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Good Enough for Outstanding Growth

The Experience of Bangladesh in Comparative Perspective

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Abstract

This paper investigates the outstanding economic growth experience of Bangladesh. It shows that the country's improvements in structural correlates of growth from 1990 to 2004 are in the global top 5 percent for any 15-year period since 1970. They were driven by infrastructure enhancements, more openness to trade, and increasing foreign direct investment. Additionally, this period coincided with significant financial reforms after the banking crisis of the late 1980s and increased political stability. A further increase in growth after 2005 was not correlated with new growth impulses from structural improvements. Instead, the benefits from previous achievements and a stable macroeconomic and institutional environment were "good enough" to prevent the mean reversion of growth that comparable fast-growing economies usually experience.

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Good Enough for Outstanding Growth:
The Experience of Bangladesh in Comparative Perspective*

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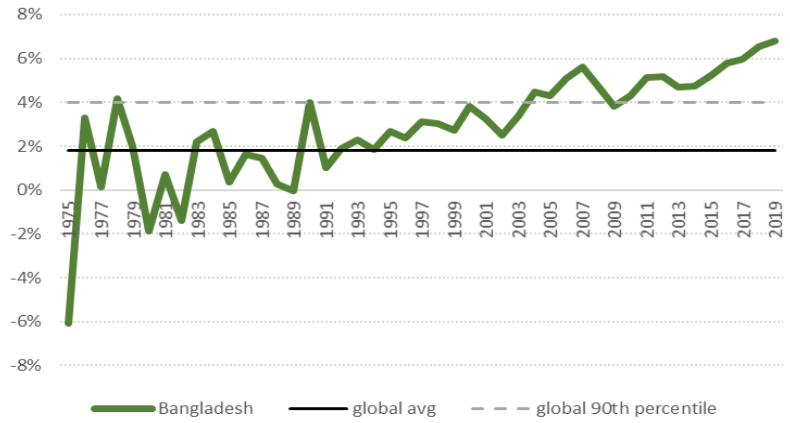
1. Introduction and motivation

Bangladesh's economic growth rate over the past three decades has been one of the highest in the world. In real per capita terms, it has been 4.0 percent per year on average, which puts it in the top decile of growth rates for this period and well above the 2 percent historical average that Pritchett and Summers (2014) find for all countries since 1950 (see figure 1). Since Bangladesh's independence in 1971, growth rates steadily increased over the decades, despite frequent political crises and natural disasters. Even the impact of the COVID-19 pandemic on growth seems to be smaller than in comparable countries (World Bank 2022). As in most countries, economic growth translated into higher living standards with much improved social and health outcomes. While nearly three-quarters of the population were estimated to be poor at the time of independence, today only around 10 percent live below the international poverty line.[1] Life expectancy reached 72.6 years in 2019, and primary school enrollment became nearly universal. By some famously considered a "basket case" of development at the time of its independence from Pakistan, Bangladesh now stands ready to graduate from least developed country status. What explains the country's exceptional long-run development and constantly increasing growth in gross domestic product (GDP)?

Figure 1 Real GDP growth in Bangladesh in global perspective



Source: Penn World Table 10.0 National Accounts for Bangladesh.

Note: Annual changes in log real GDP per capita. The global mean and 90th percentile are annualized log changes of the same series (1989–2019) from a sample of 158 countries. GDP = gross domestic product.

[1] The international poverty line is defined at $1.90 in 2011 purchasing power parity.

From a bird's eye perspective, Bangladesh's success is difficult to reconcile with a single macroeconomic explanation of development. First, Bangladesh was plagued by political instability during the industrialization process, and its institutional performance is still weak today.[2] This contrasts with ample evidence that conventional measures of institutional quality correlate strongly with income levels and development (e.g., Acemoglu, Johnson, and Robinson 2001). Second, human capital, which is perceived to be another crucial source of growth (Mankiw, Romer, and Weil 1992; Glaeser et al. 2004; Hanushek and Woessmann 2015), has been low throughout Bangladesh's development.[3] Third, while Bangladesh's development took place amid thriving exports, its export structure is concentrated in ready-made garments (RMGs), a low-value product. This conflicts with evidence emphasizing the benefits of export diversification, particularly at early stages of development (e.g., Imbs and Wacziarg 2003; Cadot, Carrère, and Strauss-Kahn 2013), and the importance of export complexity (e.g., Hausmann, Hwang, and Rodrik 2007; Hidalgo 2021).

Several studies have looked into specific factors that may have contributed to Bangladesh's success (e.g., Rhee 1990; Ahmed, Greenleaf, and Sacks 2014; Kee 2015), but what has been missing to date is a consistent account that aggregates the individual factors supporting growth. In this paper, we provide the first comprehensive, quantitative assessment putting the different factors that underpin Bangladesh's growth experience into a comparative perspective. We construct a novel data set of correlates of economic growth across up to 149 countries from 1970 to 2019 and use panel growth regressions to investigate whether factors that were correlated with growth in other countries can help explain the growth performance of Bangladesh.

Although no single growth theory may explain Bangladesh's development success, we find that changes in variables that are correlated with growth in other countries can explain most of it, notably a combination of infrastructure enhancements, more openness to trade, and increasing foreign direct investment (FDI). This is particularly true for the period between the early 1990s and the mid-2000s, when additional impulses came from financial reforms after the banking crisis of the late 1980s and increased political stability. Our analysis reveals that this period belongs to the global top 5 percent of all 15-year episodes of structural improvements since 1970.

[2] In the Worldwide Governance Indicators (Kaufmann, Kraay, and Mastruzzi 2010) for 2019, Bangladesh ranked only 151st in the world for rule of law (similar to Togo and Benin), 165th for government effectiveness (similar to Malawi and Djibouti), and 175th for control of corruption (similar to Gabon and Madagascar).

[3] Only one in three children finished primary school in the 1980s. Despite considerable improvements, children born today are expected to be less than half as productive they would have been with complete education and full health, less than in Zimbabwe and Myanmar (Kraay 2019; World Bank 2021).

Moreover, we show that Bangladesh's experience fits the dynamic implications of a standard neoclassical growth model very well. Structural improvements in growth-relevant variables have long-lasting growth effects that fade out over time, which explains the continued high growth after structural improvements slowed down after the mid-2000s. However, Bangladesh's growth performance contrasts with the empirical regularity that high-growth experiences, particularly in low-income countries, are mostly episodic (e.g., Easterly et al. 1993; Hausmann, Pritchett, and Rodrik 2005; Koren and Tenreyro 2007; Aguiar and Gopinath 2007). We show that Bangladesh indeed stands out in achieving more persistent growth and has not (yet) experienced the typical mean reversion of growth that Pritchett and Summers (2014) find for most countries and which we confirm for economies with similar structural improvements as Bangladesh.

An obvious lesson from our findings is that fast and sustained catch-up is possible in the context of initially low human capital and without great institutional improvements or complex and diversified exports, and that this possibility has not waned after the East Asian miracle. This could be good news for many low-income countries, particularly in Sub-Saharan Africa and South Asia – the main stage in the global fight against extreme poverty. Yet, while no single structural improvement stands out in Bangladesh, the country achieved a comprehensive package of "good enough" reforms, for which we provide details below. Ahmed, Greenleaf, and Sacks (2014), in their study of the local garment industry, characterize this as a context of "stable, or predictable, mis-governance" with a "government that has incentives to not intervene." More broadly, this appears consistent with Rodrik's (2005) hypothesis that modest improvements in institutional functions are more important than bold changes of their form. It is also consistent with earlier evidence of a "complementarity premium" of modest but broad-based policy reforms to jump-start an episode of high growth (Gallego and Loayza 2002; Chang, Kaltani, and Loayza 2009). At the same time, our results suggest that Bangladesh is a rare case where such complementary reforms translated into long-sustained growth despite the lack of continued growth impulses after the mid-2000s. A possible reason is the strong focus on macroeconomic stability since the 1980s: Bangladesh avoided the economic imbalances and crises that have cut short growth spurts in other countries at similar levels of development.

The remainder of the paper is organized as follows. Section 2 lays out how this paper relates to the previous literature. Section 3 explains the methodology, and section 4 presents the main regression results. Section 5 investigates what the regression results imply for economic growth in Bangladesh, and section 6 concludes with a short policy discussion.

