic and external financing also act as a major constraint for the developing countries in conducting countercyclical fiscal policy. For a highly indebted country, it is difficult to access international capital markets during downturn, and more so if the country's level of development is low.

Most of the studies focus on developing countries as a group, and very few exist for individual developing countries. Strawczynski & Zeira (2007) test the cyclicality of fiscal policy in Israel using annual data from 1960 to 2005. Findings indicate that Israel is in a transition phase from pro-cyclical fiscal policy to countercyclical fiscal policy, as is more common in developed countries. Chakraborty and Chakraborty (2006) empirically examined the validity of Keynesian philosophy of contracyclical variation in fiscal policy to the macroeconomic activity in India. Applying Johansen's test of cointegration, it was found that there exists a long run, stable relationship between fiscal policy stance and macroeconomic activity. Thus, the role of fiscal deficit is that of an important instrument of short run demand management.

In the studies mentioned different methodologies have been used to test cyclicality of fiscal policy like regression (both simple and vector auto regression) technique (Fatas&Mihov,2003; Alesina &Tabellini,2005; Badinger,2008 and Gavin &Perrotti, 1997); use of fiscal indicators (Bogdanov,2010; Blanchard,1990; Braconier&Holden,1999; Chakroborty&Chakraborty,2006) and non parametric approach (Kaminsky et al.,2004; Araujo,2009). Table 3.2 summarises some of the existing literature on the cyclicality of fiscal policy.

Study	Sample	Data	Technique	Findings
Ilzetzki & Vegh 2008	49 countries	Quarter ly 1960- 2006	Panel regression	Developing- procyclical and expansionary
Bogdanov (2010) Kaminsky et.	Sample of developed and developing countries Sample of	Annual 1972- 2001 Annual	Fiscal indicator and regression Correlation	Developed- countercyclical Developing- acyclical Procyclical for most developing
al (2004)	developed and developing countries- emerging markets	1960- 2003	Correlation	countries. The capital flow cycle and the macroeconomic cycle reinforce each other (the when- it- rains-it pours syndrome).
Alessina & Tabellini (2005)	Sample of developed OECD countries and Sub- Saharan and Latin American developing	Annual	Regression	OECD -Countercyclical and Sub- Saharan and Latin American developing countries - Procyclical
Araujo, D. J. (2009)	Carribean nations	Annual 1983- 2007	Parametric & non- parametric approach	Procyclical follows Kaminsky's "when it rains, it pours" phenomenon

Table 3.2: Summary of Findings

Lledo,Yackovl	Sub- Sahara	a Annual	Regression	Procyclical government
ev & Gadenne	Africa	1970-		expenditures than in other
(2009)		2008		developing countries
Strawczynski	Israel	Annual	Regression	Transition from pro to
& Zeira (2007)		1970-	and dummy	countercyclical fiscal policy
		2005	variables	
Mohamed	Egypt	Annual	VAR	Procyclical
Hassan(2006)		1980-81		
		to		
		2004-05		
Rajaraman(20	India	Annual	Regression	Countercyclical
04))		1951-		
		2001		
Chakroborty&	India	Annual	Cointegrati	Countercyclical
Chakraborty		1970-71	on	
(2007)		to		
		1997-98		

Leaving aside the problem of time lags, whether the policy will be counter or pro depends upon: the level of development, the level of debt; availability of internal and external financing; the level of corruption and finally the types of institutions. But fiscal policy is counter or pro cyclical is immaterial if it is not effective. This brings us to the issue of effectiveness of fiscal policy.

3.3.2 : Macroeconomic effects of fiscal policy

Blanchard and Perroti (1999, 2002) examined the effect of fiscal policy using SVAR analysis for USA after World War II. Their identification procedure assumes that government purchases do not contemporaneously react to output as they were using the quarterly data. In a closely related empirical analysis for the U.S., Fatas and Mihov (2001) mostly confirm the findings of Blanchard and Perotti (2002). They also study the consequences of fiscal expansions for other macroeconomic variables. Romer & Romer (2007) investigated the impact of changes in the level of taxation on economic activity using the narrative record technique of Ramey & Shapiro (1998). This narrative analysis allowed them to separate revenue changes resulting from legislation from changes occurring for other reasons. Using vector autoregression (VAR) with log output and the exogenous tax changes for USA they found that tax changes have very large effects on output. For a panel data Fatas and Mihov(2003) point to negative effects of discretionary fiscal policy on growth while Castro et al(2002) found small yet significant effect of fiscal policy for Spain.

