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Fiscal policy cyclicity in South Asian economies

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Abstract

This paper analyses the cyclical nature of fiscal policy in South Asian economies. Drawing on the recent literature, we assess whether these economies have graduated to a counter-cyclical fiscal policy in the recent period. We find that fiscal policy is procyclical in most of the South Asian economies. Our analysis shows that the evidence of graduation to a counter-cyclical fiscal policy is weak for South-Asian economies. Our findings are robust to alternative methods of extracting the cyclical component. This has implications for macro-stabilisation policies in these countries and warrants a rethink of the fiscal policy framework.

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1 Introduction

Understanding the cyclical nature of fiscal policy is important as it helps to design stabilisation and adjustment programs. Emerging economy business cycles are seen to be volatile (Male, 2011; Aguiar & Gopinath, 2007). Pro-cyclical fiscal policy amplifies the already volatile business cycle. This paper examines the cyclical features of fiscal policy in South Asian economies. A significant strand of literature has documented the behaviour of fiscal policy over the business cycle. Empirical evidence suggests that fiscal policy tends to be counter-cyclical in advanced economies. Earlier studies found evidence of a procyclical fiscal policy in Latin American economies (Gavin & Perotti, 1997). Subsequent studies documented that procyclical fiscal policy stance is pervasive across emerging and developing economies (Kaminsky, Reinhart & Vegh, 2004). Procyclical fiscal policy is sub-optimal as it tends to exacerbate the business cycle i.e. amplify the expansion and worsen the recession.

Two broad strands of explanations have been put forward for procyclical fiscal policies in developing economies. Limited integration with international financial and less developed financial markets constrain the ability of governments to increase expenditure in bad times. The second is the quality of institutions. Weak institutions and high corruption levels tempt policy makers to increase spending and reduce taxes in good times (Frankel, Vegh & Vuletin, 2013).

Recent evidence suggests that some of the emerging economies have been able to *graduate* to counter-cyclical fiscal policy (Frankel et al., 2013). This phenomenon is attributed to improvements in institutional quality in these economies. South Asian economies do not generally figure in cross-country analysis due to inadequate data. Most South Asian economies run large fiscal deficits and debt. While the South Asian region is experiencing strong growth, fiscal challenges remain the focus of their development strategy. There is merit in analysing the cyclical nature of fiscal policy in South Asian economies. In this paper we attempt to bridge this gap by examining the cyclicity of fiscal policy of South Asian economies. Before we delve into the empirical analysis, we propose to establish some basic facts about GDP and present a brief profile of revenue and expenditure in these economies.

We source the data from the IMF's Government Finance Statistics (GFS) for the span 1990-2016 to analyse the cyclical patterns of fiscal policy variables. The dataset gives us numbers for various categories of Government expense, Government expenditure and revenue. Nominal variables are deflated using the GDP deflator. This allows us to analyse the cyclicity of various

components of fiscal policy from spending and revenue side. Drawing on the recent literature we examine the evidence of *graduation* of fiscal policy stance of South Asian economies from pre to post global financial crisis.

The series are transformed by taking logarithms. We use the Hodrick-Prescott filter to extract the cyclical component. The cyclical component of real GDP is a useful proxy for the overall business cycle and is a useful benchmark for comparisons across series. The cyclical component is used to analyse the business cycle properties of volatility, correlation and persistence. We capture *volatility* as the standard deviation in cyclical component of the relevant series and *correlation* as contemporaneous co-movement of the cyclical component with the cyclical component of real GDP. The magnitude of correlation coefficient indicates whether the variable is procyclical, countercyclical or acyclical. Correlation is computed between the cyclical component of GDP y_t and the cyclical component of the relevant variable x_t . In our baseline analysis we use the Hodrick-Prescott filtered government spending and GDP to assess the cyclical nature of fiscal policy. A large positive correlation indicates procyclical behaviour of the variable; a large negative correlation indicates countercyclical behaviour and a value of zero or close to zero indicates acyclical behaviour.

We conduct significance tests to assess whether the degree of cross-sectional variation in business cycle measures across countries is statistically significant. We check the robustness of our findings to alternative filtering methods such as the Christiano Fitzgerald filter to assess if our findings are sensitive to the choice of the detrending method. We also use revenue in place of government spending to assess the cyclical pattern of fiscal policy in South Asian economies.