2. Relation to the literature

This paper builds on the vast literature that aims at estimating the determinants of economic growth. This literature differs from macroeconomic methods that explain income levels or growth rates through a production function and associated differences and changes in "proximate" factors of production, physical capital, and labor, as well as productivity (Hsieh and Klenow 2010; Hulten 2010). It does not impose certain parameters on a production structure but aims at identifying the "ultimate" determinants of growth from a set of variables, independent of whether they drive growth through capital accumulation, productivity improvements, or any other "proximate" factor.

Early enthusiasm for a causal understanding of the ultimate drivers of growth across countries (e.g., Barro 1991; Mankiw, Romer, and Weil 1992) turned out to be futile: country-specific contexts, complementarities of potential growth drivers, as well as econometric and measurement problems considerably limited the heroic claims of earlier growth econometrics (Levine and Renelt 1992; Sachs and Warner 1997; Johnson, Papageorgiou, and Subramanian 2013). Yet, progress has been made in avoiding or at least becoming aware of the most common pitfalls (Sala-i-Martin 1997; Doppelhofer and Weeks 2009; Kraay 2015; Feng, Gao, and Peng 2022). Growth regressions are still used to tackle the "big questions" of growth, such as in the recent debate about the consequences of income inequality (Berg et al. 2018; Brueckner and Ledermann 2018).

We follow a more descriptive interpretation of this literature and aim at understanding to what extent variables that are correlated with income levels in other countries can explain Bangladesh's outstanding growth performance. This is essentially the approach that Moller and Wacker (2017) take in their effort to understand Ethiopia's growth acceleration in a heterodox macroeconomic setting. It is also similar to the study of Chile's "golden growth period" by Gallego and Loayza (2002). Araujo et al. (2016) take a similar approach when investigating whether an episode of growth in Latin America and the Caribbean after 2000 was caused by good domestic policies or the external environment ("good luck"). The contributions of Araujo et al. (2016) and Moller and Wacker (2017) also motivate our main empirical strategy and selection and grouping of variables.[4]

For Bangladesh, such a comparative growth study has not been performed to date. Several studies have investigated specific factors that may have contributed to

[4] One difference is that both earlier studies mainly relied on system generalized method of moments (GMM) estimation (but reported least squares dummy variable results as well). We focus on least squares dummy variable estimates in our baseline and provide GMM results for comparison. This aligns well with our descriptive interpretation as well as recent literature (e.g., Brueckner and Ledermann 2018). Kraay's (2015) results further cast doubt on a causal interpretation of System-GMM results.

Bangladesh's success, such as the export sector (Begum and Shamsuddin 1998) and in particular the garment industry (Hausmann and Rodrik 2003; Mottaleb and Sonobe 2011; Ahmed, Greenleaf, and Sacks 2014; Kee 2015) and its relationship with governance (Ahmed, Greenleaf, and Sacks 2014). Others highlight the important role played by of FDI (Rhee 1990; Kee 2015), remittances (Siddique and Billah 2012), infrastructure (Khandker, Bakht, and Koolwal 2009; Ahmad and Nazrul Islam 2011), and female empowerment as well as broader social progress (Asadullah, Savoia, and Mahmud 2014; Ahmed and McGillivray 2015). More policy-oriented and opinion pieces have echoed the importance of the latter (e.g., Basu 2018) and put it in the broader macroeconomic context of public service provision (Subramanian 2021). Studies such as Zhang, Rashid, Ahmad, and Ahmed (2014) and Emran and Shilpi (2018) investigate aggregate productivity from a structural change perspective, while Fernandes (2008) and Menzel (2021) focus on the firm level. Yet, no macroeconomic study has put those aspects together in a comprehensive manner and comparative perspective.

3. Correlates of economic growth: Data and methodology

3.1 Analyzing growth correlates: General framework

The goal of our empirical exercise is to understand which forces can describe Bangladesh's outstanding growth performance. We therefore investigate variables that are correlated with income levels in other countries and model economic growth following the seminal neoclassical econometric growth literature (e.g., Durlauf et al. 2005; Araujo et al. 2016):

$$\underbrace{\Delta \ln y_{ct}}_{acutal\ growth} = \underbrace{\theta \Delta \ln y_{c,t-1}}_{persistence} + \underbrace{\beta_1 \Delta x_{1,ct} + \cdots + \beta_k \Delta x_{k,ct}}_{effect\ of\ structural\ improvements} + \underbrace{\Delta \delta_t + u_{ct}}_{residual}, \quad (1)$$

where c and t index countries and time periods, respectively, and Δ is the lag operator. For our analysis, time periods are defined as nonoverlapping five-year averages. Since y is GDP per capita and log changes approximate percent changes, the left-hand side of equation (1) captures economic growth. This growth rate is a combination of "persistence," changes in the relevant explanatory variables (which we label "structural improvements"), and a "residual" that captures the difference between those two components and actual growth rates.[5]

The persistence term captures convergence dynamics toward a steady state in a Solow-type growth model. An economy below the steady state will grow faster to

[5] This residual captures global shocks with a time dummy $\Delta\delta_t$ that is common to all countries and could stem from global technical innovations or financial conditions, for example, and further includes an idiosyncratic error term u_{ct}.

converge to its steady state and vice versa.[6] More essential for our analysis, the parameter $0 < \theta < 1$ and the associated persistence term also reflect an echo from past changes in the variables *x*, consistent with the steady-state dynamics. To see this point, suppose that a change in variable x_1 (for example, education) happens in period *t* in country *c*. This pushes up the corresponding steady-state income level in this country. But it is unlikely that the full effect of this change will materialize immediately in period *t*. Instead, growth only increases by $\beta_1 \Delta x_{1,ct}$. However, this increase in the growth rate will be reflected as persistence $\theta \cdot \beta_1 \Delta x_{1,ct}$ in period $t+1$, as $\theta^2 \cdot \beta_1 \Delta x_{1,ct}$ in period $t+2$, and so on. The persistence term hence reflects an "echo" from past structural improvements.

We consider variables that can be viewed as sources of economic growth and that can be influenced by country-specific policies ("structural improvements"). Global trends in those variables are captured by the time-specific shocks $\Delta\delta_t$. We are not interested in "proximate sources" of economic growth, such as capital accumulation or productivity, which are usually explored in growth accounting. Rather, we are interested in variables that represent country- and time-specific factors that in turn will influence those proximate growth drivers, such as financial conditions, FDI, and trade openness. To facilitate the presentation of those changes, we group them into six categories: trade and FDI, finance, macro, infrastructure, demography, and political stability.

3.2 Data

We construct a comprehensive data set covering 149 countries and ranging from 1970 to 2019, although the demographic variables that we include in our preferred specification limit the sample to 128 countries. Tables A.1 to A.3 in the appendix summarize all the variables and data sources as well as descriptive statistics. The summary statistics highlight that Bangladesh has an average per capita income level that is about one-fourth of the sample mean, with much lower FDI, infrastructure, and credit/GDP levels than the sample mean.

For GDP per capita, *y*, we take *rgdpna* divided by *pop* from the Penn World Tables (PWT 10.0; see Feenstra, Inklaar, and Timmer 2015), which measures income per capita in constant 2017 US$. Purchasing power parity (PPP) adjustments are not necessary since we only explore variation over time within countries and could even induce unwanted short-term, country-specific fluctuations in the PPP income variable (Inklaar et al. 2021).

[6] This can easily be seen from rewriting equation (1) as: $\Delta \ln y_{ct} = \gamma \ln y_{c,t-1} + \beta_1 \Delta x_{1,ct} + ... + \beta_k \Delta x_{k,ct} + \Delta\delta_t + u_{ct}$, with $\gamma = (\theta - 1)$. For $\theta < 1$, it follows that $\gamma < 0$ and a country with a lower income level *y* in period *t* will have a higher growth rate in the subsequent period $t + 1$, ceteris paribus.