Thus, there are predominantly four approaches to test the effectiveness of fiscal policy using VAR analysis (Table 3.3).

Table 3.3: Four	Approaches to	Empirically	Test the Effectiven	ess of Fiscal Policy
I upic cici I oul 1	-ppi ouches to	Empiricany	I cot the Litter to	cos of i focul i oney

	Approach	Identification s	cheme	Author
S. No.				
1)	e Blanchard & P Approach	Perotti The institution estimate cycl government ex fiscal policy sh	nal information is used to ically adjusted taxes and penditures, then estimates of ocks are obtained.	Blanchard and Perotti (2002)
2)	The Recu Approach	Pursive A causal orde following the C	ring of the model variables Cholesky decomposition	Fatas and Mihov(2003)
3)	he Sign - Restric Approach	Identifies fisca motivated sign shocks. Impose shape of the im	al policy shocks via theory- as on the responses to these ed restrictions directly on the pulse responses	Mountford and Uhlig (2002)
4)	The Event - approach / Narrative Appr The Dummy Va Approach	Study The roach/ ariable	variables for exogenous fiscal respect to the state of the	Ramey and Shapiro (1998)

The structural form of a 'n' variable VAR model is: k

 $A_0 X_t = \sum A_i X_{t-i} + B v_t$

The relationship between reduced form residuals and structural form residuals is given

by: $v_t = B^{-1} A_0 e_t$

i.

The reduced form residuals consist of a linear combination of three components (Blanchard & Perrotti, 1999):

Automatic response of fiscal variables to shocks in other variables.

ii. Systematic discretionary response of policymakers of innovation in variables.iii. Random discretionary (structural) shocks to fiscal policy.

The third type of shocks (structural shocks) are the one on which the analysis is focused when impulse responses to fiscal shocks are estimated.

The impulse responses of the variables summarises the responses of all other variables to structural shock in the current value of the selected variable. To compute the impulse responses of the variables in the system, system has to be identified. The identifying assumptions used in the literature to identify fiscal shocks form the basis of the four approaches briefly explained in Table 3.4.

							Inte	Curr
Study	Sam	Appro	Varia	Out	Consumpt	Employm	1631	ent
	ple	ach	ble	put	ion	ent	rate	acco
Ramey	Quart		G	1c	-	=	-	unt
&	erly		shock					
Shapir	1947-	Narrati	(incre					
0	1996	ve	ase)					
(1998)								
			G shock	0.8	+			-
Blanch			(incre	4				
ard &	Quart	Blanch	ase)					
Perrott	erly	ard &	T	-	-			
i	1960-	Perrotti	Ginora	0.6				
(1999)	97		(incre ase)	9				
Fatas		~	G	0.3	+	+	+	
&	Quart		shock					
Mihov	erly	Recursi	(incre					
(2001)	1960-	ve	ase)					
	96)	
			G	0.4	=	= / /		
Mount			Ginere					
ford &	Quart	Sign	(incre ase)			1		
Uhlig	erly	Restrict	T	0.1	+		-	
(2009)	1960-	ion	SNOCK	9				
	96		(decre ase)					

Table 3.4: Four Approaches to Empirically Test the Effectiveness of Fiscal Policy*

*If the study does not consider a certain variable, the corresponding field is kept empty. The sign + indicates a positive effect; - sign indicates a negative effect and = indicates no effect. This is applicable for all the summary tables. Variable **G shock** stands for shock to government spending variable and **T shock** refers to a tax shock.

3.3.2 a: Country wise

Macroeconomic effects of fiscal policy vary considerably for different countries. While the fiscal policy had a significant influence on cyclical conditions in New Zealand according to Hargreaves, Karagedikli & Ozer (2007); Rahman (2005) indicates insignificant impact of fiscal policy on real output growth for Bangladesh. Rezk, Avramovich & Basso's (2007) analysis, using Perotti (2004) VAR method on Argentina's logarithmic real variables, casts doubt upon some of the traditionally acceptable Keynes macroeconomic policy prescriptions. Castro(2002) empirically found evidence for small, though significant, effects of fiscal shocks on GDP, private consumption, private investment, interest rates and prices for Spain whereas Tenhofen & Wolff (2006)indicate significant effects for government expenditure and direct income tax but little effect of small indirect tax revenue shocks. Lendvai(2007) used the same technique as Fatás & Mihov (2001) and Galí et al. (2007) by developing the SVAR model for Hungary to study the macroeconomic impact of unexpected changes in the fiscal policy. Findings indicate that

