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Estimating structural budget balances in developing Asia

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APPENDIXES

Estimating Structural Budget Balances in Developing Asia

João Tovar Jalles

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APPENDIX 1: Member Economies and Subregions

Central Asia (8)
- Armenia
- Azerbaijan
- Georgia
- Kazakhstan
- Kyrgyz Republic
- Tajikistan
- Turkmenistan
- Uzbekistan

East Asia (5)
- Hong Kong, China
- Mongolia
- People's Republic of China
- Republic of Korea
- Taipei,China

South Asia (8)
- Afghanistan*
- Bangladesh
- Bhutan
- India
- Maldives
- Nepal
- Pakistan
- Sri Lanka

Southeast Asia (11)
- Brunei Darussalam
- Cambodia
- Indonesia
- Lao People’s Democratic Republic
- Malaysia
- Myanmar**
- Philippines
- Singapore
- Thailand
- Timor-Leste
- Viet Nam

The Pacific (14)
- Cook Islands
- Federated States of Micronesia
- Fiji
- Kiribati
- Marshall Islands
- Nauru
- Niue
- Palau
- Papua New Guinea
- Samoa
- Solomon Islands
- Tonga
- Tuvalu
- Vanuatu

Note: The regional division of this appendix does not follow ADB's definition of regions.
*ADB placed on hold its regular assistance in Afghanistan effective 15 August 2021.
** Effective 1 February 2021, ADB placed a temporary hold on sovereign project disbursements and new contracts in Myanmar.

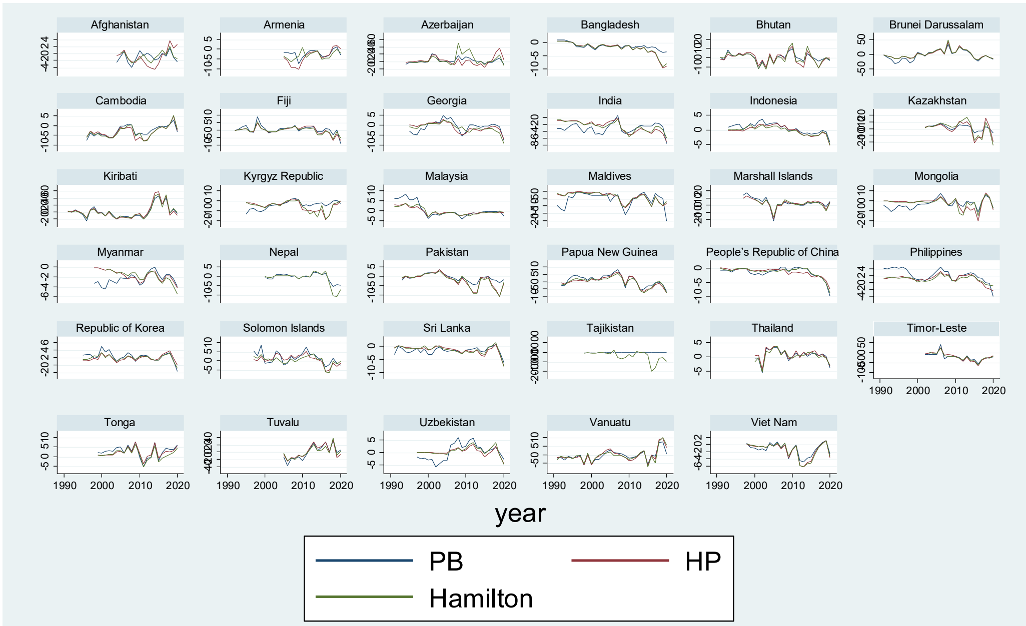
APPENDIX 2: Okun's Static Coefficients, by Member Economies, 1980–2019

Economy	β	SE	Observations
Armenia	-0.162	-0.112	18
Azerbaijan	-0.021**	-0.009	19
Bhutan	0.008	-0.068	16
Fiji	-0.191***	-0.043	33
Georgia	-0.014	-0.178	23
Indonesia	-0.04	-0.044	35
Kazakhstan	-0.179***	-0.026	25
Kyrgyz Republic	-0.173**	-0.073	25
Malaysia	-0.106***	-0.02	34
Pakistan	-0.027	-0.071	36
Philippines	-0.171**	-0.071	34
PRC	0.002	-0.021	39
Republic of Korea	-0.146***	-0.03	39
Singapore	-0.015	-0.032	39
Sri Lanka	-0.079***	-0.028	29
Thailand	-0.050*	-0.026	18
Viet Nam	-0.193	-0.17	29

ADB = Asian Development Bank, GDP = gross domestic product, OLS = ordinary least squares, PRC = People's Republic of China, SE = standard error.
Note: OLS estimation of the change in the unemployment rate against real GDP growth. Only economies with at least 15 observations for the unemployment rate were considered. "SE" denotes standard error of the estimated Okun coefficient. *, **, *** denote statistical significance at the 10, 5, and 1 percent levels, respectively.