3.2.1 Macro stabilization variables

We include the log of *government consumption* as a share of GDP, *lkg*, calculated as the log of csh_g from the PWT 10.0. This variable is supposed to capture growth-reducing effects through distortionary taxation (Afonso and Furceri 2010) or public debt issuance. The negative association with growth is motivated by the fact that we include the positive effects that government consumption may have on growth separately, for example, through spending on infrastructure. As our model describes long-run growth, it is also important not to conflate the short-term positive stimulus effect that increased government consumption can have during economic downturns.[7]

Inflation is measured as the log change of *v_c/q_c* (household consumption in current national prices/household consumption in constant national 2017 prices) from the national accounts module of the PWT 10.0, which has greater availability than inflation data from the World Bank's World Development Indicators (WDI).[8]

The *real exchange rate*, *lrer*, is calculated as the log of the GDP price level (in PPP) over the nominal exchange rate: *pl_gdpo/xr*, both taken from the PWT 10.0. Since *xr* is measured as national currency/US$, an increase in *lrer* reflects a real appreciation, which is expected to have a negative effect on output and growth through various channels (e.g., Rapetti 2019; Levy-Yeyati, Sturzenegger, and Gluzmann 2013).[9]

3.2.2 Financial variables

To measure countries' *financial development*, we use the log of domestic credit to the private sector as a percentage of GDP, *lcredit*, taken from the WDI. The literature on financial development and its relationship to growth has grown extensively over the past decades (e.g., Buzzi and Russo 2019) and various studies and data sets on more detailed aspects have appeared (e.g., Svirydzenka 2016). Credit over GDP, however, has the clear advantage of wide availability across countries and over time and has been used by several seminal studies in the literature on finance and growth. Brunnermeier et al. (2021) confirm that credit expansion is rather a sign of financial deepening than the prelude for financial busts.

To gauge the effects of *financial crises*, we rely on the database from Laeven and Valencia (2020), which has coverage until 2017. Our data set contains dummy variables for individual years for banking, currency, or sovereign debt crises and a

[7] For similar reasons, we also do not include fiscal deficit variables, which are highly cyclical and hence tend to smooth out over the five-year averages.
[8] We add 1 to this variable to avoid negative numbers, which cannot be translated into logs.
[9] We also calculated deviations of the real exchange rate from an HP-filtered trend, as well as volatility measures, but the results did not provide additional insights.

dummy variable, *fincrisis*, if any of those crises is reported.[10]

3.2.3 Trade and FDI variables

Trade openness is conventionally captured as the sum of exports and imports over GDP. To account for the higher trade levels of smaller countries, irrespective of trade policies, we calculate *trade_resid* as the residual of a regression of exports and imports over GDP on log of exporter population and global GDP, which acts as a demand shifter. We then take the log of the residual, which first requires transformation to positive values. This is done as: *ltraderesid* = ln(trade_resid-min(trade_resid) + 0.01). All the respective variables are taken from the PWT 10.0.

For *export diversification*, we rely on the International Monetary Fund's export diversification index (Papageorgiou, Spatafora, and Wang 2015), which is a Theil index. A higher value hence indicates lower diversification.[11] The variable is logged, *lEDI_ipol*. Moreover, we take the square of the variable because a nonlinear or U-shaped relationship is expected (see Imbs and Wazciarg 2003; Papageorgiou, Spatafora, and Wang 2015, figure 3).

To account for positive and negative shocks due to changes in international price levels, we include *terms of trade changes*, *d.ltot*, calculated as changes in the log of the export price level relative to the import price level (*pl_x/pl_m*), both taken from the PWT 10.0.[12]

Foreign direct investment acts as a proxy for the activity of multinational corporations, their investment and productivity spillovers. We take inward FDI stock as a percentage of GDP from the United Nations Conference on Trade and Development (UNCTAD).[13] The variable is logged, *lFDIstock_ip*.

3.2.4 Infrastructure

Infrastructure is strongly correlated with income levels, but it is difficult to measure, particularly over a longer time period (for surveys, see Välilä 2020; Timilsina, Hochman, and Song 2020). The empirical literature hence often uses a composite

[10] Since the variable is constructed on annual data, it ranges from 0 to 0.6 for five-year periods, the latter indicating three years of crisis in a five-year period (3/5 = 0.6).
[11] Since this index stops in 2014, we interpolate the missing years with the Herfindahl-Hirschman Product Index from UNCTAD. The correlation between both series in the sample is high, 0.90.
[12] We consider terms of trade changes as shocks to income levels and hence include them in changes in our equation in levels (see the section on estimation and equation (2) below).
[13] Since no stock data are reported before 1980, we fill the missing decade of data with an interpolation from FDI flow data (as a percentage of gross fixed capital formation). The sample correlation of both variables is high, at 0.87.

index (Calderón and Servén 2010; see Timilsina, Hochman, and Song 2020 for a review). We follow this approach and combine the logs of phone lines, mobile phones, internet connections, electricity access, and secure internet connections, all taken from the WDI.[14] Each of those five infrastructure variables is first Pearson standardized to a sample mean of 0 and a sample standard deviation of 1. Thereafter, they are weighted by the number of available original observations in each year, divided by the total number of original observations from all five series in the same year. For example, if 150 original observations for log phone lines were available in 1970, and 50 observations were available for electricity, the former gets a weight of 3/4, and the latter gets a weight of 1/4, while the remaining three infrastructure variables are not part of the composite index in 1970. This weighting reflects two aspects: statistical reliability and economic relevance. Fewer observations of a variable for a given year mean more predicted values for that variable. Statistically, less weight should be attributed to the variable in this case, as predicted values are less reliable than original observations. Having fewer observations also reflects that the indicator has less relevance. For example, secure internet connections or mobile phones were simply not available or not as important in the 1970s; hence, their availability is not recorded in the data. This constitutes an economic reason for attributing less weight to series with fewer original observations.

3.2.5 Political violence

We include data on major episodes of *political violence* from Systemicpeace.org. The variable *actotal* in the original data set is the total summed magnitude of all the societal and interstate episodes of political violence, with the magnitude of each episode ranging between 1 (lowest) and 10 (highest).[15] The link from conflict, political violence, and fragility to growth is well established (e.g., Benhabib and Rustichini 1996; Rodrik 1999; Amodio and Di Maio 2018). Our measure exhibits considerable variation over time, which is a key advantage over most common measures of institutional quality, which often come out highly insignificant in growth regressions due to a high noise-to-signal ratio for individual countries over time (e.g., Araujo et al. 2016).

[14] Since those variables have descending order of availability, we use stepwise prediction with a country fixed effects and country-specific time trend model to interpolate the missing data. Details are available upon request. The interpolated data are down-weighted in the index as explained below.
[15] The Systemicpeace.org data do not include 2019.

3.2.6 Demographic variables

The first of the demographic variables is *human capital* (education). We rely on the log human capital index, *lhc*, from the PWT 10.0, which linearly interpolates data on educational attainment from Barro and Lee (2013) and assumes a certain rate of return for primary, secondary, and tertiary education. Human capital is widely assumed to be a key driver of cross-country income differences (Mankiw, Romer, and Weil 1992; Hanushek and Woessmann 2015), but its approximation through attainment levels is problematic (Hanushek and Woessmann 2012). Given the lack of a better measure available across a wide range of countries for many decades, we rely on this standard measure.

To measure *inequality*, we take the Gini coefficient of market incomes, *gini_mkt*, from the Standardized World Income Inequality Database (Solt 2019). Following the literature (Brueckner and Lederman 2018; Scholl and Klasen 2019), we do not log-transform this variable. As discussed in those studies, there are several approaches to address apparent endogeneity concerns for this variable, and several arguments suggest various functional forms (changes versus levels and quadratic and interaction terms). After testing several functional forms, we opted to include this variable in first differences in our equation (see the next subsection).

To gauge potential demographic dividends, an extension of our model also includes the *employment rate*, *emprate*, as the fraction of the population that is employed, emp/pop from the PWT 10.0. Employment enters the production function directly and is thus considered a "proximate" and not "ultimate" driver of growth. Yet, some developing countries, including Bangladesh, have experienced drastic demographic changes. It is hence informative to understand the implications for growth and partially factor out this effect to understand whether it impacts other variables (for example, FDI or infrastructure).

Since demography can influence economic growth through various channels (Vandenbrouke 2021), we additionally experimented with other demographic variables, such as the share of urban population in the total population and population density (both from the WDI), but we did not obtain meaningful regression results. Their inclusion also does not considerably alter our key results.