We report evidence of a significantly procyclical fiscal policy for Bhutan, Pakistan and Sri Lanka. For Nepal and Maldives, the findings are not significant. Drawing on the recent literature, we also assess if these economies have graduated to a counter-cyclical fiscal policy stance using the latest data. Our analysis does not provide any evidence of movement to a counter-cyclical fiscal policy for South Asian economies. Our findings are broadly robust to alternative procedure to extract the cyclical component and to an alternative fiscal policy instrument. We present a brief profile of fiscal policy in these economies and propose some reforms to overcome the procyclicality of fiscal policy.

The rest of the paper is structured as follows: Section 2 presents an overview of the literature on cyclical nature of fiscal policy. Section 3 lays down the empirical methodology of the paper. Section 4 presents our findings on

the cyclicity of fiscal policy in South Asian economies. Section 5 presents the robustness checks. Section 6 presents a brief profile of fiscal policy in the South Asian economies and proposes some areas of reforms. Section 7 concludes the paper.

2 Studies on fiscal policy cyclicity

A significant strand of literature has documented the behaviour of fiscal policy over the business cycle. Earlier studies found evidence of a procyclical fiscal policy in Latin American economies (Gavin & Perotti, 1997). Extending the dataset to a large sample of countries Ilzetzki and Vegh (2008) also show that developing economies tend to pursue a procyclical fiscal policy. Analysis of 104 countries for the period 1960-2003, Kaminsky et al. (2004) find that developing economies fiscal policy policies tend to reinforce the business cycle i.e. they tend to amplify upswings and worsen recessions-a phenomenon referred to as “when it rains it pours”.

Various explanations are advanced for the procyclical nature of fiscal policy in emerging economies. When times are good, governments raise more tax revenues and spend more. For emerging economies, the credit risk premium declines in good times making it cheaper to borrow. EMs can thus both raise more taxes and borrow cheaply from abroad in good times. This makes expenditure pro-cyclical in EMs. Procyclical fiscal policy can also be explained in terms of weak automatic stabilisers. In developing economies, automatic fiscal stabilisers such as income taxes and transfer programs are too small to have a significant impact on smoothing macroeconomic fluctuations (Kraay & Serven, 2013). Emerging and developing economies face imperfect access to international capital markets. Gavin and Perotti (1997) argue that credit constraints faced by developing economies tend to be reinforced during bad times. They are forced to repay in bad times, which requires a contractionary fiscal policy. Political economy distortions also seem to play a role in explaining procyclical nature of fiscal policies in developing countries. Weak institutions and high corruption levels tempt policy makers to increase spending and reduce taxes in good times (Frankel et al., 2013).

While traditional literature finds that fiscal policy tends to be procyclical for developing and emerging economies, recent literature provides evidence of movement away from procyclicality for a number of developing economies during the last decade (Frankel et al., 2013; Carneiro & Garrido, 2015). Frankel et al. (2013) analyse cyclicity through the correlation between real

government expenditure and GDP. The authors divide the period 1960-2009 into two phases: 1960-1999 and 2000-2009. Based on the cyclical features of economies, countries are classified into four categories:

1. Established graduates : Always counter-cyclical
2. Still in school: Continue to behave pro-cyclically
3. Back to school: Were counter-cyclical in first period and then turned pro-cyclical
4. Recent graduates: Were pro-cyclical in the first period and then became counter-cyclical

The authors find that around 35% of the sample of developing economies graduated to countercyclical fiscal policy in the second sub-sample (2000-09). The authors explain the ability of some countries to graduate to countercyclical fiscal policy through improvements in institutional quality.

The mainstream literature in this field has focussed on advanced and emerging economies. Literature on the developing countries of South Asian economies is relatively sparse (Zakaria & Junyang, 2015). Zakaria and Junyang (2015) document procyclical nature of revenue and expenditure in South Asian economies. Drawing on this work, we examine the cyclical nature of fiscal policy in South Asian economies. We also examine evidence of a move towards a counter-cyclical fiscal policy using recent data. We examine the robustness of our findings to alternative detrending method.

3 Empirical methodology

We source the data on South Asian economies fiscal policy variables from the IMF's Government Finance Statistics (GFS) for the span 1990-2016. The dataset gives us information on government expenditure and revenue. We deflate the nominal variables using the GDP deflator.

