

Did fiscal stimulus lift developing Asia out of global crisis?

A preliminary empirical investigation

Presented by Seok-Kyun HUR (KDI)

Macroeconomic Management Beyond the Crisis

ADB Headquarters, Manila, 11 February 2010



Outline

1. Introduction
2. Empirical Framework
3. Empirical Results
4. Concluding Remarks

1 Introduction

- Asia suffers a severe trade crisis in 2008-9.
- Enormous political pressures on Asian governments to “do something”.
 - Weak tradition of countercyclical macro policy
 - Global has rekindled interest in countercyclical macro policy
- Asia has staged a spectacular V-shaped recovery.
- According to conventional wisdom, fiscal stimulus played a key role in the recovery.

1 Introduction

- Another conducive factor was the relatively healthy state of public finances in Asia.
 - Result of a tradition of fiscal responsibility
 - Region has plenty of fiscal space.
- Is countercyclical fiscal policy effective?
 - Economists are deeply divided about effectiveness.
 - Flurry of recent empirical studies find a wide range of multipliers.

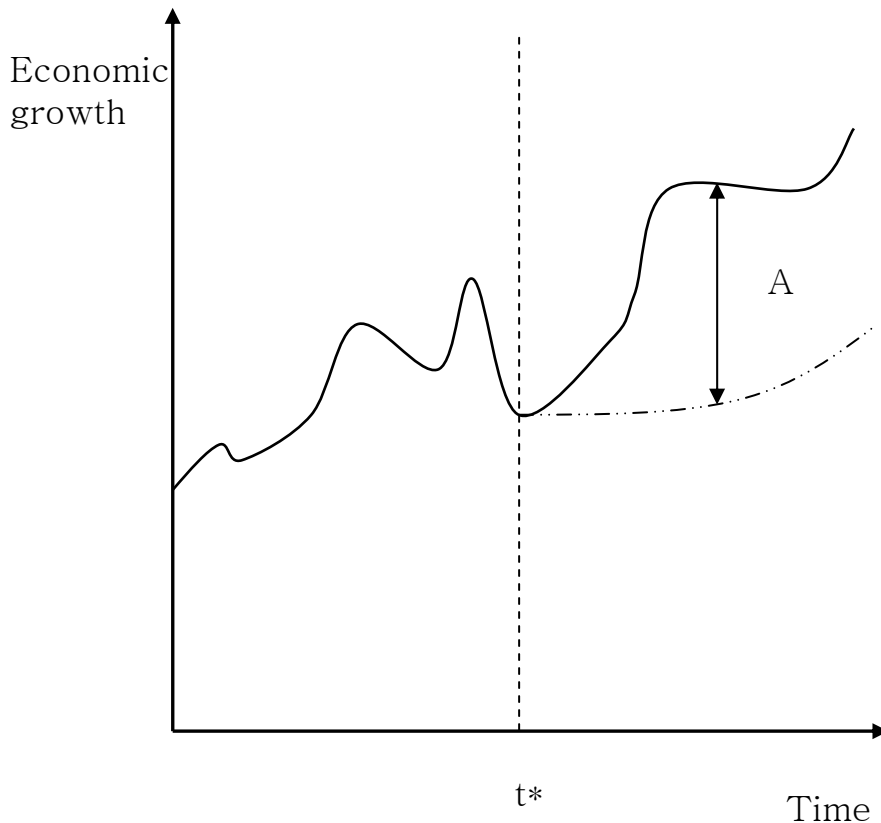
1 Introduction

- Our central objective is to empirically test the conventional wisdom (CV) that fiscal stimulus played a central role in Asia's recovery.
 - Up to now, this CV has been accepted at face value without any supportive evidence.
 - Existing studies on impact of fiscal policy in G3 and there are no Asia-specific
 - Our study is necessarily preliminary and thus far from definitive.

2 Empirical Framework

- Our sample consists of G20 economies, which includes China, India, Indonesia and Korea.
- In addition, six other Asian economies – Hong Kong, Malaysia, Philippines, Singapore, Taipei and Thailand.
- So total sample is 24, of which 10 are from Asia.
- Unbalanced panel of quarterly data – each country's data length based on data availability
- All variables except interest rates are seasonally adjusted.