3.3 Estimation

We follow the standard approach in the empirical growth literature (Araujo et al. 2016; Moller and Wacker 2017; Brueckner and Lederman 2018) and estimate equation (1) as nonoverlapping five-year averages in levels, which gives us:

$$\ln y_{ct} = \theta \ln y_{c,t-1} + \beta_1 x_{1,ct} + \cdots + \beta_k x_{k,ct} + \delta_t + \alpha_c + \varepsilon_{ct}. \quad (2)$$

This equation in levels includes country fixed effects, α_c, which are differenced away in the first-difference transformation (1). Identification of the parameters is hence based on variation within countries over the different time periods.

Causal identification of all the model parameters in such a macroeconomic cross-country panel data set appears futile. Subtle identification strategies with external instruments can sometimes be found for individual parameters, but they offer no promising chance for the wide range of model parameters in which we are interested. Some researchers have reverted to internal instruments (system generalized method of moments (GMM)), but the results by Kraay (2015) suggest that this approach frequently provides weak identification in the first stage.

For our preferred baseline results, we rely on identification with least squares dummy variable (LSDV) estimation of equation (2). In our view, this provides the most transparent estimation approach and avoids common pitfalls such as unobserved cross-country heterogeneity (through inclusion of fixed effects) and weak or overfitted first stages (which are common in System-GMM estimation). This is particularly true since we are not interested in deep structural identification of the ultimate growth drivers but simply want to detect variables that are correlated with economic growth in a wide range of countries. The downward bias for estimates of the autoregressive coefficient θ in small-T samples with fixed effects is also increasingly neglected in the empirical growth literature (e.g., Brueckner and Lederman 2018).

We additionally provide results from System-GMM estimation, which allows using "internal instruments" (that is, lagged level values and differences) for potentially endogenous series.[16] We treat period dummies as strictly exogenous variables (ivstyle) and use "collapsed" lags 1 to 5 for most of the variables as instruments in the difference equation, except inflation and changes in the terms of trade. Since those variables are less persistent, we use (non-collapsed) lags 1 and 2 in both equations (the difference and levels equations). For the lagged dependent variable, we use collapsed lags 1 and 2 as instruments in the equation in levels.

[16] We use the xtabond2 module in STATA 17.

4. Regression results

Column (1) in table 1 reports the regression results from estimating equation (2) for the full sample without the demographic variables, which leaves us with 967 observations from 149 countries. Those estimates are mostly in line with theoretical expectations, although not all the estimates are statistically significant at conventional levels. The autoregressive coefficient is in the vicinity of 0.8 (although potentially downward biased in a fixed effect setting). Government consumption, inflation, political violence, and financial crises exhibit a negative correlation with income levels, as expected. Conversely, trade openness, financial development, infrastructure, and FDI are positively correlated with income levels. Export diversification shows the expected nonlinear relationship. Our parameter estimates imply that the lowest income countries usually have a medium level of diversification, with a Theil Index around 1 (close to the sample mean of this variable, which is 1.2). The U-shaped relationship implies that highly diversified countries usually have very high income levels, but so do some highly specialized countries. The only results that are not in line with most other studies concern the real exchange rate and terms of trade shocks, although their estimated magnitudes are negligible for differences in income levels and growth performances (and the changes in the terms of trade are far from statistically significant at any conventional level). While those two estimates conflict with the bulk of the previous empirical literature, they are not per se worrisome: an appreciation of the real exchange rate may improve access to foreign inputs and capital goods, and a drop in the terms of trade may boost international competitiveness, both of which should be beneficial to output.

Column (2) in table 1 reports the regression results from our preferred specification including human capital and inequality. As expected, higher human capital is beneficial to growth (statistically significant at the 10 percent level), while increasing inequality is detrimental to growth (statistically significant at the 5 percent level). Although the sample size in this specification is about one third smaller than in column (1), the other coefficients are very similar. The coefficient on government consumption changes its sign (but remains insignificant) and the negative impact of inflation becomes somewhat stronger, but the results remain qualitatively the same (including the turning point for export diversification around 1).

Table 1 Baseline regression results and sensitivity

Model	(1) Large sample	(2) Large model	(3) No Bangladesh	(4) No outliers
Persistence	0.803***	0.742***	0.745***	0.871***
	(0.0271)	(0.0351)	(0.0353)	(0.0231)
Gov. con.	-0.0104	0.0252	0.0241	-0.000886
	(0.0206)	(0.0204)	(0.0213)	(0.0177)
RER	0.00510**	0.0120***	0.0117***	0.00579***
	(0.00223)	(0.00266)	(0.00268)	(0.00221)
Trade openness	0.128***	0.114***	0.116***	0.0613**
	(0.0484)	(0.0320)	(0.0317)	(0.0251)
Private credit	0.0171	0.0171	0.0146	0.0149
	(0.0104)	(0.0149)	(0.0147)	(0.0143)
Inflation	-0.105*	-0.144***	-0.142***	-0.144***
	(0.0622)	(0.0331)	(0.0332)	(0.0196)
Infrastructure	0.0789***	0.0995***	0.0963***	0.0925***
	(0.0217)	(0.0199)	(0.0219)	(0.0179)
ToT changes	-0.0450	-0.0448	-0.0679	0.0166
	(0.0451)	(0.0432)	(0.0654)	(0.0211)
Export diversification	-0.271*	-0.322**	-0.316**	-0.178*
	(0.155)	(0.141)	(0.143)	(0.0993)
….. squared	0.126*	0.149**	0.145**	0.0782*
	(0.0662)	(0.0636)	(0.0654)	(0.0450)
FDI	0.0132**	0.0131	0.0126	0.00281
	(0.00637)	(0.0121)	(0.0124)	(0.00758)
Political violence	-0.0133*	-0.0199***	-0.0201***	-0.00771**
	(0.00690)	(0.00458)	(0.00464)	(0.00317)
Financial crisis	-0.0384***	-0.0262***	-0.0259***	-0.0116*
	(0.0105)	(0.00859)	(0.00835)	(0.00623)
Human capital		0.177*	0.167*	-0.000417
		(0.0896)	(0.0891)	(0.0627)
Δ Gini coefficient		-0.0112**	-0.0107**	-0.00887*
		(0.00533)	(0.00533)	(0.00453)
Constant	1.851***	2.389***	2.383***	1.310***
	(0.261)	(0.305)	(0.305)	(0.206)
Observations	967	635	625	573
R-squared	0.892	0.921	0.919	0.952
Country FEs	Yes	Yes	Yes	Yes
Period FEs	Yes	Yes	Yes	Yes
Countries	149	128	127	128
Estimation	FE	FE	FE	FE

Note: Robust standard errors are in parentheses. BGD = Bangladesh; FE = fixed effects; FDI = foreign direct investment; RER = real exchange rate; TOT = terms of trade.
*** p < 0.01, ** p < 0.05, * p < 0.1.

Since we aim to explain Bangladesh's growth performance based on the experience of other countries, column (3) in table 1 drops Bangladesh from the sample. Bangladesh is not driving the results, which remain nearly identical. Column (4) omits observations where the associated growth rate falls into the top or bottom 5 percent of the sample, which causes a 10 percent drop in the sample size. As would be expected, the persistence increases and the model fit improves when the growth outliers are removed. At the same time, the relationships with the other variables remain intact, except for human capital.

4.1 Robustness checks

We provide several robustness checks in table A.4, in the appendix. Column (1) repeats our preferred specification for easier comparability. Column (2) estimates the same model with System-GMM. The p-value of the Hansen test is 0.22 and the instrument set (129) essentially equals the number of countries, indicating that we cannot reject the null hypothesis that the over-identifying restrictions are valid and that the proliferation of instruments is not a key concern. The persistence increases, which is consistent with the expected downward bias of the fixed effect estimate. The statistical significance of some variables declines, which is the case for the real exchange rate, trade openness and diversification, inflation, and human capital. Government consumption and private credit now become statistically significant at least at the 10 percent level (which they were not before). We later assess whether these differences are large enough to tell different stories about Bangladesh's development. Moving back to fixed effect estimation, column (3) omits observations before 1985. The results are very similar to those of the longer sample, but the impact of infrastructure becomes more important and the impact of financial crises becomes smaller and less statistically significant. Column (4) excludes high-income economies, defined as countries falling in the top quartile of GDP per capita (in PPP terms) in 2005–09. While the persistence declines a little, in line with more volatility in lower income economies compared with high-income economies, and despite some changes in magnitudes and statistical significance levels, most of the results are remarkably stable (including the turning point for export diversification). Column (5) adds the employment rate to ensure that varying demographic dividends are not distorting the estimation of the other coefficients. While most of the coefficients are nearly similar, the other demographic variables lose statistical significance (at the 10 percent level). Like for the GMM estimation, we later check whether the differences matter for our explanation of Bangladesh's development. For now, we can conclude that, despite certain differences, those tests add plausibility to our preferred results.

