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Public Spending and Inclusive Growth in Developing Asia

Benedict Clements, Sanjeev Gupta, and João Tovar Jalles

Abstract

This paper discusses the determinants of inclusive growth in developing Asia, with a focus on government expenditures. We find that higher levels of fiscal redistribution (through income taxes and direct transfers) increase the probability of achieving inclusive growth, as well as the level of government spending on health and education. To spur inclusive growth in the aftermath of the COVID pandemic, countries with limited fiscal space will need to focus on improving efficiency and reallocate existing outlays to activities that benefit low-income groups. Reallocating health spending toward primary care, and education spending toward primary and secondary education, would help lead to more equitable growth. There is also scope to better target social benefits to the poor.

KEYWORDS
income inequality, economic growth, inclusive growth, binary choice models, health expenditure, education, social protection

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Introduction

In recent decades, inequality in the distribution of per capita income—as measured by the percentage point change in the Gini coefficient—has increased in many countries in developing Asia (Clements et al., 2015, chapter 4). For example, between 1990 and 2010, disposable income Gini increased by more than 5 percentage points in Indonesia, the Lao People's Democratic Republic (Lao PDR), the People's Republic of China (PRC), and Sri Lanka, and by more than 3 percentage points in Bangladesh and, Mongolia. A survey of policymakers in Asia found that 70% of respondents were concerned about the rising income inequality (Kanbur et al., 2014).

Developing Asia as a region has grown rapidly during the past 30 years. That said, the specific channels through which growth and income distribution are related are complex and often difficult to disentangle empirically. There is increasing, albeit mixed, cross-country evidence that income inequality undermines growth[1] and that policy initiatives to boost growth often affect social groups differently.[2] Against this backdrop, fiscal policy can be a potent instrument for addressing society's distributive concerns. In fact, fiscal policy is the primary tool for governments to affect income distribution (Clements et al., 2015). In that context, both tax and expenditure policies need to be designed carefully to balance distributional and efficiency objectives (Scully, 2002). They affect household welfare through both monetary payments (taxes and transfers) and provision of in-kind benefits (for example, free education and health services).

Of particular interest is the experience of countries in developing Asia that have managed to sustain a relatively high rate of output growth. Was this growth inclusive—that is, did it occur without a worsening of income inequality? These country episodes can be labelled as periods of inclusive growth (de Mello and Jalles, 2019). In this paper, we explore what kind of government expenditures can help foster inclusive growth in developing Asia and draws policy lessons for the post-COVID period.[3,4]

The paper is structured as follows. First, a brief overview of the literature on inclusive growth and government spending is provided. Second, econometric analysis of the fiscal determinants of inclusive growth episodes in developing Asia is presented. Section III discusses the implication of the results for fiscal policy in light of the levels of public spending in developing Asia. Section IV concludes the paper.

1 See, for example, Washington Centre for Equitable Growth (2015) and OECD (2015a) for reviews of the empirical literature.
2 See, for example, Causa et al. (2014) and OECD (2015b).
3 The list of countries that comprise developing Asia is shown in the Appendix.
4 See Gupta and Jalles (2023) for an examination of taxation and inclusive growth in developing Asia.

1. A brief review of the literature

Government spending can have an impact on inclusive growth through four channels. First, government spending can affect fiscal balances and thereby macroeconomic stability, which can adversely affect growth. The importance of healthy fiscal balances and sustainable levels of debt for growth are well established (Gupta et al., 2005). Second, government spending can boost the productive capacity of the economy by building physical infrastructure, increasing educational attainment levels, and raising the health status of the population (Flabbi and Gatti, 2018; Rossi, 2020). Third, government spending on social benefits (social assistance and pensions) that redistribute income can potentially affect incentives for labor market participation and reduce economic growth. Fourth, government spending on social benefits can directly affect inequality by providing benefits to lower- income groups and building their human capital (Zouhar et al., 2021). This, in turn, can help increase the chances that the fruits of economic growth are shared more widely. Empirical literature on the impact of fiscal redistribution (through direct taxes and social benefits) and inequality on growth is mixed, reflecting the potentially offsetting effects of these channels (see de Mello and Jalles, 2019, for a recent review).

A vast literature in recent years has examined the nexus between government expenditures and their impact on inequality, including in developing economies (Clements et al., 2023; Abramovsky et al., 2022; Zouhar et al., 2021). These studies indicate that government spending on education, health, and social benefits can have a powerful effect on inequality, but much depends on how these spending programs are designed. In practice, these outlays have a smaller effect on inequality in developing economies than advanced economies, a theme we return to in section 4.