government expenditure have a mixed impact on the economy. While households are found to respond positively to expansionary government spending leading to an increase in their income, findings point to a negative reaction on the part of the corporate sector. Höppner's (2002) VAR & IRF analysis for Germany shows a negative response of GDP to tax shocks and a positive to expenditure shocks. Private consumption reacts negatively to taxation but increases in response to a shock to public expenditure.

Restrepo &Rincón (2006) analysed fiscal shocks in Chile and Colombia using VAR and VECM technique for Chile from 1989:1 through 2005:4 and for Colombia, the series include quarterly data between 1990:1 and 2005:2. Findings indicate that when public finances are under control, as they are in Chile, fiscal policy seems to be more effective than when they lack stability and credibility, as seems to be the case of Colombia since the mid nineties.

Kuismanen and Kämppi (2007) for the period 1990 - 2007 used SVAR and VSPD methodology to analyse whether fiscal policy decisions have real effects on the economy of Finland. Results indicate that a positive tax shock has a positive effect on Investment and GDP but the response of private consumption is mixed.

Mohr (2006) has investigated the short run impacts of fiscal policy in Germany on the macroeconomic environment in a small structural vector auto-regressive (SVAR) model GDP, private consumption, total government receipts and total government expenditure. The data are based on semi-annual German national accounts from 1970:1 to 2000:2. Results indicate that private consumption decreases by about 0.4% after two years following a one percent revenue shock and increases by about 0.35% after one year and a half following a one percent expenditure shock. GDP reacts with a decline of about 0.5% within two years after a one percent revenue (expenditure) shock.

Pereira& Sagales (2006) estimated the effect on output of various fiscal policies in the context of VAR model for Portugual economy. The results indicate that revenue policies effect follow Keynesian paradigm. While the results of public investment and public wages are Keynesian in nature, non-Keynesian effects dominate public transfers.

The country wise research (Table 3.5) on macroeconomic effects of fiscal policy shows that the effects of fiscal policy vary considerably for different countries from significant to insignificant to even adverse impact.

Table 3.5: Summary of Findings

Coun try	Study	Sa mpl e	Approa ch	Outp ut	Consum ption	Int ere st rat e	Employ ment	Real exch ange rate	Tra de bal anc e	Invest ment
Spoi	De Castro and De Cos		Blancha	131	+	+				
n spar	(2008) (tax shock:incre ase)	Q	Perrotti	-	+	+				
New	Dungey and Fry (2009)	198 3- 200	Sign restricti on	+	-	+				
Zeal and	(tax shock:incre ase)	6 (Q)		+	-	+				
Ger man	Heppke- Falk et al. (2007)	197 4- 200	Blancha rd & Perrotti	0.62	+	+				-
у	Kuismaene	4 (Q) 199			mixed					
Finla nd	n &Kampi (2009)	0- 200 7		+))		
	Mohr	(Q) 197 0-	Blancha rd &	+(0.4)	+			2		
Ger man y		200 0 (se	Perrotti	-(0.5)	-		8	2		
	2	mi ann ual)			\square	$\langle \rangle$	50.			
Hun gary	Lendvai (2007)	199 7- 200 5 (Q)	Blancha rd & Perrotti	- (priv ate)	+		- (private)	- (imp act)	=	- (impa ct)
Japa n	Kuttner & Posen (2001)	197 6- 199 9 (A)	Blancha rd & Perrotti	+ + (decr ease)	-					
Italy	Giordano et al. (2007)	(A) 198 2- 200 4	Blancha rd & Perrotti	0.2	+	-	+			
Cana da	Arin & Koray (2006)	(Q) 196 0- 99 (Q)	Recursi ve	-		-				
Cana da	Cayen & Desagagnes (2009)	196 1Q1 - 200	All	+++						