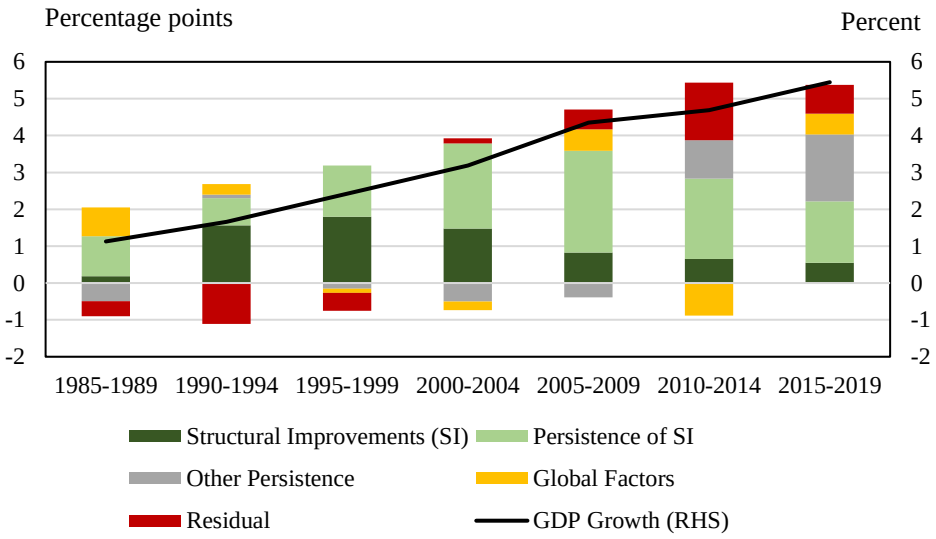
5. Explaining Bangladesh's development

We can now apply our parameter estimates from equation (2) to changes in the key model variables, as outlined in equation (1), to understand growth in Bangladesh. For accessibility, we provide a graphical depiction of the key model categories in figures 2 and 3.

Figure 2 already provides several insights into the dynamics of growth in Bangladesh. First, the model overall fits the actual growth rates quite well. That said, since the mid-2000s, actual growth has exceeded predicted growth. The differences are still relatively small for typical growth models and may reflect increasing cyclical growth, increasing measurement errors, or structural changes in the economy that occurred around the early/mid-2000s, for which our model cannot account.[17] Second, we observe an era of large new structural improvements starting in the early 1990s until the early/mid-2000s. From 1990 to 2004, those improvements suggest a contemporaneous (short-term) growth contribution of 1.6 percentage points per year, on average. This may not sound like an outstanding magnitude, but it is very high compared with other countries. As we detail in subsection 5.1, this magnitude puts Bangladesh in the global top 5 percent. Third, past improvements contribute strongly to growth. Structural improvements persist into the future through the autoregressive coefficient θ. The long-run effect in such dynamic models is given by multiplying the magnitude by $1/(1-\theta)$, implying that a growth innovation of 1.6 percent leads to an increase in the income level of 6.4 percent in the long run. To visualize the contribution from past improvements, we consider the impact of improvements in the last three periods. Their growth contribution peaked during 2005–09, at 3.5 percentage points, reflecting the preceding era of large structural improvements.

[17] The model does not systematically underestimate recent growth performance on a global level (e.g., due to the emergence of new technologies), since otherwise the global factor would not switch sign in the last two periods.

Figure 2: Key model components for growth in Bangladesh

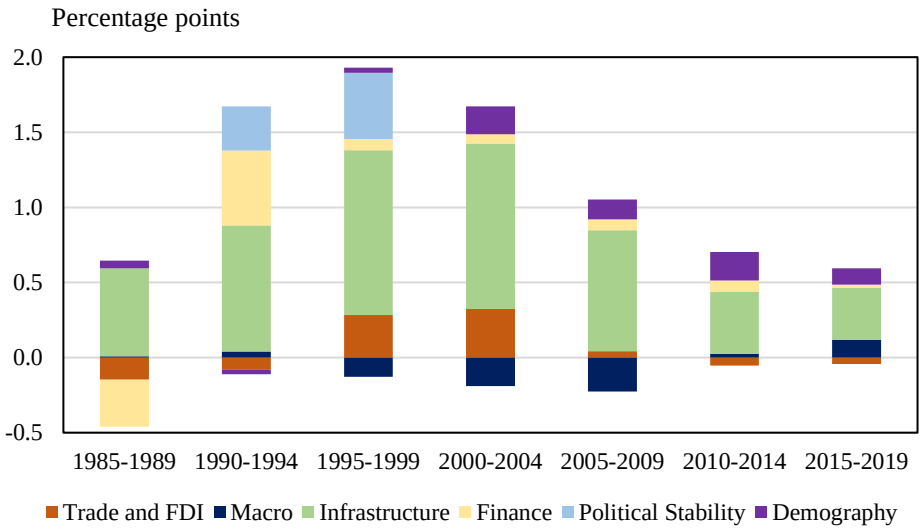


Note: GDP = gross domestic product; SI = structural improvements. The persistence is decomposed into the contribution of past structural improvements of the last three periods ("Persistence of SI") and remaining persistence ("other persistence").

Figure 3 shows a further disaggregation of the structural improvements into the six above-mentioned groups of variables. First, more openness to trade and FDI played a fundamental role in supporting growth starting in the late 1990s. Easing FDI regulations were complemented by the creation of new export processing zones (EPZs) and other trade liberalizations, which contributed to a boost in ready-made garment exports.[18] Overall, exports doubled from 10 percent of GDP in the mid-1990s to over 20 percent of GDP in 2012, when exports as a share of GDP peaked. Due to the strong increase in RMG exports, which have accounted for over 80 percent of all exports in recent years, Bangladesh's exports became more specialized over time. Our model suggests a positive impact on growth from this specialization in Bangladesh. More FDI contributed as much as trade openness and increased specialization. Although the government had a skeptical view of foreign investment in the 1970s and 1980s, it started encouraging FDI through policy changes and investment incentives in the 1990s. Among others, these included tax holidays, a duty-free facility for imports of capital machinery, investments in special economic zones, as well as allowing full foreign ownership and profit repatriation. As a result, FDI inflows increased from negligible amounts to 0.4 percent of GDP at the end of the 1990s. Most of the structural improvements date to the late 1990s and early 2000s, with slower reform progress in recent years.

[18] The first EPZ (Chittagong) was already fully functional in 1984, but the second (Savar near Dhaka) was only established in 1993. Many more EPZs were created subsequently.

Figure 3: Growth contributions of different policy innovations



Note: FDI = foreign direct investment.

Second, the era of large growth contributions in the early 1990s started with the effects of recovery from a financial crisis. Bangladesh's banking system was technically insolvent by the late 1980s (Laeven and Valencia 2013).[19] In response, a national commission proposed far-reaching structural changes in 1987, many of which were implemented as part of a three-year International Monetary Fund financing facility that was signed that year. These included the privatization of two major public banks (Uttara Bank and Pubali Bank), the licensing of private commercial banks, and the introduction of back-to-back letters of credit that catalyzed RMG exports. Recovery effects from the financial turmoil were reflected starting in the early 1990s and have also been observed after banking crises in other economies (such as after the Turkish Banking crisis 2000/2001). Further reforms focused on interest rate deregulation, partial restructuring of the banks' operational procedures, introduction of capital adequacy standards, and removal of the lending interest rate band and deposit ceiling.