Recent studies have also assessed policies that are positive both for growth as well as equality. Lopez (2004) surveys the literature and finds that macroeconomic stability (as measured by inflation) as well as policies that build educational attainment and infrastructure both raise growth and reduce inequality. Anand et al. (2013) provide evidence based on panel data for a broad sample of countries during 1970–2010 and highlight the importance of education, investment, and trade openness as determinants of inclusive growth. De Mello and Jalles (2019) examine episodes of inclusive growth for 78 countries (both advanced and developing) from 1980–2013 and the structural and fiscal characteristics of inclusive growth episodes. They find that high levels of human capital, fiscal redistribution, trade openness, productivity growth, and increases in labor force participation facilitate inclusive growth, as well as low unemployment. With respect to the impact of spending, social benefit outlays raise the chances of inclusive growth, while results were mixed for education spending.

2. Determinants of inclusive growth in developing Asia

Our paper builds on the framework of de Mello and Jalles (2019) with an expanded dataset that covers developing countries alone.[5] Within this framework, we assess the determinants of inclusive growth (including government spending) in 16 countries in developing Asia, while drawing comparisons with other developed countries.[6] We also undertake comparisons with Latin America, another region of developing countries that is largely comprised of middle-income developing countries.

In what follows, we define an inclusive growth episode (IG) for country i at time t as the combination of growth in real gross domestic product (GDP) per capita without a concomitant deterioration in the distribution of household disposable income (net Gini index) between t-1 and t.[7] In other words, an inclusive growth episode is one in which, between two consecutive years, there is simultaneously an increase in level of per capita income (measured by real GDP) and a fall in the level of the Gini index. Based on this bivariate characterization, we estimate logistic regressions to assess the likelihood of an inclusive growth episode between 1970 and 2017 for a sample of 16 Asian countries. Simultaneously, we control for other determinants of growth and income distribution.[8] The list of controls includes human capital (from Penn World Tables); government redistribution (from Solt's (2009) database, defined as "the difference between gross or market Gini and net or disposable Gini" (see Ostry et al., 2014);[9] financial openness (Chinn-Ito measure of capital account openness); trade openness (defined as exports plus imports over GDP and retrieved from the World Bank's World Development Indicators [WDI]); real GDPpc (real GDP per capita from the World Bank's WDI); inflation rate (based on CPI from the World Bank's WDI); employment rate (from the World Bank's WDI); and government health spending per capita and government education spending per capita, both from the WDI. All these variables are lagged 1 year to reduce potential reverse causation. We estimate the following model:[10]

$$\text{Prob}(\text{IG}=1|X)=\Phi(\lambda_i+X'\alpha) \tag{1}$$

where α is a vector of the parameters to be estimated, X is a vector of exogenous variables, and $\Phi(\cdot)$ is the logistic function.[11]

5 In light of data constraints and the need to have an adequate sample size, some of the variables included in de Mello and Jalles (2019) were excluded.

6 The list of countries is comprised of: Bangladesh, Bhutan, Cambodia, Sri Lanka, India, Indonesia, Lao P.D.R., Malaysia, Maldives, Nepal, Philippines, Thailand, Vietnam, Fiji, China, Mongolia.

7 More specifically, an inclusive growth episode is the one in which there is simultaneously an increase in level of per capita income (measured by real GDP) and a fall in the level of the Gini index between 2 years.

8 This is akin to the methodology proposed by Aoyagi and Ganelli (2015).

9 Ideally, we would have separate measures of redistribution for direct taxes and government benefit spending, but these are not available. Given the low levels of direct taxation revenues in developing Asia (Gupta and Jalles, 2023), the redistributive effect of government policies comes primarily from spending on social benefits.

10 For details on this binary choice model refer to Greene (2012, chapter 17), for example.

11 We should note that, as probit models do not render themselves well to the fixed-effects treatment because of the incidental parameter problem (Wooldridge, 2002, chapter 15), we estimate a logit model with fixed-effects.

The model associated with equation (1) can be written as:

$$IG^{*}_{it} = \lambda_i + \boldsymbol{\alpha} X_{it} + \varepsilon_{it},$$

$$IG_{it} = 1 \text{ if } IG^{*}_{it} > 0, \text{ and 0 otherwise.}$$

with $i = 1, \ldots, N$; $t = 1, \ldots, T$; λ_i captures the unobserved individual effects; and ε_{it} is an error term.

Our results indicate that inclusive growth episodes are more likely to occur in developing Asia when government direct taxation and social benefits are more redistributive (Table 1). One interesting aspect of the results is that more redistributive systems have a favorable effect on both the net Gini coefficient (which indicates inequality measured after the effect of government transfers and direct taxes) and the gross Gini coefficient (which measures inequality on the basis of incomes from the market, before the effect of transfers and direct taxes). The latter result is especially noteworthy, as it indicates that more redistributive systems help provide the groundwork for growth episodes where lower-income groups also benefit in the form of higher wages and other market incomes. As such, fiscal redistribution can be seen as helping economies achieve greater equality of opportunity.