2 Empirical Framework



- A graphical representation
- 1. Let's say t^* is Q3 of 2008.
 - Bold line: A realized path of economic growth before and after 2008 Q3
 - Dotted line: A hypothetical path of economic growth without the fiscal stimuli packages
- 2. Our tasks are as follows:
 - To measure the differences between the two lines (A)
 - To explain what factors contribute to them

2 Empirical Framework

- First stage : Estimate the dotted line by Panel VAR
 - Bi-variate and four variable PVAR systems are estimated using the data up to 2008 Q3.
 - The two variable case consists of a country real GDP and a global GDP.
 - The four variable case adds government revenue and expenditure to them.
 - Another version of 4-variable PVAR, replacing the global GDP by the Real Effective Exchange Rate, highlights a trade channel.
 - All the variables are detrended by HP-filter.
 - Based on the estimates, we construct a forecasted path of GDP growth for 2008 Q4~2009 Q2.

2 Empirical Framework

- Second stage: Cross-country regression
 - Explain the difference between the solid line and the dotted one.
 - These explanatory variables include
 - Fiscal statistics: Government revenue and expenditure
 - Monetary policy : Policy rate and term-spreads (defined by yield differentials between 1 or 3 year government bond and the policy rate)
 - Exchange Market: REER
 - Measures for global GDP growth: varying by weighting methods.
 - Market environments: market openness (trade openness) and fiscal soundness

2 Empirical Framework

- Second stage: Cross-country regression
 - In addition, a dummy for Asian countries (except Japan) is included in interaction terms with fiscal variables.
 - Of course, these estimated coefficients are not reflecting simple geographical effects.
 - Rather, we suspect that they are related to country specific economic systems in terms of
 - Monetary policy regime
 - FX market system
 - Market openness
 - Fiscal soundness (level of public debt) .
 - As well as the stages of economic growth each country is positioned.
 - Developing Vs. Developed



2 Empirical Framework (Testable Hypotheses)

1. Were the fiscal stimuli packages effective? (Size and Composition)
2. Would a country of weak fiscal soundness have smaller multiplier effect from a fiscal stimuli package?
3. Does an open economy have smaller fiscal multiplier?
4. Does the depreciating domestic currency contribute to quick recovery?

3. Empirical Results

Model III (4-varibale PVAR)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\ln GDP_{it-1}^{det*}$	0.750***	0.777***	0.670***	0.703***	0.657***	0.705***	0.640***	0.695***
	(0.11)	(0.10)	(0.11)	(0.10)	(0.12)	(0.11)	(0.13)	(0.13)
$TS_{-1yr}_{it-1}^{diff}$		-0.715*		-0.774**		-0.738*		-0.721*
		(0.37)		(0.37)		(0.38)		(0.39)
$POLICY_{it-1}^{diff}$	-1.198**	-1.278***	-1.058**	-1.121**	-1.147**	-1.189**	-1.088**	-1.157**
	(0.48)	(0.47)	(0.47)	(0.45)	(0.50)	(0.49)	(0.54)	(0.53)
$ASIA_i * \ln EXP_{it-1}^{det}$			0.283**	0.286**	0.331**	0.318**	0.339**	0.326**
			(0.13)	(0.12)	(0.14)	(0.13)	(0.14)	(0.14)
Observations	60	60	60	60	57	57	57	57
R-squared	0.56	0.57	0.61	0.62	0.63	0.64	0.63	0.64



3. Empirical Results

- All the 3 models show qualitatively similar results:
 - Lagged GDP growth, or more precisely unexplained GDP growth, is significant.
 - Monetary policy is significant.
 - Fiscal policy is insignificant.



3. Empirical results

- For the all-important Asia dummy variable, we find that:
 - In 2 out of the three models, government spending is significant – at 10% and 5% levels.
 - In the other model, spending is insignificant.
 - In all three models, government revenues – i.e. tax cuts – are insignificant.
- The other two interaction variables – for historical fiscal soundness and openness – are insignificant in all three models.



3. Empirical results

- Overall, our results lend *limited* support to the notion that fiscal policy has lifted Asia out of global crisis.
 - Limited due to less-than-overwhelming significance
 - Limited also because tax cuts are not significant.
- Interestingly, for whole sample, no evidence of fiscal effectiveness.
- This suggests that fiscal stimulus may have been more effective in Asia than elsewhere.