Third, infrastructure contributed consistently to growth. For example, the opening of the Bangabandhu bridge in 1998 connected Dhaka to northern Bangladesh. The contributions from infrastructure declined in the most recent periods as well but remained by far the largest contributor to growth over the past two decades. Infrastructure investment tends to contribute to growth during construction and after completion due to the services it provides. In line with this, ongoing

[19] Four banks accounting for 70 percent of outstanding credit had a nonperforming loan rate of 20 percent.

megaprojects like the Padma Bridge are supporting economic growth and will raise economic activity permanently, but they are not captured in the model.

Fourth, improvements in standard macro stabilization aspects did not seem to boost growth but may have been conducive. The growth contribution of this block of variables is rather small, in line with the findings of earlier growth regression studies (Araujo et al. 2016; Moller and Wacker 2017). The negative contribution of this group of variables in some periods is mostly explained by the unconventional positive (but insignificant) coefficient estimate for government consumption in our otherwise preferred specification in column (2) in table 1. We elaborate in subsection 5.2 why the strong government focus on macroeconomic stability after deep macroeconomic imbalances in the 1980s may have enabled Bangladesh to continue growing in the context of receding structural improvements. In particular, inflation and fiscal deficits have remained contained over recent decades, the debt level has been low, and external borrowing has been mostly concessional. In addition, the central bank has successfully smoothed exchange rate volatility.

Fifth, increasing political stability gave an additional boost to growth in the 1990s. Bangladesh returned to democratic governance through the 1991 parliamentary election and stability increased further following prolonged strikes and a siege in the first half of 1996. The Chittagong Hill Tracts conflict also reached a resolution with the peace negotiations that started in the early 1990s, leading to the signing of a peace accord in 1997.

Sixth, improvements in human capital and lower inequality helped raise income levels starting from the 2000s. However, the combined magnitude of both remains relatively small, with contributions to overall growth hovering between 0.11 and 0.19 percentage points over the past two decades.

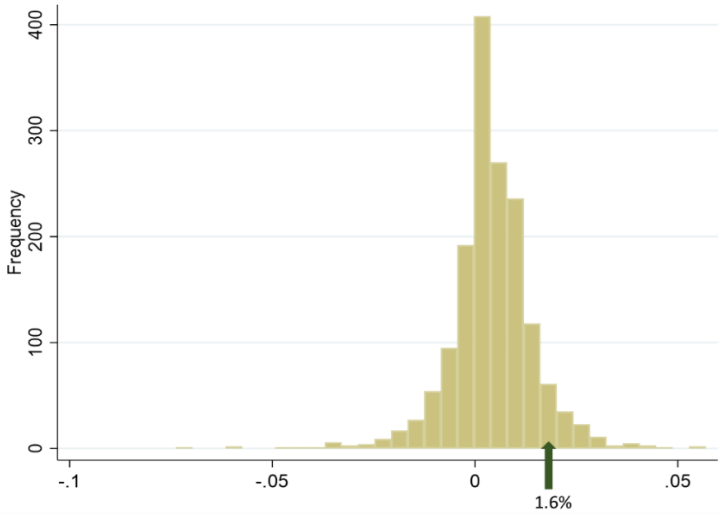
The same key results are confirmed in our robustness checks when applying GMM estimation and including the employment rate as an additional variable in the demography block. These results are reported in figure A.1, in the appendix. In both scenarios, the three periods of highest contemporaneous growth impulses from structural improvements were still between 1990 and 2004. This confirms our main message that key improvements took place during this period, and growth was mostly driven by persistence effects afterwards. Moreover, both scenarios underpredict growth in the last three periods as well.

5.1 What makes Bangladesh distinct?

Figure 2 highlights that structural improvements have continued to contribute to growth since the mid-2000s, but to a lesser extent over time. Our model suggests that since the mid-2000s, Bangladesh has been essentially living on earlier improvements, that is, from the echo of its era of large structural achievements. This is consistent with the dynamic implications of the neoclassical growth model but a rather uncommon feature for developing countries, where growth is inherently unstable such that past policy innovations rarely materialize to the full extent.

To investigate this proposition empirically, we identified countries in our data set that had a similar magnitude of structural improvements over three consecutive periods as Bangladesh had from 1990 to 2004. We found 45 occurrences of faster structural improvements over such a time frame. This means that the average annual contemporaneous growth contribution of 1.6 percentage points over 15 years puts Bangladesh in the top 5 percent of structural innovations over the same time horizon among 149 countries since the mid-1980s.[20] For further comparison, figure 4 displays the global distribution of contemporaneous growth contributions of structural improvements, now measured over five-year periods *t*, highlighting that growth of 1.6 percentage points per year is a historically high magnitude (especially when achieved over a 15-year period).

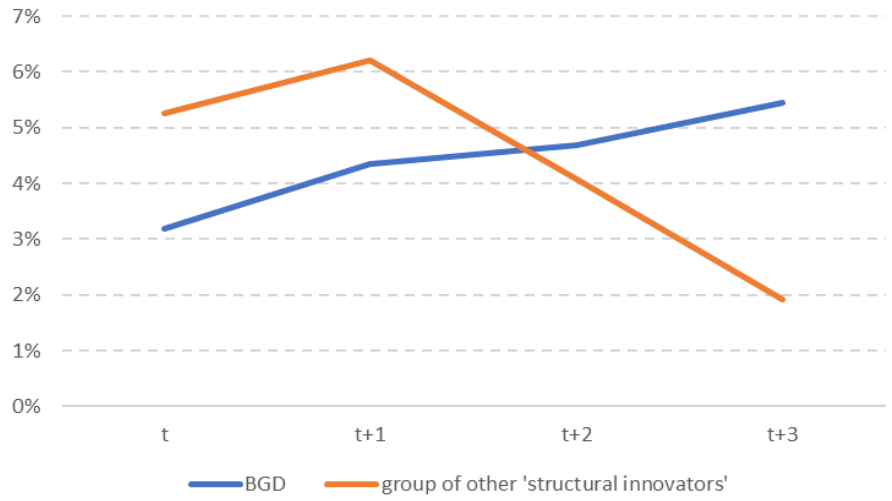
Figure 4: Distribution of policy innovations (over five-year periods)



[20] Due to the 15-year window, the first interval is 1970–85.

Next, we investigate what happened to countries after they had achieved three periods of fast structural improvements. We focus on observations that fall in the 95 percent highest contemporaneous growth contributions from structural improvements for three subsequent periods and where at least three periods of actual growth data are available after a spell of structural improvements, to facilitate comparison with Bangladesh (which has three periods of data since the early/mid-2000s). Of the 20 remaining observations, some included overlapping observations, for which we only retained the latest 15-year period, which limited the comparator group to 11 countries.[21] As figure 5 highlights, actual growth was higher in this comparator group than in Bangladesh in the last period of such fast structural improvement and in the subsequent period as well. But Bangladesh achieved even higher growth in the subsequent periods, while the other economies in the group quickly reverted to the mean (with an average growth rate of 1.9 percent in $t + 3$).

Figure 5: Growth rates after episodes of fast structural improvement



Note: BGD = Bangladesh.

Overall, this leaves us with the key finding that structural improvements that happened during 1990–2004 in Bangladesh where outstanding in magnitude and in the top 5 percent over a comparable time horizon in global comparison. Furthermore, within the group of countries with prolonged outstanding structural improvements, Bangladesh performed well in terms of sustaining (and even increasing) growth over the subsequent periods.

[21] Azerbaijan, Cambodia, China, El Salvador, Equatorial Guinea, Indonesia, the Lao People's Democratic Republic, Lebanon, Mongolia, and Vietnam until the early/mid-2000s, and Thailand until the mid/late-1990s.

5.2 Persistence and volatility

In this final subsection, we document that persistence has indeed been significantly higher in Bangladesh and that less macroeconomic instability may have contributed to growth. We start by noticing that persistence (defined as the autoregressive coefficient on the lagged dependent variable) is significantly higher in Bangladesh. This is visible from table 2, where column (1) reproduces our preferred specification (note that all the variables except persistence are omitted from the display). Column (2) introduces an interaction term of persistence with a dummy variable for Bangladesh. The positive interaction coefficient reveals that persistence is significantly higher in Bangladesh. In other words, GDP is more persistent and there is a stronger translation of innovations to growth in the next periods. We also investigated whether this could capture any systematic effects of country groups, by including interactions with dummy variables for different income groups, but we found no significant effects – Bangladesh indeed seems to stand out in this regard.