Beyond the size of fiscal redistribution (in line with findings of de Mello and Jalles, 2019), inclusive growth is more likely also to occur when per-capita spending on health is at high levels, underscoring the importance of improving health indicators for the poor to ensure that they can benefit fully from episodes of economic growth. In a similar vein, education spending is also significant. Contrary to previous research, we find that the existing stock of human capital (in terms of educational attainment levels) has no effect on the probability of inclusive growth episodes once other determinants are controlled for. This could indicate that government education spending (especially when oriented to the primary and secondary levels), which provides a substantial in-kind benefit to lower- and middle-income households, is more important for inclusive growth than a more generalized increase in educational attainment that could reflect the educational gains of higher income households, including from private education.

Among our structural and macroeconomic determinants of inclusive growth, high levels of per capita income are no guarantee that a country can achieve inclusive growth, once we control for fiscal redistribution and other determinants; in fact, countries with lower levels of per capita are more likely to experience inclusive growth episodes. Inflation, the change in the employment rate, financial openness, and changes in the real exchange rate have no independent impact on the probability of experiencing inclusive growth, while trade openness raises the chances for inclusive growth.

TABLE 1. Determinants of inclusive growth episodes in developing Asia

Dependent Variable	Inclusive Growth Episode Based on Gross Gini				Inclusive Growth Episode Based on Net Gini			
Variables / Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real GDPpc (t-1)	−0.118***	−0.112**	−2.037***	−0.463**	−0.088**	−0.081*	−2.165***	−0.669***
	(0.044)	(0.044)	(0.416)	(0.198)	(0.043)	(0.044)	(0.427)	(0.225)
Human capital (t-1)	0.210	0.374	−0.665	0.341	−0.371	−0.250	−0.751	−0.114
	(0.278)	(0.292)	(0.525)	(0.438)	(0.280)	(0.292)	(0.520)	(0.452)
Redistribution (t-1)	5.260**	5.308**	9.357***	7.062**	5.887***	5.947***	11.376***	8.928**
	(2.076)	(2.101)	(3.452)	(3.272)	(2.073)	(2.093)	(3.535)	(3.473)
Financial openness (t-1)	0.018	−0.003	0.409	−0.171	0.129	0.115	0.520*	0.091
	(0.113)	(0.116)	(0.269)	(0.163)	(0.112)	(0.115)	(0.271)	(0.173)
Trade openness (t-1)	0.017***	0.017***	−0.001	0.016***	0.018***	0.018***	−0.002	0.013**
	(0.004)	(0.004)	(0.005)	(0.005)	(0.004)	(0.004)	(0.005)	(0.005)
Change in exchange rate (t-1)	−0.507	−0.207	3.919	2.674	−0.504	−0.262	3.334	1.724
	(1.059)	(1.068)	(3.087)	(1.950)	(1.039)	(1.047)	(3.177)	(2.016)
Inflation rate (t-1)	0.011	0.008	−0.066	−0.010	0.011	0.008	−0.080*	−0.058
	(0.013)	(0.013)	(0.042)	(0.034)	(0.013)	(0.013)	(0.042)	(0.037)
Change in Employment (t-1)		6.110				3.961		
		(5.886)				(5.727)		
Government health spending pc (t-1)			1.898***				1.963***	
			(0.410)				(0.417)	
Government education spending pc (t-1)				0.489***				0.664***
				(0.185)				(0.213)
Observations	483	478	209	254	483	478	209	254
Pseudo R2	0.126	0.131	0.223	0.188	0.117	0.119	0.254	0.234

Notes: Logit estimation. Constant omitted for reasons of parsimony. Standard errors in parenthesis. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Source: Authors' estimates.