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8Q2

Country	USA		•	•						
Study	Bur nsi de et al. (20 04)	Gal i et al (20 07)	Mu ller (20 08)	R r R (1)	Rome & Rome 2010	Ramey (2008)	Ca Go tax	Caldara & Kamps (2 Government spending sl tax shock (increase)		
Sample	Qua rte rly 194 7-95	Qua rte rly 195 4- 200 3		Q er 1 2	Quart rly 950- 007	Quarter ly 1947- 2003	Quarterly 1955-2006			
Approach	N	BP	R	N	Ţ	N	N	R	B P	SR
Output	+	0.7 8		-:	3% f CDP	c.a. 1	0	1	1	c.a. 0.5 -0.8
					JDI				, , , , , , , , , , , , , , , , , , ,	_
Consumpt ion	=	+		-				-	=	-
Employme						. /	_	A	=	=
nt	+	+				-	~	N = Y	=	=
Interest					-			=	=	=
rat e								=	=	=
Terms of trade			+							
Current Account			+							

If the study does not consider a certain variable, the corresponding field is kept empty. The sign + indicates a positive effect; - sign indicates a negative effect and = indicates no effect. N: Narative; R: Recursive; BP: Blanchard& Perrotti; SR: Sign Restriction approach.

3.3.2 b: Panel data studies

Perotti(2005) Paper studies the effects of fiscal policy on GDP, inflation and interest rates in five OECD countries, using a Structural Vector Auto regression approach. Its main results are: 1) The effects of fiscal policy on GDP tend to be small, 2) There is no evidence that tax cuts work faster or more effectively than spending increases, 3) The effects of government spending shocks and tax cuts on GDP and its components have become substantially weaker over time, 4) Only in the post-1980 period is there evidence of positive effects of government spending on long interest rates, and 5) Under plausible values of its price elasticity, government spending typically has small effects on inflation.

For a panel based on a large set of countries, Fatas and Mihov (2003) showed that discretionary fiscal policy induces macro-economic instability, which, in turn, may affect growth negatively. Table 3.6 summarises the panel data studies on the effect of fiscal policy on macroeconomic variables.

Table 3.6: Su	nmary of findings*
---------------	--------------------

	Study — Varia bles	Pappa (2	009b)	Government spending shock(increase) & Tax shock (decrease)										
	Appr oach	Sign Rest	triction	Blanchard and Perotti										
	Coun try		(J a F a C n p a a a a	Αι	ıstralia	UI	X	US	SA	Ca	ınada	Ge y	erman	
	Samp le		1	1 9	1 9	1 9	1 9	1 9	1 9	1 9	1 9	1 9	1 9	
1	4			6 0	8 0	6 0	8 0	6 0	8 0	6 0	8 0	6 0	7 5	
	(Qua rterly)	1970-200	7	- 1 9 7 9	2 0 0 1	- 1 9 7 9	- 2 0 0 1	- - - - - - - - - - - - - - - - - - -	2 0 0 1	- 1 9 7 9	- 2 0 0 1	- 1 9 7 4	- 1 9 8 9	
									1	~				
	Outp ut	0 0		- 0 1	0 ・2 1	0 4 8	0 2	1 1 3	0 3 1	0 5 9	- 0 2 8	0 4 1	0 4	
				- 0	- 0	0	- 0	0	- 0	- 0	0	- 0	0	
				4 1	3 6	1 0	2 3	6 9	4 3	0 3	3	2 2	0 2	
	Cons			+	+	+	-	+	+	+	-	-	-	
	ump			-	-	-	+	+	-	+	+	+	-	
	tion													
	Intere			-	+	+	+	-	+	+	+	+	-	
	st rat e			-	-	+	+	-	-	+	-	-	+	
	-													

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Empl								+ (1947-		
oym	+	-	-	+	+		- (1947-		- (1947-	
							2005)	2005)	2005)	
ent										