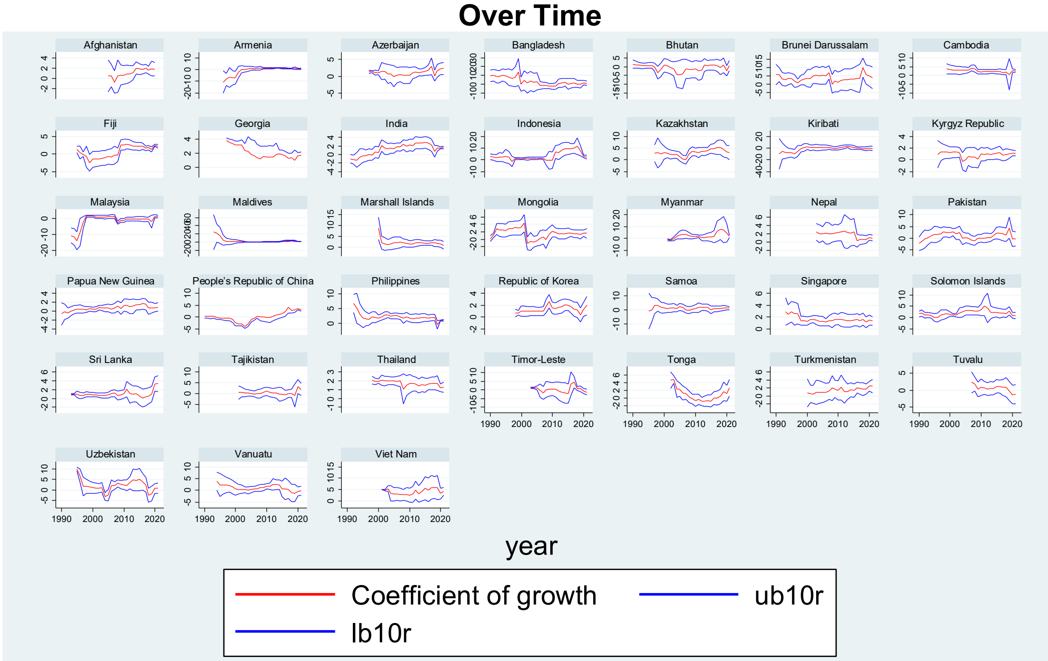
APPENDIX 3: CAPB, by Member Economies

Figure A3.1: PB and CAPB (% GDP), Over Time



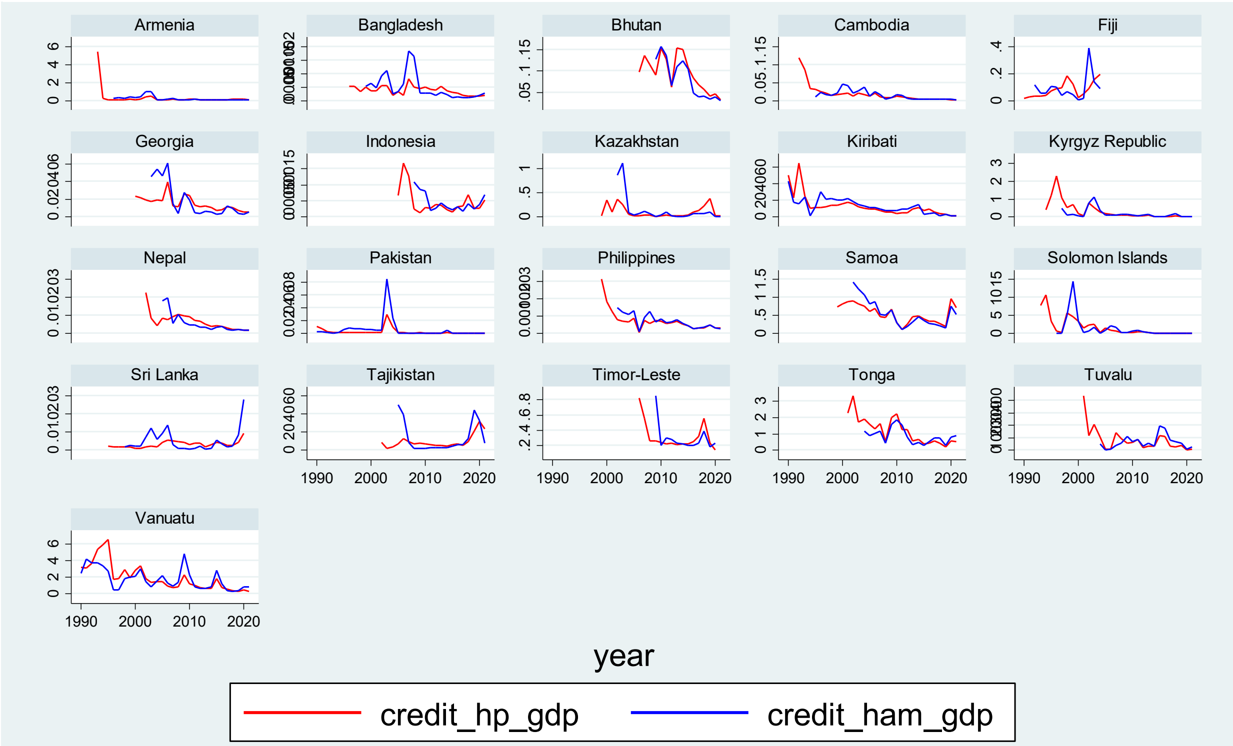
ADB = Asian Development Bank, CAPB = cyclically adjusted primary balance, GDP. = gross domestic product, HP = Hodrick-Prescott, PB = primary balance.
Source: Author.

Figure A3.2: Time-Varying Revenue Elasticities with Confidence Bands, Over Time



ADB = Asian Development Bank, lb10r = lower bound using 10% confidence, ub10r = upper bound using 10% confidence.
Source: Author.

Figure A3.3: Government Capital Transfers-Gap (% GDP), Alternative Filters, 2000-2021



GDP = gross domestic product.
Source: Author.

APPENDIX 4: Years of Deficit Reducing One-Offs in Member Economies

Approach **Economy**	**HP** **Potential One-Off Years**	**Hamilton** **Potential One-Off Years**
Afghanistan	-	-
Armenia	2002, 2018	-
Azerbaijan	-	-
Bangladesh	-	1999
Bhutan	2010, 2013	-
Brunei Darussalam	-	-
Cambodia	-	-
Cook Islands	-	-
Federated States of Micronesia	-	-
Fiji	2003	1992, 2002
Georgia	-	2003
Hong Kong, China	-	-
India	-	-
Indonesia	-	2008
Kazakhstan	2000, 2002	2002, 2003