TABLE 2. Determinants of inclusive growth episodes in other developing countries

Dependent Variable	Inclusive Growth Episode Based on Gross Gini				Inclusive Growth Episode Based on Net Gini			
Region	All Developing but Asia		Latin America		All Developing but Asia		Latin America	
Variables / Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real GDPpc (t-1)	−0.380***	−0.318***	−0.031	−0.284***	−0.262***	−0.187***	−0.036	−0.023
	(0.072)	(0.055)	(0.164)	(0.100)	(0.068)	(0.049)	(0.160)	(0.078)
Human capital (t-1)	−0.004	0.131	0.299	−0.629	−0.140	0.034	0.440	−0.219
	(0.137)	(0.129)	(0.376)	(0.426)	(0.135)	(0.127)	(0.370)	(0.407)
Redistribution (t-1)	−2.109***	−1.698***	−4.464**	−4.947**	−1.179**	−0.362	−4.057*	−3.168
	(0.576)	(0.550)	(2.278)	(2.180)	(0.559)	(0.532)	(2.262)	(2.120)
Financial openness (t-1)	0.043	0.054	0.207**	0.134	0.056	0.075*	0.266***	0.205**
	(0.044)	(0.046)	(0.103)	(0.088)	(0.043)	(0.045)	(0.102)	(0.087)
Trade openness (t-1)	0.002	−0.001	−0.001	−0.007*	−0.000	−0.004*	0.001	−0.008**
	(0.002)	(0.002)	(0.004)	(0.004)	(0.002)	(0.002)	(0.004)	(0.004)
Change in exchange rate (t-1)	−0.770	0.259	−0.951	0.602	−0.875	0.345	−0.565	1.623
	(0.621)	(0.538)	(1.149)	(1.033)	(0.615)	(0.524)	(1.093)	(1.066)
Inflation rate (t-1)	0.004	0.001	−0.042**	−0.004	0.007	0.000	−0.021	−0.011
	(0.006)	(0.004)	(0.020)	(0.008)	(0.006)	(0.004)	(0.016)	(0.007)
Change in Employment (t-1)	0.407***		−0.042		0.310***		0.000	
	(0.078)		(0.183)		(0.075)		(0.179)	
Government health spending pc (t-1)		0.331***		0.315***		0.211***		0.058
		(0.054)		(0.099)		(0.049)		(0.076)
Government education spending pc (t-1)	0.310***		0.188		0.168***		0.184*	
	(0.059)		(0.118)		(0.054)		(0.113)	
Observations	1,113	1,111	338	339	1,113	1,111	338	339
Pseudo R2	0.032	0.046	0.050	0.060	0.016	0.020	0.036	0.033

Notes: Logit estimation. Constant omitted for reasons of parsimony. Standard errors in parenthesis. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Source: Authors' estimates.

The results in Table 2 point to important similarities and differences in the determinants of inclusive growth in Asia relative to other developing economies and Latin America. In other developing countries and Latin America, higher spending on public health raises the probability of inclusive growth episodes, as in developing Asia. Education spending is also a significant determinant of inclusive growth in other developing countries. In many other respects, however, developing Asia is different than these countries. In particular, fiscal redistribution raises the probability of inclusive growth in developing Asia, while in developing countries as a whole, it actually reduces the prospects for inclusive growth. This is also evidenced in the results for Latin America. They suggest that the design of social protection programs in developing Asia has a less adverse effect on the efficiency of the labor market and how widely the benefits of growth are shared among low-income groups. Another important difference across regions is that financial

openness facilitates inclusive growth for developing countries as a whole (when measured in terms of the net Gini), while there is no statistically significant impact in developing Asia. In contrast, trade openness raises the chances of inclusive growth in developing Asia, but not in other developing countries. The employment intensity of growth is also important for inclusive growth in other developing countries but not in developing Asia. In sum, the results suggest that developing Asia has been more successful than other regions in ensuring that government spending for fiscal redistribution has been conducive to inclusive growth, and equally successful in harnessing health and education spending for this purpose.

To test for the robustness of the results of the logit regressions, we re-estimated the baseline model by OLS and a rare events logit (or relogit) estimator. In a logistic regression, the Maximum Likelihood estimates are consistent but only asymptotically unbiased. The basic problem is having a number of units (inclusive growth episodes) in a panel that has no events. This means that the country-specific indicators corresponding to the all-zero countries perfectly predict the zeroes in the outcome variable (Gates, 2001; King, 2001). This is a well-known phenomenon in the statistical literature (for an overview see Gao and Shen, 2007). The simplest way of dealing with this problem is decreasing the rareness of the event of interest:[12] by lowering the threshold of what constitutes the event of interest or expanding the data selection period, for example, there is less need to correct for rareness. Alternatively, King and Zeng's (2001) bias correction method, the relogit estimator, can be used.[13] The relogit estimator for dichotomous dependent variables provides a lower mean square error in the presence of rare events and can be defined as follows:

$$\text{Prob}(\text{IG}_{\text{it}} = 1 | Z_{it}) = \Phi(Z'_{it}\vartheta) \Leftrightarrow \text{Prob}(\text{IG}_{\text{it}} = 1 | S_{it}, X_{it}) = \Phi(\alpha_i + S'_{it}\eta + X'_{it}\gamma)\,, \tag{2}$$

with $i = 1, \ldots, N$; $t = 1, \ldots, T$, where $\Phi(\cdot) = \frac{1}{1+e^{-(Z'_{it}\vartheta)}} = \frac{1}{1+e^{-(\alpha_i + S'_{it}\eta + X'_{it}\gamma)}}$, α, η, γ are the vectors of the parameters to be estimated, and $\Phi(\cdot)$ is the logistic function.