Study—										
variables	Beetsma (2008)	Ravn et al. 2007	Corsetti & Miller (2007)*				Monacelli & Perrotti (2008)			
			Recursive			Blanchard				
Approach	Recursive	and Perotti/					and	Perotti (BP))	
		D						. ,		
		Recursive								
Sample	Panel of 14 EU nations	Australia UK USA Canada	U K	US A	Can ada	AU	UK	US A	Ca nad	AU S
						S			а	
		540								
	Annual	Quaterly								
			011	ortorly				rtorly		
	1970-20 <mark>04</mark>	1975-20 <mark>05</mark>	Qu	arterly			Qua	rterly		
Output	1970-20 <mark>04</mark> 1.2	1975-2005 0.52(BP)	Qu	arterly	Í	3	Qua	rterly		
Output Consumptio	1970-20 <mark>04</mark> 1.2 +	1975-2005 0.52(BP) + (BP)	Qu	arterly			Qua	rterly		
Output Consumptio n Employment	1970-2004 1.2 +	1975-2005 0.52(BP) + (BP)	Qu * S	arterly hock to bud	get balance	2	Qua	rterly		
Output Consumptio n Employment	1970-2004 1.2 +	1975-2005 0.52(BP) + (BP)	Qu * S	arterly hock to bud	get balance		Qua			
Output Consumptio n Employment Interest rat e	1970-2004 1.2 +	1975-2005 0.52(BP) + (BP)	Qu * S	arterly hock to bud	get balance		Qua			
Output Consumptio n Employment Interest rat e Real Exchange rate	1970-2004 1.2 + 	1975-2005 0.52(BP) + (BP) - (Recursive)	Qu *S	hock to bud	get balance		Qua	-terly		
Output Consumptio n Employment Interest rat e Real Exchange rate Terms of	1970-2004 1.2 + 	1975-2005 0.52(BP) + (BP) - (Recursive)	Qu *S	hock to bud	get balance	3	Qua			
Output Consumptio n Employment Interest rat e Real Exchange rate Terms of trade	1970-2004 1.2 + + +	1975-2005 0.52(BP) + (BP) - (Recursive)	Qu * S	hock to bud	get balance		Qua			

*BP stands for Blanchard & Perrotti approach; (I) refers to impact multiplier and (C) for cumulative. Unless

mentioned all results are on impact. For all studies shock to government spending variable is analysed unless specified.

3.2 c: Developing Countries

The VAR methods can be used to test different theoretical models using empirical data. The focus of empirical literature to use time series methodology to study the effects of fiscal policy largely pertains to the developed world.

		0	1				
	Study	Country	Approac	Variable	Out	Consumptio	Interest rate
		Argentina	11	G shock	put +	+	
Rezk,	Rezk,	1833-2000	Blanchar	(increase)			
Avramovich &		A movel	d e	(mercuse)			
	Basso (2007)	Annual	d &				
	Carda	Chile	Perrotti	Cabook		Finds ovid	anaa of non
	Cerda,	Chile		G SHOCK	0.2	Keynesian ef	fect on economic
	Gonzalez &	1980-81 to		(increase)	%	activity for a	n
		2004-			(yea r)		
					- /		
	Lagos	05	Blanchar	Tshock	-	emerging eco	onomy: Chile.
			d &		0.1		
	(2005)	Annual	Perrotti	(increase)	/0 (vea		
	(2005)	Annual	renotu	(mercase)	r)		
		Egypt 1975-	VAR				
	Hassan (2006)	2003	(first	G shock	+		
		Annual	differenc		(sm all)		
			e		a11)		
		Bangladesh					
	Rahman (2005)	1977-2004	Recursiv	G shock	Insi		+
		Annual	e		gnif		
		Alinuar			i		
					cant		
				G shock			
	Pereira &	Portugal	Blanchar	(increase)	+		
	Sagles	1989-2005	d &	(Increase)			
	(2006)	Quarterly	Perrotti	ISHOCK			
			Terrotu	C hub		Wilson muchilia	
				G shock	Chil	finances are	under control. as
				(increase)	e: +	is the case	in Chile, fiscal
		Panel: Chile			Col	policy is mo	re effective, than
		(1989-2005)			uno ia:	credibility a	s is the case of
	Restrepo & Rincon	/	Blanchard		sma	Colombia	from the mid
	(2006)	Columbia (1990-	& Perrotti		11	nineties	
				Tshock	Chil		
		2005)		(decrease	e: -		
		Quarterly)	Col		
				,	umb		
					ia:		
					=		

Table 3.7: Summary of Finding

Variable G shock stands for shock to government spending variable and T shock refers to a tax shock.