A significant strand of literature documents the various filters available to detrend the series (Hodrick & Prescott, 1997; Baxter & King, 1999; Christiano & Fitzgerald, 2003). We use the Hodrick-Prescott filter (HP) to extract the cyclical component with λ (the smoothing parameter) set at 6.25. The HP is a high pass filter. As a robustness check, we use the Christiano-Fitzgerald (CF) filter to isolate the trend and cyclical component. The CF filter belongs to the category of band-pass filters.¹ Band-pass filters eliminate very

¹Another type of band-pass filter is the Baxter-King filter.

slow moving trend components and very high frequency components while retaining the intermediate business cycle fluctuations.

The cyclical component of real GDP is a useful proxy for the overall business cycle and is a useful benchmark for comparisons across series. To assess the cyclical component, correlation is computed between the cyclical component of GDP y_t and the cyclical component of the relevant variable x_t .²

South Asian economies are a heterogeneous group with variation in time span with respect to data availability. Table 1 shows the list of countries and their available data span.

Table 1 Countries and span of data availability

Country	Sample
Afghanistan	2003-2015
Bangladesh	2001-2016
Bhutan	1990-2016
Maldives	1990-2011
Nepal	1990-2016
Pakistan	1990- 2014
SriLanka	1990-2016
India	2005-2013

We broadly follow the conceptual framework laid out by Kaminsky et al. (2004) to assess the fiscal policy cyclicalilty. We define fiscal policy cyclicalilty as follows:³

1. A counter-cyclical fiscal policy involves lower government spending in good times and higher government spending in bad times. In terms of tax revenue, a counter-cyclical fiscal policy higher revenue in good times and lower revenue in bad times.
2. A procyclical fiscal policy involves higher government spending in good times and lower government spending in bad times. In terms of tax-revenue, a procyclical fiscal policy involves lower tax revenues in good times and higher tax revenues in bad times.
3. An acyclical fiscal policy is one in which government spending and tax rates do not change with output i.e. in good and bad times.

²See Canova (1998) on the use of correlation analysis as a robust approach to test for association between two indicators.

³Kaminsky et al. (2004) define fiscal policy cyclicalilty in terms of government spending and tax rate. We use government spending and in the absence of tax rate we use revenue to assess the cyclicalilty of fiscal policy.

4 Assessment of fiscal policy cyclicity

In our baseline analysis, we assess the cyclicity of fiscal policy based on the correlation between the cyclical components of real government spending (made real, by deflating with GDP deflator) and real GDP. The data on spending is the aggregate expenditure by functions of the Central Government.

Table 2 Contemporaneous correlation between real government spending and GDP and their respective volatilities

	Cont.corr	S.dev (GDP)	S.dev (Govt exp)	Rel s.dev
Bangladesh	0.10	0.37	2.12	5.73
Afghanistan	0.07	2.94	5.74	1.95
Bhutan*	0.26	1.13	8.53	7.58
Maldives	-0.16	4.74	5.96	1.26
Nepal	-0.09	0.96	5.45	5.65
Pakistan*	0.44	1.24	4.74	3.82
Sri Lanka*	0.46	2.22	4.69	2.12
India*	-0.52	1.06	3.81	3.60

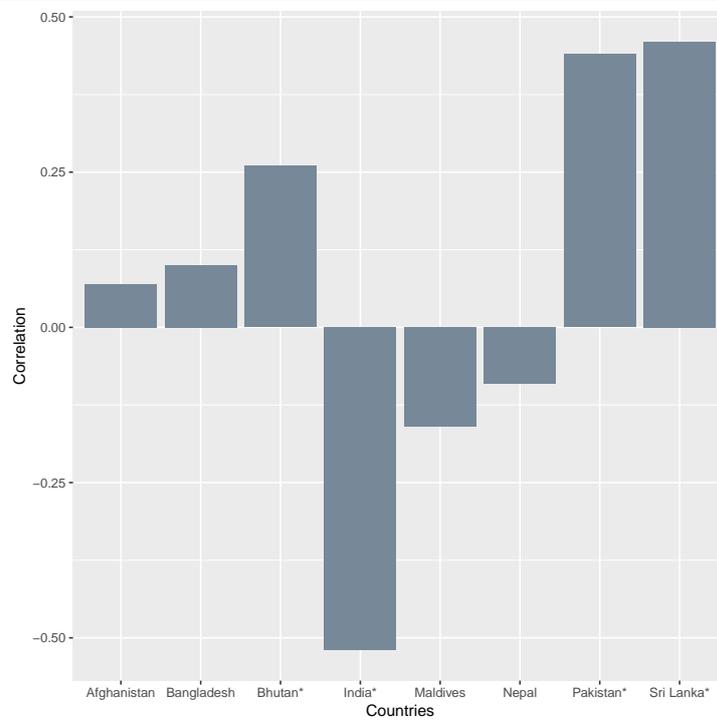
*Significant at 5% level.