The parameters can be estimated by maximum likelihood, and the variance of the estimated coefficients can be expressed as $Var(\hat{\vartheta}) = (Z'VZ)^{-1}$, where $\boldsymbol{V}$ is a diagonal matrix, with diagonal entries equal to $\Phi(\cdot)\cdot[1-\Phi(\cdot)]$. In the case of rare events, $\Phi(\cdot)$ will be generally small. However, as pointed out by King and Zeng (1999a, 1999b, 2001), the estimates of $\Phi(\cdot)$ and $\Phi(\cdot)\cdot[1-\Phi(\cdot)]$ among observations that include rare events (in our case, for which *IG = 1*) will be typically larger than those among observations that do not include rare events (i.e., for which *IG = 0*). Consequently, their contribution to the variance will be smaller, rendering additional 'rare' events more informative than additional 'frequent' events. Therefore, we follow King and Zeng (1999a, 1999b) and correct for the small sample and rare events biases and estimate a relogit model where the sampling design is random or conditional on Z_{it}.[14]

12 For this reason, we also include in the baseline regressions (and robustness that follow) episodes of inclusive growth of one year in duration to minimize this rare-events potential problem.

13 King and Zeng (2001) describe rare events as "dozens to thousands of times fewer ones [...] than zeroes".

14 We use the software package "relogit" provided by Tomz et al. (1999).

We also estimate a multinomial probit model (MNP) to take account of alternative combinations of growth in GDP per capita and changes in inequality. The MNP model is used with discrete dependent variables that take on more than two outcomes that do not have a natural ordering. In our context, there are three other possible combinations of growth in GDP per capita and changes in income distribution that can be considered: i) non-positive growth in GDP per capita with deterioration in income distribution; ii) non-positive growth in GDP per capita with no deterioration in income distribution; and iii) positive growth with deterioration in income distribution. In the MNP model, the choice probabilities among a set of categorically distributed alternatives (in our case, four) are simultaneously estimated.[15] The stochastic error terms for the implementation of this model are assumed to have independent, standard normal distributions. Evaluating the likelihood function involves computing probabilities from the multivariate normal distribution.[16] These combinations can therefore be used to define an alternative dependent variable: 0 (*non-positive growth, deterioration in income distribution*), 1 (*non-positive growth, no deterioration in income distribution*), 2 (*positive growth, deterioration in income distribution*), and 3 (*positive growth, no deterioration in income distribution*). Option 3 corresponds to the inclusive growth case discussed above. In particular, the dependent variable "IG=1" in Model (1) can be replaced by "IG=0,1,2,3" in the multinomial probit estimations in our panel dataset.

These additional regression results are reported in Tables 3a and 3b. Table 3a covers the sample where health spending data are available, while Table 3b covers the sample with education spending data. Under all 3 methods, fiscal redistribution, health spending, and education spending are significant determinants of the probability of achieving inclusive growth, consistent with our baseline estimates in Table 1. In the smaller sample in Table 3a, trade openness, however, no longer raises the probability of achieving inclusive growth, while financial openness does for OLS and RELOGIT. For the larger sample in Table 3b, trade openness is significant and financial openness is not, as in Table 1; the opposite is the case, however, in Table 3a. Inflation is also found to be a significant (and negative) determinant of inclusive growth in Table 3a, but not Table 3b. These results suggest that the estimates for the effects of spending on inclusive growth are robust to different samples and methods, while the results for the structural and macroeconomic variables can differ, depending on sample size.

15 MNP was the chosen method since the alternative, a multinomial logit model (MNL) assumes the independence of irrelevant alternatives (IIA). A violation of the IIA assumption results in inconsistent estimates. To test for a potential violation of the IIA assumption, we performed a Hausman-McFadden test and a Small-Hsiao test. Because the results of both the Hausman-McFadden and Small-Hsiao tests did not point to a confirmation of the IIA assumption, we could not safely use the MNL estimation and decided in favor of the MNP.

16 See Cameron and Trivedi (2005, chap. 15) for a discussion of multinomial models, including multinomial probit. Long and Freese (2014, chap. 8) discuss the multinomial logistic, multinomial probit and stereotype logistic regression models.