In developing countries very few attempts have been made to apply this methodology to study the effect of fiscal shock. A crucial element is the availability of quarterly data of and estimates of automatic responses of fiscal variables to other endogenous variables. As Perrotti (2007) has noted these features are typically absent in developing countries. Use of recursive ordering without any theoretical justification and use of annual data is quite common in most of the studies for developing countries (Table 3.7). Even if quarterly data is available it is interpolated from the annual data and generally the available time series are shorter. Moreover, as Perrotti (2007) noted that the fiscal policy is more volatile in developing countries with sometimes very large changes. In periods of high inflation and large changes in prices deflating the series also becomes problematic. Thus, just blindly applying the time series methodology and reporting that one percent increase in government spending will result in x percent decrease in private investment is meaningless. A proper understanding of the theoretical justification of the identification scheme is necessary.

3.3.2 d: Summary

The review of empirical literature on impact of fiscal policy on the macroeconomic variables shows that there is a vast contradiction in the results for different countries varying from insignificant to significant, both beneficial and adverse. Thus the empirical evidence on the macroeconomic effects of fiscal policy is not conclusive enough to answer whether Keynesian or alternative macroeconomic policies should be resorted to. The debate on the efficacy of fiscal policy as a stabilization policy in that sense is still evolving.

In the current decade the emphasis has been shifted to analysis of the impact of fiscal policy shocks on the economic activity using vector auto regressions. These models have

provided a platform to compare the different theoretical point of views regarding the effectiveness of the fiscal policy. But most of the research has concentrated on the US and other OECD economies. Unfortunately, very few studies can be found for developing countries using VAR technique mainly because of lack of reliable quarterly data.

3.3.3 : Automatic Stabilizers

Though the potential of automatic stabilizers as an effective countercyclical tool is a well recognized today but the empirical research is fairly limited. Blanchard (2004) noted that JSTOR lists only 11 articles in the last twenty years related to automatic stabilization. But now with recessions of the current decade, the effectiveness of fiscal policy is again the focus of empirical research, with due emphasis on both automatic and discretionary components. Fatas & Mihov (2001) were the first to show that measures of automatic stabilizers are highly correlated with government size. Fatas (2003) analyzed the importance of automatic stabilizers using data from 20 OECD countries and empirically studied the dynamic effects of discretionary fiscal policy using VAR methodology for quarterly data from the U.S. They present strong evidence in favor of the hypothesis that large governments reduce the volatility of output (total or private). Results indicate that changes in taxes, transfers and government employment are the most effective tools of fiscal policy. Bella (2002) assessed the effectiveness of automatic fiscal stabilizers using French data for the period 1970-2000. Results show fiscal stabilizers dampen output variability by approximately 35-40% working through reduction in private investment fluctuations in pre-1985 and through reduction in private consumption variability thereafter. Suescun(2007) evaluated the role of automatic stabilizers in Latin America by using a dynamic multisector small open economy model. Results are in sync with the Latin American business cycle facts with stabilizers being comparatively stronger on the expenditure side.

Swanponoel, J.A. & Schoeman, N.J. (2002) evaluated the effectiveness of tax revenue and unemployment insurance scheme as automatic stabilizers for the south African economy from 1970-2001. Results indicate that cyclical fluctuations in revenue are much larger than those of expenditure as unemployment benefits are only a small part of public finances in South Africa. A prominent role for automatic stabilizers was also observed in the latter half of the sample period. Floden (2009) examined the responsiveness of the Swedish public budget to business cycle conditions between 1998 and 2009. Substantial change in three budget components was observed - (i) the average level of personal income taxes has fallen substantially, (ii) the progressivity of personal income taxation has increased, and (iii) spending on unemployment compensation has fallen. The summary of empirical literature on automatic fiscal stabilizer is given in Table 3.8.

Study	Country	Data	Size	Effectiveness	Comment
Bella (2002)	France	1970- 2000	Large	35-40% dampening of output variability	
Swanpo noel &	South Africa	1970- 2001	Small	Insignificant	Byouancy estimates and
Schoem an, (2002)		Annu al			regression
Floden (2009)	Sweden	1998- 2009	Effective	1% increase in GDP will improve budget balance by 0.53%	
Suescún (2007)	Latin America n countrie	1972- 2000 Annu al	Negligibl e	Not responsive to cyclical conditions	Expenditure stabilizers comparativel y stronger
Baunsga ard & Symans ky (2009)	26 OECD countrie s	2000- 2007	Vary : German y- 0.48% of GDP to	Increase in output gap by 1% will worsen budget balance by 0.44%.	Elasticity And regression
			0.33% for USA		
Bogdano v (2010)	Sample of develop ed and developi ng countrie s	1972- 2001 Annu al	Significa nt	1% increase in automatic fiscal stance will reduce output volatility by 0.024% in developed and by 0.015% in developing.	Panel regression
Hoopner (2002)	German y	1970- 2000 Quart erly	Significa nt Role in overall effective ness of fiscal policy	The pure discretionary policy effect is significantly smaller than the response including the endogenous working of AFS.	SVAR