Kiribati	1992, 2013	1993, 1995, 1996, 1998, 2000, 2001, 2013, 2014
Kyrgyz Republic	2002	2002, 2003
Lao PDR	-	-
Malaysia	-	-
Maldives	-	-
Marshall Islands	-	-
Mongolia	-	-
Myanmar	-	-
Nauru	-	-
Nepal	-	2005
Pakistan	-	-
Palau	-	-
Papua New Guinea	-	-
Philippines	-	-
PRC	-	-
Republic of Korea	-	-
Samoa	2012, 2013, 2020	2002, 2009, 2013, 2014, 2020
Singapore	-	-
Solomon Islands	1998, 2005	1998, 1999, 2003, 2006

Continued on the next page

Approach Economy	HP Potential One-Off Years	Hamilton Potential One-Off Years
Sri Lanka	-	-
Tajikistan	2006	2005, 2018, 2019
Thailand	-	-
Timor-Leste	2017, 2018	2009, 2011, 2018
Tonga	2009, 2020	2004, 2006, 2007, 2009, 2010, 2016, 2017, 2020
Turkmenistan	-	-
Tuvalu	2007	2008, 2009, 2011, 2013, 2015
Uzbekistan	-	-
Vanuatu	2009, 2015	1991, 1998, 1999, 2000, 2001, 2005, 2009, 2015
Viet Nam	-	-

ADB = Asian Development Bank, GDP = gross domestic product, HP = Hodrick-Prescott,
Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Notes: Years at the top 90th percentile of the distribution of the change in capital transfers gap and with capital transfers gap larger than 0.1% of GDP.
Source: Authors' computations.