TABLE 3a. Determinants of inclusive growth episodes in developing Asia, robustness to other estimators

Dependent Variable	Inclusive Growth Episode Based on Gross Gini			Inclusive Growth Episode Based on Net Gini		
Estimator	OLS	RELOGIT	MNP	OLS	RELOGIT	MNP
Variables / Specification	(1)	(2)	(3)	(4)	(5)	(6)
Real GDPpc (t-1)	−0.345***	−1.911***	−0.712***	−0.359***	−2.034***	−0.719***
	(0.060)	(0.511)	(0.191)	(0.059)	(0.514)	(0.177)
Human capital (t-1)	−0.119	−0.608	−0.250	−0.136	−0.692*	−0.291
	(0.091)	(0.392)	(0.330)	(0.090)	(0.394)	(0.288)
Redistribution (t-1)	1.765***	8.791***	3.609*	2.121***	10.686***	4.487**
	(0.627)	(3.446)	(2.192)	(0.619)	(3.341)	(1.830)
Financial openness (t-1)	0.080*	0.380	0.067	0.105**	0.484*	0.170
	(0.045)	(0.268)	(0.172)	(0.044)	(0.274)	(0.131)
Trade openness (t-1)	0.000	−0.001	−0.001	−0.000	−0.002	−0.002
	(0.001)	(0.005)	(0.003)	(0.001)	(0.005)	(0.003)
Change in exchange rate (t-1)	0.470	3.624	1.429	0.326	3.052	1.262
	(0.491)	(2.821)	(1.460)	(0.485)	(3.559)	(1.432)
Inflation rate (t-1)	−0.011	−0.063	−0.048**	−0.014*	−0.075*	−0.058***
	(0.008)	(0.045)	(0.022)	(0.008)	(0.041)	(0.022)
Government health spending pc (t-1)	0.315***	1.780***	0.706***	0.319***	1.845***	0.691***
	(0.059)	(0.505)	(0.191)	(0.058)	(0.494)	(0.178)
Observations	209	209	209	209	209	209
R2	0.263			0.300		

Notes: Logit estimation. Constant omitted for reasons of parsimony. Standard errors in parenthesis. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Source: Authors' estimates.

TABLE 3b. Determinants of inclusive growth episodes in developing Asia, robustness to other estimators

Dependent Variable	Inclusive Growth Episode Based on Gross Gini			Inclusive Growth Episode Based on Net Gini		
Estimator	OLS	RELOGIT	MNP	OLS	RELOGIT	MNP
Variables / Specification	(1)	(2)	(3)	(4)	(5)	(6)
Real GDPpc (t-1)	−0.086**	−0.434**	−0.168	−0.111***	−0.625***	−0.203**
	(0.037)	(0.202)	(0.103)	(0.035)	(0.234)	(0.095)
Human capital (t-1)	0.059	0.330	−0.036	−0.020	−0.098	−0.158
	(0.088)	(0.410)	(0.281)	(0.085)	(0.436)	(0.242)
Redistribution (t-1)	1.433**	6.673**	1.752	1.673***	8.362**	2.059
	(0.640)	(3.249)	(2.037)	(0.618)	(3.468)	(1.696)
Financial openness (t-1)	−0.020	−0.163	−0.093	0.025	0.084	0.001
	(0.031)	(0.159)	(0.092)	(0.030)	(0.172)	(0.083)
Trade openness (t-1)	0.003***	0.015***	0.006**	0.003***	0.013**	0.005**
	(0.001)	(0.006)	(0.003)	(0.001)	(0.005)	(0.003)
Change in exchange rate (t-1)	0.525	2.507	0.611	0.279	1.648	0.120
	(0.366)	(1.770)	(0.991)	(0.353)	(2.035)	(0.972)
Inflation rate (t-1)	−0.003	−0.010	−0.003	−0.011*	−0.055	−0.016
	(0.006)	(0.032)	(0.017)	(0.006)	(0.035)	(0.017)
Government education spending pc (t-1)	0.091***	0.459**	0.218**	0.109***	0.620***	0.229***
	(0.034)	(0.190)	(0.095)	(0.032)	(0.215)	(0.087)
Observations	254	254	254	254	254	254
R2	0.230			0.284		

Notes: Logit estimation. Constant omitted for reasons of parsimony. Standard errors in parenthesis. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Source: Authors' estimates.