Table 2 shows the contemporaneous correlation between the cyclical components (Hodrick-Prescott filtered) of real government spending and GDP. Table also reports the volatilities of the cyclical components of GDP and real government spending. A positive correlation between real Government expenditure and GDP indicates procyclical fiscal policy.

To assess the cyclicity of fiscal policy over a consistent time span we limit our analysis to countries for which a longer time period is available from 1990-2016. We drop Bangladesh, Afghanistan and India as the data for these countries is available from early 2000s. Bhutan, Pakistan and Sri Lanka show statistically significant positive correlation between real expenditure and real GDP. For Maldives and Nepal, the correlation between the cyclical component of real government spending and GDP is not significant.

Overall, as Figure 1 shows in most of the South Asian economies, government spending increases with GDP.

Figure 1 Correlation between the cyclical components of real government spending and GDP



4.1 Do we see evidence of graduation towards a counter-cyclical fiscal policy?

Recent literature suggests that some developing economies have overcome the trap of procyclical fiscal policy (Frankel et al., 2013; Carneiro & Garrido, 2015). We test this proposition for South Asian economies. For countries that have a longer time series data, we analyse the cyclicity for full data span and a recent window of data. For Bhutan, Maldives, Nepal, Pakistan and SriLanka data permits us to analyse cyclicity in two phases:

1. Phase I: 1990-2002
2. Phase II: 2003-2016

Table 3 and Table 4 show the contemporaneous correlation between the cyclical components of real government spending and GDP in the first and the second phase.

Table 3 Contemporaneous correlation between real government spending and GDP and their volatility: Phase I

	Cont.corr	S.dev (GDP)	S.dev (Govt exp)	Rel s.dev
Bhutan	-0.29	0.76	8.72	11.55
Maldives	0.06	1.29	5.31	4.13
Nepal	0.12	1.11	4.75	4.29
Pakistan*	0.73	0.92	3.82	4.17
SriLanka*	0.71	2.92	5.06	1.73

*Significant at 5% level.

Table 4 Contemporaneous correlation between real government spending and GDP and their volatility: Phase II

	Cont.corr	S.dev (GDP)	S.dev (Govt exp)	Rel s.dev
Bhutan*	0.66	1.42	7.76	5.48
Maldives	-0.12	6.48	6.68	1.03
Nepal	-0.30	0.86	6.11	7.11
Pakistan	0.39	1.17	5.69	4.87
SriLanka	-0.19	1.15	4.10	3.57

*Significant at 5% level.

Based on a comparison of the two tables, our findings can be summarised as follows:

1. Bhutan moved towards a significantly procyclical fiscal policy stance with recent data.
2. Maldives, Nepal show no change in the cyclical policy of fiscal position. The magnitudes of contemporaneous correlation are not significant.
3. Sri Lanka is seen to show improvement in fiscal procyclicality if we compare the correlations of phase I with correlations observed in the recent period (2003-2016): from 0.71 to -0.19. It moves from significantly positive correlation indicating strong procyclicality to a weakly negative correlation.
4. Pakistan shows mild improvement from strongly procyclical to weakly procyclical from phase I to phase II.

Overall, the findings do not provide a definitive evidence of graduation towards a counter-cyclical fiscal policy. On the contrary, for countries like Bhutan the procyclicality of fiscal policy has become more prominent with the recent data.

5 Robustness checks

We assess whether our findings are robust to the choice of the detrending methodology. We also assess the cyclical policy of fiscal policy using revenue in place of government spending.

5.1 Using an alternative detrending method

Table 5 shows the correlation between the cyclical components of real government spending and GDP. The cyclical component is extracted using the Christiano-Fitzgerald filter using the business cycle periodicity of 2-8 years.

Similar to the baseline findings, Table 5 shows a strong positive correlation between real government spending and GDP. Pakistan, Sri Lanka and Bhutan follow procyclical fiscal policy. The procyclical fiscal policy stance is significant for Pakistan and Sri Lanka.