Moreover, the volatility of growth is significantly lower in Bangladesh than in the other countries in our sample. This is documented in column (5) in table 2, which regresses the standard deviation of annual growth rates, calculated over a five-year period, on a constant (indicating the mean of that series) and a dummy variable for Bangladesh, using a random effect regression (as otherwise all country heterogeneity would be absorbed by fixed effects). The negative coefficient of this dummy variable indicates that growth has been significantly less volatile in Bangladesh than in the other countries in the sample. It is well-known that growth volatility can negatively impact long-term growth (e.g., Ramey und Ramey 1995; Hnatkovska and Loayza 2005). This negative relationship is also visible in our sample, as shown in columns (3) and (4), which augment our baseline reference model with a measure of the standard deviation of growth.[22] Figure A.2, in the appendix, shows that the most significant decline in the volatility of growth in Bangladesh took place in the period preceding the era of strong structural improvements. We refrain from a claim that reduced macroeconomic volatility had a strong causal impact on growth in Bangladesh. However, we consider this as suggestive evidence that improved macroeconomic stabilization and significantly lower volatility than in other countries (including “structural innovators”) may have

[22] Growth volatility is obviously endogenous to income levels, by construction. This will bias fixed effect estimates, with unclear direction of the bias, making a strong case for the System-GMM estimation reported in column (4). We admit that this relationship is not very robust (as the fixed effect estimates that serve as our baseline reference model are insignificant) but consider our finding worth exploring in further research. Moreover, our measure of the standard deviation of growth trails two years behind the respective sample period to alleviate such endogeneity concerns. For example, the period 2015–19 is linked to the standard deviation of growth over the five years up to the 2016–17 growth rate.

been conducive for the benefits of structural improvements in Bangladesh to roll out and materialize over time.

Table 2 Persistence and volatility

VARIABLE	(1) ln GDP pc	(2) ln GDP pc	(3) ln GDP pc	(4) ln GDP pc	(5) σ of growth
Persistence	0.742***	0.743***	0.742***	0.866***	
	(0.0351)	(0.0351)	(0.0369)	(0.0597)	
Persistence x BGD		0.125**			
		(0.0600)			
σ of growth			-0.286	-0.681**	
			(0.282)	(0.305)	
BGD					-0.0164***
					(0.00208)
Constant	2.389***	2.373***	2.422***		0.0463***
	(0.305)	(0.303)	(0.312)		(0.00387)
Observations	635	635	635	635	967
R-squared	0.921	0.922	0.922		
Countries	128	128	128	128	149
Other variables	Yes	Yes	Yes	Yes	period dum
Estimation	FE	FE	FE	GMM	RE

Note: Robust standard errors are in parentheses. BGD = Bangladesh; FE = fixed effects; GDP = gross domestic product; GMM = generalized method of moments.
*** p < 0.01, ** p < 0.05, * p < 0.1.

6. Conclusion

This paper provides an up-to-date data set of potential growth correlates for a large sample of countries over a long period. The included variables can be grouped into the following categories: trade and FDI, finance, infrastructure, macro, political stability, and demography. The baseline growth regression and robustness checks confirm that key variables are correlated with income levels and can be used to decompose the drivers of growth. They can hence provide insights into different development experiences.[23]

The baseline regression reveals that Bangladesh's success can be explained by improvements in variables that are correlated with growth in other countries. Most importantly, we identified an era of large structural improvements starting in the early 1990s until the early/mid-2000s, driven mainly by recovery from financial turmoil, increasing trade openness, and more FDI. Like the development of the East Asian Tigers in the 1990s and Vietnam later, Bangladesh's development has been based on selective market reforms and rising exports. While the economy was gradually deregulated and already liberalized in the mid-1970s, the market-based reforms and renewed focus on macroeconomic stability in the mid-1980s and 1990s created an environment that was conducive for faster economic growth. In the mid-1980s, markets and public investment were strengthened, including for infrastructure. The post-1990 reforms allowed for more private sector participation in trade, finance, and land ownership. In addition, these reforms were accompanied by complementary social reforms, such as mandatory primary school, a female stipend program for secondary schools, and family planning programs. The rise of RMG exports evolved from a combination of private investment and public policy support. It started with a collaboration between a Korean company and a Bangladeshi company, in which knowledge and skills were transferred to Bangladesh (Rhee 1990; Mottaleb and Sonobe 2011). The easing of FDI regulations and introduction of back-to-back letters of credit were complemented by the creation of new EPZs. Moreover, the government encouraged and directed investments in RMGs. It also adjusted its trade policy, so that low wages and the absence of import quotas allowed for rapid expansion of the sector.[24] Summarizing, the experience of Bangladesh provides additional evidence that "good enough" reforms can cause high growth (Christiansen, Schindler, and Tressel 2013; Prati, Onorato, and Papageorgiou 2013; Moller and Wacker 2017).

Although the country's growth experience is not unique, it differs from most others in one important aspect. Bangladesh belongs to a small group of successful countries that sustained fast growth for a long period.[25] Macroeconomic and

[23] The data set and replication codes are available upon request.
[24] There were only a few RMG factories in Bangladesh at the end of the 1970s. The number increased to more than 700 in just five years.
[25] We leave it for future research to identify common characteristics between the countries

institutional stability provided an environment in which the benefits from past structural improvements could materialize, resulting in higher persistency of growth (Table 2).[26] While growth experiences tend to be episodic (Easterly et al. 1993; Hausmann, Pritchett, and Rodrik 2005; Koren and Tenreyro 2007; Aguiar and Gopinath 2007; Pritchett and Summers 2014), Bangladesh sustained and increased its growth rate.[27] This is even more impressive as structural improvements slowed from the mid-2000s.

Since growing so rapidly for so many years is rather unusual, especially without new structural improvements, there is a risk that growth in Bangladesh could lose steam going forward, even if macroeconomic stability is preserved. Reaching the next level of development will likely require new structural improvements (World Bank 2022).

achieving high persistence and provide explanations for their success.

[26] This can explain why the model predicts lower growth than has been officially reported in the past decade. An alternative explanation could be potential mismeasurement of GDP in this period. If GDP growth has been overestimated, it would mean that Bangladesh's growth experience is less exceptional.

[27] Bangladesh does not qualify as an example of "growth acceleration" when using the filter criterion from Hausmann, Pritchett, and Rodrik (2005). This is because the change in the growth rate has not been fast enough in any period.

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Appendix

Table A.1: Variables in the baseline model

Name	Description	Source
lrgdpna_pc	Log of real GDP p.c.	PWT10.0
lhc	Log human capital index (education)	PWT10.0
lkg	Log government consumption	PWT10.0
lrer	Log real exchange rate (pl_gdpo/xr)	PWT10.0
ltraderesid	Log of trade [(expors+imports)/GDP] that is unexplained by exporter population size and global demand	Own estimation based on PWT10.0
lcredit	Credit/GDP	WDI
linflation_na	Log of (% change in consumption price level +1)	PWT10.0
Infrastructure index	Own estimation	Own estimation based on WDI
d.ltot	Changes of log terms of trade d.[ln(pl_x/pl_m)]	PWT10.0
lEDI_ipol	Log of export diversification index	IMF and UNCTAD
lFDIstock_ipol	Log of FDI stock relative to GDP	UNCTAD
actotal	Variable indicating the magnitude of political violence.	PolityV by Systemicpeace.org
fincrisis	Fraction of years in financial crisis (banking, currency, or sovereign debt).	Laeven and Valencia (2020)
lhc	log human capital index, which linearly interpolates data on educational attainment from Barro and Lee (2013)	PWT10.0
d.gini_mkt	Change in Gini coefficient of market incomes	World Income Inequality Database (Solt 2019)