3. Policy implications

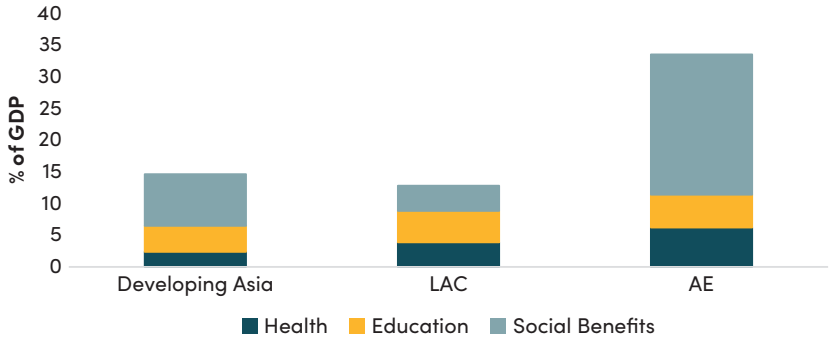
The results in the previous empirical section suggest that expanding fiscal redistribution and health and education spending can help lay the groundwork for continued success in achieving inclusive growth in developing Asia. What is the size of these outlays on social benefits, health, and education in developing Asia, and what is the scope for expanding this spending?[17] For purposes of comparison, we examine spending patterns in developing Asia with both advanced economies and another developing region, Latin America and the Caribbean (LAC). Relative to LAC, Figure 1 indicates that developing Asia spends more on social benefits,[18] but less on education and health (Figure 1). Spending levels are considerably lower than advanced economies, especially for social benefits. There are large differences in spending on social spending (health, education, and social benefits)

17 This section draws on Clements et al. (2022).

18 Social benefits include social assistance and social insurance, such as pensions. These are correlated with the degree of social redistribution in developing Asia (correlation coefficient of 0.29).

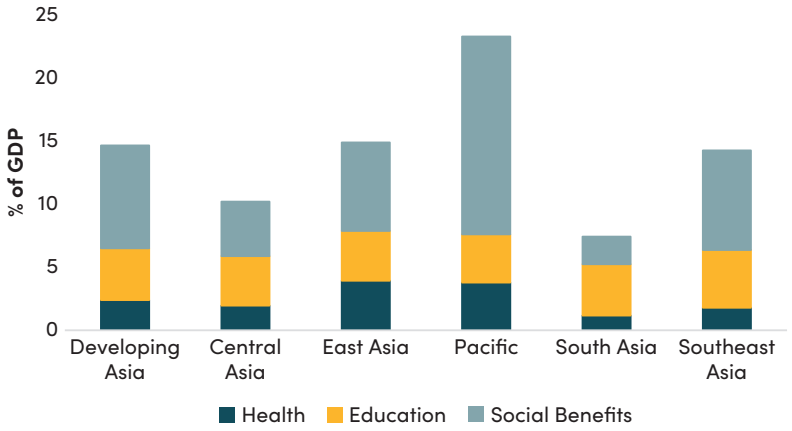
across regions in developing Asia, with higher levels of outlays on health in East Asia and the Pacific, and notably low health spending in South Asia for all categories except education (Figure 2).[19]

FIGURE 1. Government expenditure by function across country groups, 2014–2018



Notes: AEs = advanced economies, GDP = gross domestic product, LAC = Latin America and the Caribbean.
Sources: Authors' calculations using World Economic Outlook database; World Development Indicators; and, for advanced economies spending on social benefits, Organisation for Economic Co-operation and Development.

FIGURE 2. Social spending by region in developing Asia, 2014–18



Sources: Authors' estimates using World Economic Outlook database and World Development Indicators accessed August 2021.

In developing Asia, income inequality generated by market forces (that is, without the impact of government taxes and social benefits) is more equal than that of LAC and AEs, as indicated by the lower Gini coefficient in developing Asia (Table 4). Taxes and social benefits, however, achieve only a modest level of redistribution in developing Asia, reducing the Gini coefficient by about 4 percentage points, compared to a reduction of about 18 percentage points in AEs. This is because of the limited use of the personal income tax and property taxes in developing Asia, as well as the modest size of social benefits. While the targeting of social benefits in developing Asia is better than many other

19 South Asia is not the only region that contributes to the low level of health spending for developing Asia as a whole spending is less than 2 percent of GDP in central Asia and Southeast Asia as well.

regions, it is still limited, dampening its potential to redistribute income. During the mid-2010s, there have been few changes in the distributive effects of fiscal policy (Figure 3).

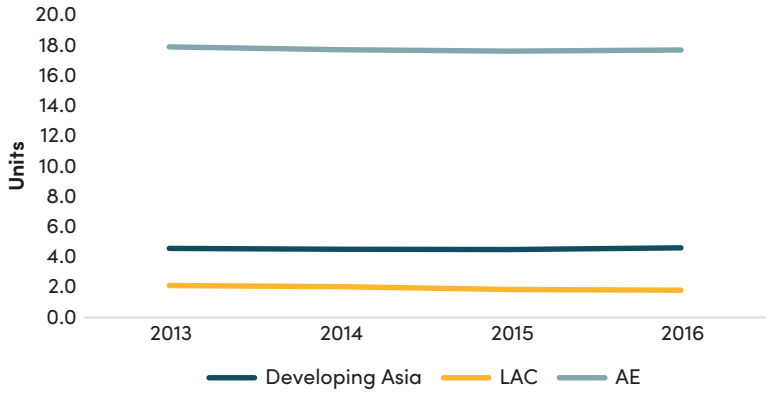
TABLE 4. Redistributive effects of fiscal policy (latest available data)