The global slowdown of 2008 has shown that it is not prudent to rely only on automatic stabilizers and monetary policy alone for stabilizing the economy if the situational is exceptional as it has been this time. But AFS can play an important role and are infact doing so in developed nations. The situation is different for the developing countries as automatic stabilizers are generally very small and insignificant. They are more equipped to handle

demand shocks (Keynesian demand management). Unfortunately shocks in developing countries are more on supply side. Given the supply constraints in developing countries it is important that extensive research is undertaken in these nations to develop stabilizers that can work on supply side. Also the need is to develop security net for the vulnerable sections of the society by focusing on expenditure stabilizers. These stabilizers will provide some security to these sections of the population from volatility in the market.

The effective AFS will help the government in developing countries to leave the general task of stabilization to AFS and monetary policy (except in the exceptional situation as seen during the recent global slowdown) and use fiscal policy to achieve the objectives of economic growth and provision of quality economic and social infrastructure.

3.3.4 : Recent India based studies

Pattnaik, Raj, Deepa and Chander (2004) have chronicled the empirical fiscal research in India during the past six decades since independence on the basis of published articles in leading journals, books, working papers of specialized institutions /organisations and reports by the Government of India and the Reserve Bank. Findings indicate that recent studies are placing more emphasis on empirical and quantitative analysis using more sophisticated econometric and statistical tools. But the literature has not focused on the stabilization aspect of fiscal policy. Some of the recent empirical literature related to this study has been discussed below.

Chakraborty and Chakraborty(2006) empirically examined the validity of Keynesian philosophy of contracyclical variation in fiscal policy to the macroeconomic activity in India. The macroeconomic activity is proxied by 'output gap' a concept defined to estimate the index of economic activity. Applying Johansen's Full Information Maximum Likelihood test of cointegration, it was found that there exists a long run, stable relationship between fiscal policy stance and macroeconomic activity. Thus the role of fiscal deficit is that of an important instrument of short run demand management.

Pattnaik, Raj and Chander (2006) estimated structural and cyclical fiscal indicators following Bouthevillan (2001) methodology to analyse the fiscal consolidation process in the FRBM phase. Fiscal indicators show that this consolidation has essentially been achieved through enhanced revenues.

Rao (2004) estimated the quantitative estimates of the impact of business cycle on the fiscal deficit. Results show that a one percentage point increase in the real growth rate would reduce the fiscal deficit by an equivalent amount because of widening tax bases. Using the methodology suggested by Cohen (1988) an index of discretionary fiscal policy was constructed as equal to the net effect of the change in real government spending excluding interest payments on the public debt and real tax receipts as a fraction of real income. Results indicate a robust relationship between the structural deficit and discretionary fiscal policy.

Rajaraman (2004) performed econometric exercise for the consolidated imbalance across all levels of government over the fifty-year period 1951-2001. The regression equations show an election year response, which has become more marked in the last thirty years. There is also a countercyclical policy response, of (-) 0.04 percent of GDP for every 1 percent of

agricultural growth lagged by one year, and between (-) 0.06 and (-) 0.09 percent for every 1 percent in overall growth, also lagged by one year.

Rangarajan and Srivastava (2005) examined the long term trend of fiscal deficit and debt relative to GDP in India to analyse the issue of debt-deficit sustainability. The sustainability of debt and deficit is examined in terms of the impact of debt and fiscal deficit on growth and interest rates that arises from their effect on saving and investment. They have argued that large structural primary deficits and interest payments relative to GDP have had an adverse effect on growth in recent years.

Indian economic system has undergone major changes since the inception of economic reforms in 1991. The economy is more open and market oriented as compared to pre reform era. As a result, it has now become more susceptible to slowdowns resulting from economic crisis, which has its origin elsewhere. Moreover, the nature of business cycles has also changed drastically. Earlier the crises were mostly monsoon driven but now they are more in tune with the economic crisis happening in a market oriented country.