Table 5 Contemporaneous correlation between government spending and GDP using the CF filter

	Cont.corr	S.dev (GDP)	S.dev (Revenue)	Rel s.dev
Bangladesh	0.21	0.89	2.14	2.40
Afghanistan	0.25	2.42	6.48	2.67
Bhutan	0.21	1.29	8.32	6.46
Maldives	-0.13	4.95	5.95	1.20
Nepal	0.08	1.11	5.54	4.97
Pakistan*	0.57	1.36	5.18	3.80
Sri Lanka*	0.43	2.05	4.88	2.38
India	0.29	1.81	4.89	2.71

*Significant at 5% level.

5.2 Assessment of cyclicity using revenue

We assess the robustness of our findings using revenue in place of government spending as an instrument of fiscal policy. Table 6 documents the cyclicity of fiscal policy based on the correlation between the cyclical components of revenue and GDP.

Table 6 Contemporaneous correlation between revenue and GDP

	Cont.corr	S.dev (GDP)	S.dev (Revenue)	Rel s.dev
Bangladesh	-0.19	0.37	3.41	9.20
Afghanistan	0.32	2.94	8.05	2.73
Bhutan	-0.05	1.13	7.94	7.06
Maldives	0.28	4.74	9.49	2.00
Nepal	0.21	0.96	3.75	3.89
Pakistan	0.12	1.24	5.71	4.60
Sri Lanka*	0.55	2.22	4.05	1.82
India	0.59	1.06	6.74	6.36

We consider countries for which we have a long time span of data.⁴ Table 6 reports a significant positive correlation between revenue and GDP for Sri Lanka. We could interpret this as an indication of counter-cyclical fiscal policy. However as Kaminsky et al. (2004) show that the findings based on revenue are ambiguous. Revenue could increase due to an increase in tax rate and/or tax base. If tax rates are held constant and tax base increases, tax revenue could show an increase. Thus tax revenue could have a positive

⁴Bangladesh, Afghanistan, and India are dropped from the analysis since the data for these countries is available only from early 2000s.

correlation with GDP even though the tax rates are constant- a manifestation of acyclical fiscal policy stance. Maldives, Pakistan, Nepal also show a positive relation between economic growth and revenue.

6 Fiscal policy framework in South Asian economies

Reports by the World Bank and the IMF have reported challenges in the fiscal policy frameworks in South Asian economies. Fiscal policies tend to amplify the boom and bust cycles in these economies. While there are cross-country variations, Government spending in South Asian economies is seen to be increasing more than proportionately to increase in growth. Our findings are consistent with Bank (2018) that Pakistan's government spending is one of the most procyclical in the region.

The procyclicality of fiscal policy is symptomatic of underlying weaknesses in the fiscal profile in this region. On the one hand, the tax revenue to GDP ratio is generally lower (See Figure 2) in comparison with most of the OECD and non-OECD countries, the stock of debt to GDP ratio is higher. This constrained the ability of some of the South Asian economies to provide countercyclical demand stimulus during the global financial crisis (Dasgupta, Ghani & May, 2010).