	Gini Coefficient, Market	Gini Coefficient, Net	Redistributive Effect of Fiscal Policy (Market–Net)
Developing Asia	42.7	38.4	4.2
Latin America and the Caribbean	48.1	45.4	2.6
Advanced economies	48.3	30.4	17.6

Notes: Calculations based on latest available data for each country over the years 2010–2020. Developing Asia comprises 38 countries, Latin America and the Caribbean comprises 26 countries, and advanced economies comprises 30 countries. The redistributive effect of fiscal policy is the difference between the market income Gini coefficient and the net Gini coefficient.

Source: World Income Inequality Database.

FIGURE 3. Reduction in inequality because of fiscal policy, 2013–2016



Notes: AE = advanced economies, LAC = Latin America and the Caribbean. Developing Asia comprises 12 countries, LAC comprises 12 countries, and AEs comprises 25 countries.

Source: World Income Inequality Database.

The COVID-19 pandemic has set back some of the gains achieved by developing Asia in reducing poverty, putting an even greater burden on fiscal policy going forward to address inequality and build human capital. Inequality is also increasing across several dimensions (World Bank, 2021). The pandemic has resulted in a large surge in premature deaths, and the slow rollout of vaccines suggests that premature deaths will continue to affect many countries.[20] COVID-19 has also weakened the foundations of inclusive growth by reducing school attendance, primarily because of school closures (IMF, 2021a).[21] The effects of the pandemic on learning in low-income families have been more severe because of their more limited capacity to participate in online learning options. Further, the decline in economic growth has increased unemployment and poverty.

20 Blundell et. al. (2020) documents the adverse effects on health and other socio-demographic indicators in the United Kingdom.

21 Aucejo et al. (2020) show that the COVID-19 pandemic is widening achievement gaps in higher education.

As in many other regions, developing Asia was able to achieve an impressive expansion of the safety net in response to COVID-19 and offset some of these effects (Gentilini et al., 2021). For Asia and the Pacific, the safety net nevertheless covers only about 60% of the eligible population (IMF, 2021b) and many of these programs are of a short duration and not well targeted (World Bank, 2021).[22] The level of assistance remains low, covering only 10% of pre-transfer income (IMF, 2021b). The adverse effects of the COVID-19 pandemic are likely to increase inequality and reduce employment for workers with low levels of education (Furceri et al., 2021).[23]

4. Concluding remarks

Government expenditures can play a key role in helping countries lay the groundwork for inclusive growth in developing Asia. Our results point to the importance of fiscal redistribution as a key determinant of inclusive growth episodes, as well as government spending on health and education. This suggests that greater development of social benefit programs, especially those that are well targeted to lower-income groups, may be more important for inclusive growth than previously acknowledged. Our results also imply that efforts to make growth more inclusive should focus on raising educational attainment for lower- income groups, rather than the entire population.

Developing Asia does a better job than other regions in the targeting of its social benefits, which is reflected in the positive impact of fiscal distribution on achieving inclusive growth. Nonetheless, low levels of spending and limited targeting of benefits have blunted the full redistributive potential of these outlays. Expansion of both the coverage and targeting of social assistance programs could help make social benefit spending more conducive to inclusive growth. Some spending that was initiated during COVID-19 programs has not been well targeted and should be replaced with programs that more squarely focus on lower income groups.

Governments in developing Asia could consider a number of reforms to make government spending more inclusive within the tight budget constraints they face. Eliminating inefficiencies in health, education, and public investment, for example, would generate savings the equivalent of 3 percent of GDP (Clements et al., 2022). Health spending could also be made more efficient and better targeted to the poor by allocating a larger share of spending to preventative and primary care. Education spending can be made more efficient, and more supportive of inclusive growth, by allocating a larger share of educational resources towards primary and secondary education. Savings from curtailing subsidies for fossil fuels could also generate resources for greater redistributive spending.

22 In Latin America and the Caribbean, about 80% of the eligible population is covered (IMF, 2021a).

23 The pandemics in their sample, even though much smaller in scale than COVID-19, have led to increases in the Gini coefficient, raised the income share of higher-income deciles, and lowered the employment-to-population ratio for those with basic education compared to those with higher education.

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Appendix

Developing Asian regions

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

Source: Asian Development Bank.