<The significance of Asian Dummy>

- A transient phenomenon?-

Regression Results from Model II
De-Trended 4-Variable PVAR

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\ln GDP_{it-1}^{\det*}$	0.475***	0.481***	0.395***	0.399***	0.362***	0.368***	0.358***	0.366***
	(-0.12)	(-0.12)	(-0.12)	(-0.12)	(-0.12)	(-0.12)	(-0.13)	(-0.13)
$\ln global_GDP_{it}^{\det*}$	-0.065	-0.011	0.016	0.048	0.100	0.127	0.116	0.126
	(-0.27)	(-0.26)	(-0.27)	(-0.26)	(-0.28)	(-0.27)	(-0.29)	(-0.27)
$\ln REV_{it-1}^{\det*}$	-0.019	-0.015	0.056	0.058	0.050	0.051	0.052	0.051
	(-0.04)	(-0.04)	(-0.05)	(-0.05)	(-0.05)	(-0.05)	(-0.05)	(-0.05)
$\ln EXP_{it-1}^{\det*}$	-0.031	-0.030	-0.117**	-0.117**	-0.113*	-0.113*	-0.113*	-0.112*
	(-0.04)	(-0.04)	(-0.06)	(-0.06)	(-0.06)	(-0.06)	(-0.06)	(-0.06)
$TS_1yr_{it-1}^{diff}$		-0.432		-0.261		-0.294		-0.220
		(-0.38)		(-0.39)		(-0.40)		(-0.42)
$TS_3yr_{it-1}^{diff}$	-0.474		-0.289		-0.286		-0.179	
	(-0.41)		(-0.42)		(-0.43)		(-0.45)	
$POLICY_{it-1}^{diff}$	-0.636	-0.608	-0.545	-0.526	-0.496	-0.487	-0.442	-0.457
	(-0.51)	(-0.50)	(-0.50)	(-0.49)	(-0.53)	(-0.52)	(-0.56)	(-0.55)
$\ln REER_{it-1}^{diff}$	-0.019	-0.017	-0.015	-0.014	-0.010	-0.009	-0.014	-0.013
	(-0.03)	(-0.03)	(-0.03)	(-0.03)	(-0.03)	(-0.03)	(-0.03)	(-0.03)
$ASIA_i * \ln REV_{it-1}^{\det}$			-0.119**	-0.119**	-0.145**	-0.144**	-0.154*	-0.151*
			(-0.05)	(-0.05)	(-0.07)	(-0.07)	(-0.08)	(-0.08)
$ASIA_i * \ln EXP_{it-1}^{\det}$			0.113*	0.114*	0.134*	0.135*	0.157*	0.156*
			(-0.06)	(-0.06)	(-0.08)	(-0.08)	(-0.08)	(-0.08)
Observations	80	80	80	80	76	76	76	76
R-squared	0.288	0.288	0.342	0.342	0.355	0.356	0.366	0.367

Note: 1) Standard errors in parentheses. 2) *** p<0.01, ** p<0.05, * p<0.1
Source: Staff estimates

<The significance of Asian Dummy>

- Institutional Features and the efficacy of Fiscal Policies -

Exchange rate arrangement	Monetary Policy Framework				
	Exchange rate anchor		Monetary aggregate target	Inflation targeting framework	Other ¹
	U.S. dollar	Composite			
Currency board arrangement	Hong Kong				
Other conventional fixed peg arrangement	Argentina	Russian Federation	Argentina		
Crawling peg	China				
Managed floating with no pre-determined path for the exchange rate		Singapore		Indonesia Thailand Taiwan	India Malaysia
Independently floating				Australia Brazil Canada France ² Germany ² Italy ² Korea	Mexico Philippines South Africa Turkey United Kingdom

1. Includes countries that have no explicitly stated nominal anchor, but rather monitor various indicators in conducting monetary policy.

2. The member participates in the European Economic and Monetary Union.

Sources: De Facto Classification of Exchange Rate Regimes and Monetary Policy Frameworks, April 31, 2008, IMF and central bank of the republic of China.



3. Empirical Results

- Regardless of models specifications, it seems that monetary policy has a significant effect in contrast with insignificant fiscal policy.
- This implies that monetary stimulus made a bigger contribution to global recovery than fiscal stimulus at least in the short-run.



4. Concluding Remarks

- There is a presumption that fiscal stimulus played a key role in Asia's recovery from global crisis.
- Our paper is a preliminary, first-step empirical testing of that presumption.
- One big strength of our analysis is that we look at impact of fiscal stimulus *during the crisis period*.
- We find limited evidence that the fiscal stimulus, in particular government spending, helped lift Asia out of global crisis.



4. Concluding Remarks

- The immediate, narrow policy implication is that countercyclical fiscal policy “works” in Asia during severe external shocks.
- But, it is a big mistake to interpret this finding as a call for greater fiscal activism in general.
- We should not draw inferences about fiscal effectiveness during normal times based on evidence from a once-in-a-lifetime crisis.



4. Concluding Remarks

- However, at a broader level, the anti-crisis fiscal stimulus highlights the potentially large benefits of using fiscal policy in new, innovative ways.
 - Countercyclical fiscal activism is “new” to Asia.
 - So long as fiscal sustainability is not compromised.
- Beyond the crisis, Asia should explore innovative and more active use of fiscal policy for promoting sustainable growth in the post-crisis world.
- A prime example would be using fiscal policy to promote rebalancing growth toward domestic sources.