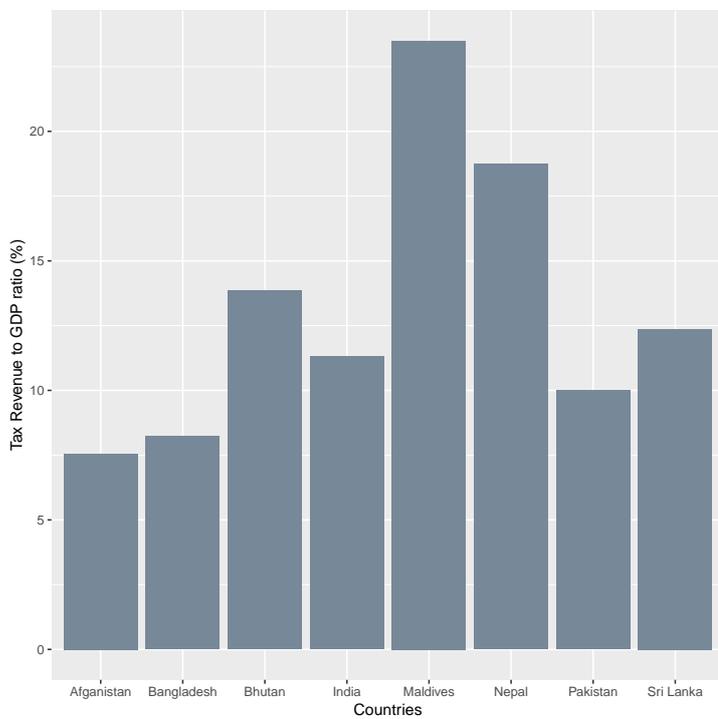
Table 7 Debt to GDP ratio

Country	2013	2014	2015	2016	2017
Afghanistan	6.91	8.70	9.12	8.03	7.35
Bangladesh	35.82	35.27	32.44	32.10	32.41
Bhutan	93.64	93.77	94.35	109.99	102.40
India	68.55	67.81	69.56	68.89	70.20
Maldives	53.36	54.05	57.07	65.87	68.05
Nepal	31.88	28.30	25.03	27.30	27.15
Pakistan	63.86	63.47	63.32	67.57	67.17
Sri Lanka	71.78	72.22	78.49	79.61	79.42

Bhutan, India, Maldives, Pakistan and Sri Lanka have a high debt-GDP ratio.

What might be done to address the fiscal policy challenges in these economies? Raising tax-GDP ratio seems to be an obvious policy response, however

Figure 2 Tax revenue as a percent to GDP



Note: The data pertains to 2016. For some of the countries data is for 2014 and 2015.

high share of agriculture and the informal sector act as constraints in raising revenue. Expenditure needs to be reprioritised. Off-budget spending on fertilizers, electricity, petroleum and food subsidy drains resources for more productive uses (Dasgupta et al., 2010).

6.1 Designing optimal fiscal rules

An important element of any country's fiscal policy framework is the design of optimal fiscal rules. Since the early 2000s, developing economies have outnumbered advanced economies in adopting fiscal rules. Some useful lessons could emerge from the experiences of recent adopters of fiscal rules.

In theory, well-crafted fiscal rules can remove the temptation of government cutting taxes and spending excessively in the run-up to elections. However an analysis by Bova, Carcenac and Guerguil (2014) shows that the greater use of fiscal rules has not shielded these economies from procyclical fiscal policies. Strict numerical targets on expenditure or deficits could prevent governments from reacting to business cycles.

Fiscal rules cannot be seen in isolation. They need to be part of the broader strategy of macroeconomic stability. Rules should be able to provide fiscal space at the time of a business cycle downturn. How might fiscal rules generate less procyclicality? There are three features of fiscal rules that may be associated with a lesser procyclical fiscal outcome.(Bova et al., 2014)

1. Cyclically adjusted targets: Targeting cyclically-adjusted fiscal balances rather than headline balances, leaves space to react to business cycle fluctuations.
2. Escape clauses in fiscal rules: Escape clauses allow for temporary suspension of rules in case of rare and extreme events such as large and negative shocks to GDP and natural disasters. Escape clauses must include clear guidelines on the determination of qualifying events and a transition path back to the rule.⁵
3. Improved institutions and markets: In a well functioning financial system, government bond market judges the sustainability of deficits and debt and encourage fiscal discipline. This requires deep and efficient

⁵The earlier fiscal legislation, FRBM 2003 had the following vaguely worded escape clause: " Provided that the revenue deficit and fiscal deficit may exceed such targets due to ground or grounds of national security or national calamity or such other exceptional grounds as the *Central Government may specify.*"

bond markets. An independent debt management agency and a liquid and efficient bond market need to be part any agenda for fiscal reform. Pandey and Patnaik (2017) have proposed a legislative strategy to set up an independent debt management agency and a unified financial market regulation in India. Similar arrangements could be thought through in other South Asian economies.

7 Conclusion

Counter-cyclical fiscal policy helps to stabilise output over the business cycle. For emerging economies with volatile business cycles, procyclical policies tend to amplify the boom and worsen the recession. While advanced economies are seen to follow counter-cyclical fiscal policies, the traditional literature laid a consensus view that emerging and developing economies tend to pursue procyclical fiscal policies. Recent literature shows that with improvement in quality of institutions, some emerging economies have overcome the trap of procyclicality.

This paper attempts to place these questions in the context of South Asian economies. While a number of reports by the World Bank and the IMF have documented the fiscal policy challenges in South Asian economies, our analysis lends empirical support to these findings. Our paper finds that South Asian economies tend to pursue procyclical fiscal policies. Analysing the cyclicity of government expenditure, the evidence towards a move to counter-cyclical fiscal policy is weak in these economies.

We propose a reform agenda to overcome the procyclical trap. The reform measures include crafting optimal fiscal rules with cyclically adjusted balance as the key target, well defined and precise escape clauses and robust institutions and markets to propel these economies towards fiscal rectitude.

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