Patnaik &Sharma (2002) examined the presence of business cycles in the Indian economy using annual GDP data since 1950-51 and monthly data since 1980. Study indicates that the Indian economy has experienced cycles that can be tracked by changes in annual GDP.

The Approach Paper to the 11th Plan has mentioned "The experience of the past decade indicates that endogenous business cycles may have become an abiding feature of Indian macroeconomic behaviour. This can be addressed through appropriate fiscal and monetary measures, provided that recognition is early enough." The indepth analysis of business cycles is hence now of paramount importance, especially with increasing integration of Indian economy with the world economy. External factors can result in significant slowdown of our economy in future. To remain prepared for such a scenario a thorough understanding of the effects of various stabilization policies on the economic activity is extremely important. The role different types of fiscal policy can play in stabilizing the economy will help us in preparing for the future when these shocks may become a regular part of our economy.

Still very few researchers have focused on the potential of fiscal policy as a stabilization tool in India. There is no work on the size and effectiveness of automatic stabilizers for the Indian economy and very little on the measurement of macroeconomic effects of fiscal policy. Though, a large body of work may be found on the sustainability of India's public finances and existence of political business cycles at national and state levels. Research on pure public finance is focused on issues like Goods and Service Tax, Gender budgeting, NREGA and Federal finances etc. whereas macroeconomic research focus is primarily on monetary and trade policy. Thus, a comprehensive analysis of the role of fiscal policy as a stabilization tool in an era of market linked business cycle is the need of the hour.

3.4 : Gaps in the Literature

The important gaps that have been identified from the review of existing literature are as follows:

1) The existing literature on different aspects of fiscal policy points to the fact that the debate on the efficacy of fiscal policy as a stabilization policy is evolving. There is a vast contradiction in the results for different countries varying from insignificant to significant, both beneficial and adverse, impact of fiscal policy on the macroeconomic variables. In short its effects on output and other aspects of macro economy are being intensely discussed.

2) In the current decade the emphasis has been shifted to analysis of the impact offiscal policy shocks on the economic activity using vector auto regressions. These models have provided a platform to compare the different theoretical point of views regarding the effectiveness of the fiscal policy. But most of the research has concentrated on the US and other OECD economies. Unfortunately very few studies can be found for developing countries using VAR technique.

3) With "endogenous business cycles" becoming an important feature of Indian macroeconomic behaviour, it becomes absolutely necessary for our government to have a clear understanding of the role different kinds of macroeconomic policies (fiscal, monetary and trade policies) can play in stabilizing the Indian economy. But to use fiscal policy as stabilization tool requires presence of adequate fiscal space for manouvering. For an emerging nation like India with high public debt levels problem is more severe. Large public debt/GDP ratio has again raised the concern for fiscal consolidation. High debt to GDP ratios leads to lower credit rating making borrowing funds for investment costly and can end up triggering a slowdown. Therefore, to tackle the problems of stabilization and fiscal consolidation a clear understanding of the effects of different kinds of fiscal policy on economic activity is necessary.

3.5 There is no study focusing on the size and effectiveness of automatic stabilizers in the context of Indian economy. Internationally also there are not many papers on automatic stabilizers. Blanchard (2004) noted that JSTOR lists only 11 articles in the last twenty years related to automatic stabilization. But now with recent recessions of the current decade, the effectiveness of fiscal policy is again the focus of empirical research with due emphasis on both automatic and discretionary components.

3.6 : Research Issues

The existing literature both empirical and theoretical has helped in identifying certain research issues for the Indian economy.

Research issues:

- Should fiscal policy be used to help stabilize the economy and smooth business cycle fluctuations?
- What are the macroeconomic effects of fiscal policy? Whether the effects of fiscal expansion follow Keynesian or non Keynesian tradition?
- Is fiscal policy procyclical in India as is the case for several developing countries?
- Whether public finances of Indian government (central and states) sustainable and given the debt and deficit levels are they solvent?
- Whether high level of fiscal deficit has constrained the use of fiscal policy as a stabilization tool?
- Whether fiscal expansions have crowded out or crowded in private investment in India

3.7 What role can automatic stabilizers play in the context of Indian economy?

: Conclusion

This paper has reviewed the important theoretical and empirical literature on the role of fiscal policy in stabilization and growth of any economy. Important gaps have been identified in the existing literature that provides us with some of the issues that needs to be researched for the Indian economy.

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