Table A.2: Summary statistics of the model variables

Variable	Obs	Mean	SD	Min	Max
ln real GDP p.c.	967	8.83	1.30	5.61	11.91
ln Gov. con.	967	-1.79	0.50	-4.93	-0.47
ln RER	967	-3.55	4.40	-11.52	24.65
Trade openness	967	0.32	0.50	-4.61	2.35
ln private credit	967	3.23	1.05	-4.86	5.51
ln inflation	967	0.09	0.13	-0.18	1.44
infrastructure index	967	0.15	0.88	-2.70	1.34
d.ln ToT	967	0.01	0.12	-1.61	0.92
ln exp divers	967	1.20	0.38	0.16	1.86
ln exp divers squared	967	1.57	0.85	0.03	3.45
ln FDI stock	967	2.68	1.49	-19.02	7.53
Political violence	967	0.67	1.56	0.00	13.00
Financial crisis	967	0.25	0.43	0.00	1.00
ln human capital	877	0.71	0.36	0.01	1.38
Δ Gini	669	0.13	1.21	-5.12	5.56

Table A.3: Summary statistics for Bangladesh

Variable	Obs	Mean	SD	Min	Max
ln real GDP p.c.	10	7.53	0.41	7.15	8.33
ln Gov. con.	10	-2.42	0.50	-3.26	-1.91
ln RER	10	-5.27	0.28	-5.57	-4.80
Trade openness	10	0.27	0.05	0.21	0.37
ln private credit	10	2.71	0.97	0.96	3.83
ln inflation	10	0.09	0.05	0.04	0.22
infrastructure index	10	-0.82	0.97	-2.07	0.48
d.ln ToT	10	-0.20	0.52	-1.61	0.04
ln exp divers	10	1.49	0.08	1.36	1.58
ln exp divers squared	10	2.22	0.24	1.85	2.51
ln FDI stock	10	1.15	0.54	0.46	1.82
Political violence	10	0.87	0.95	0.00	2.00
Financial crisis	10	0.20	0.42	0.00	1.00
ln human capital	10	0.43	0.19	0.16	0.72
Δ Gini	10	0.32	0.47	-0.26	1.06

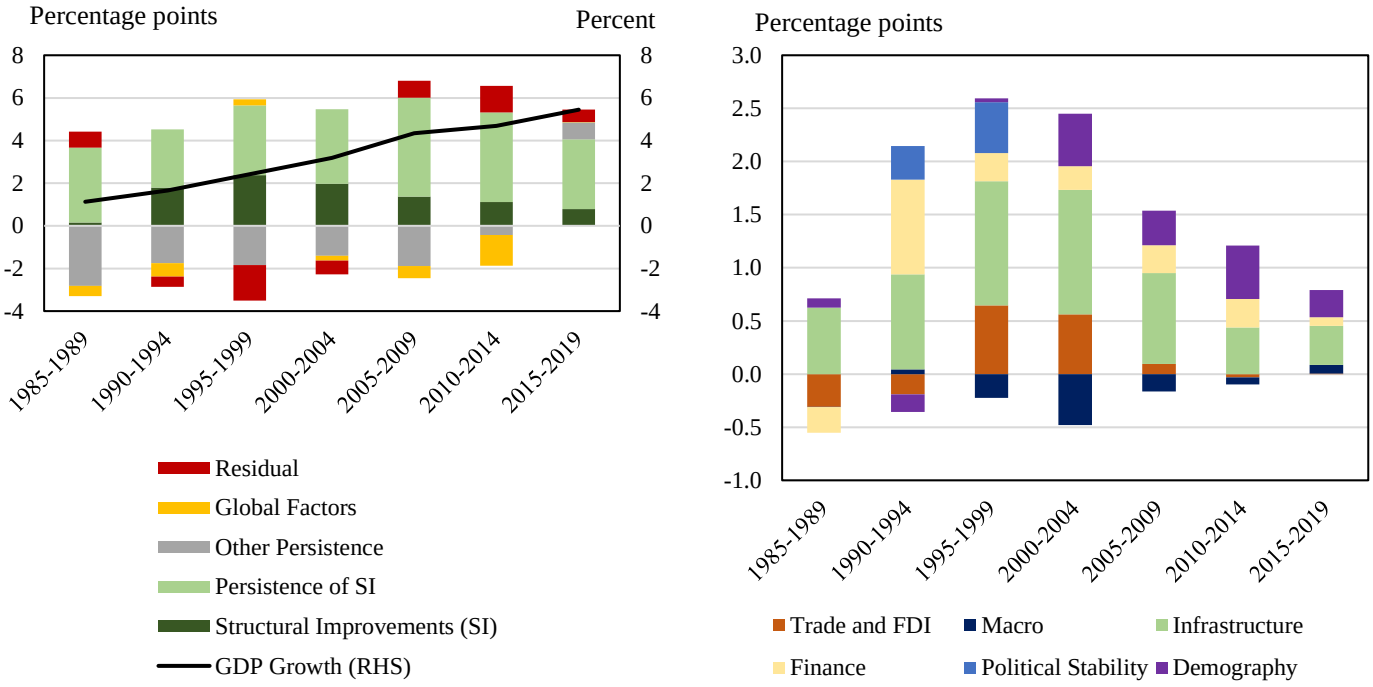
Table A.4: Robustness regressions

Model	(1) Large Model	(2) GMM	(3) Later Period	(4) EMDEs	(5) Employment
Persistence	0.742***	0.865***	0.699***	0.707***	0.728***
	(0.0351)	(0.0556)	(0.0371)	(0.0382)	(0.0351)
Gov. con.	0.0252	0.0477*	-0.00756	0.0209	0.0220
	(0.0204)	(0.0275)	(0.0228)	(0.0161)	(0.0202)
RER	0.0120***	0.00245	0.0148***	0.00681***	0.0118***
	(0.00266)	(0.00493)	(0.00388)	(0.00245)	(0.00252)
Trade openness	0.114***	0.0945	0.0970**	0.121***	0.109***
	(0.0320)	(0.109)	(0.0385)	(0.0338)	(0.0310)
Private credit	0.0171	0.0510*	0.00349	0.0276*	0.0145
	(0.0149)	(0.0265)	(0.0113)	(0.0145)	(0.0143)
Inflation	-0.144***	-0.0542	-0.134***	-0.114***	-0.137***
	(0.0331)	(0.0822)	(0.0496)	(0.0354)	(0.0313)
Infrastructure	0.0995***	0.124**	0.133***	0.156***	0.116***
	(0.0199)	(0.0481)	(0.0242)	(0.0307)	(0.0219)
ToT changes	-0.0448	-0.0161	0.0246	-0.00423	-0.0367
	(0.0432)	(0.0526)	(0.0869)	(0.0321)	(0.0395)
Export diversification	-0.322**	-0.0808	-0.427***	-0.305**	-0.210
	(0.141)	(0.246)	(0.161)	(0.147)	(0.140)
….. squared	0.149**	0.0620	0.198***	0.135**	0.0995
	(0.0636)	(0.122)	(0.0707)	(0.0661)	(0.0639)
FDI	0.0131	0.0369	0.00476	0.0123	0.0138
	(0.0121)	(0.0245)	(0.0128)	(0.0127)	(0.0126)
Political violence	-0.0199***	-0.0199**	-0.0190***	-0.0174***	-0.0184***
	(0.00458)	(0.00805)	(0.00479)	(0.00485)	(0.00467)
Financial crisis	-0.0262***	-0.0384**	-0.0134	-0.0184*	-0.0232***
	(0.00859)	(0.0167)	(0.00850)	(0.0103)	(0.00860)
Human capital	0.177*	0.184	0.149	0.142	0.0790
	(0.0896)	(0.128)	(0.0958)	(0.121)	(0.0911)
Δ Gini coefficient	-0.0112**	-0.0258***	-0.0186***	-0.0155**	-0.00852
	(0.00533)	(0.00816)	(0.00489)	(0.00605)	(0.00535)
Employment rate					0.633**
					(0.263)
Constant	2.389***		2.813***	2.711***	2.292***
	(0.305)		(0.320)	(0.341)	(0.259)
Observations	635	635	564	469	634
R-squared	0.921		0.900	0.915	0.924
Country FEs	Yes	Yes	Yes	Yes	Yes
Period FEs	Yes	Yes	Yes	Yes	Yes
Countries	128	128	128	98	128
Estimation	FE	GMM	FE	FE	FE
Sample	large model	large model	since 85-89	non-high inc.	incl. EMP

Note: Robust standard errors are in parentheses.
*** p < 0.01, ** p < 0.05, * p < 0.01

Figure A.1: Robustness of Bangladesh's growth decomposition

a) Based on GMM estimation



b) Model including employment rate (in demography)

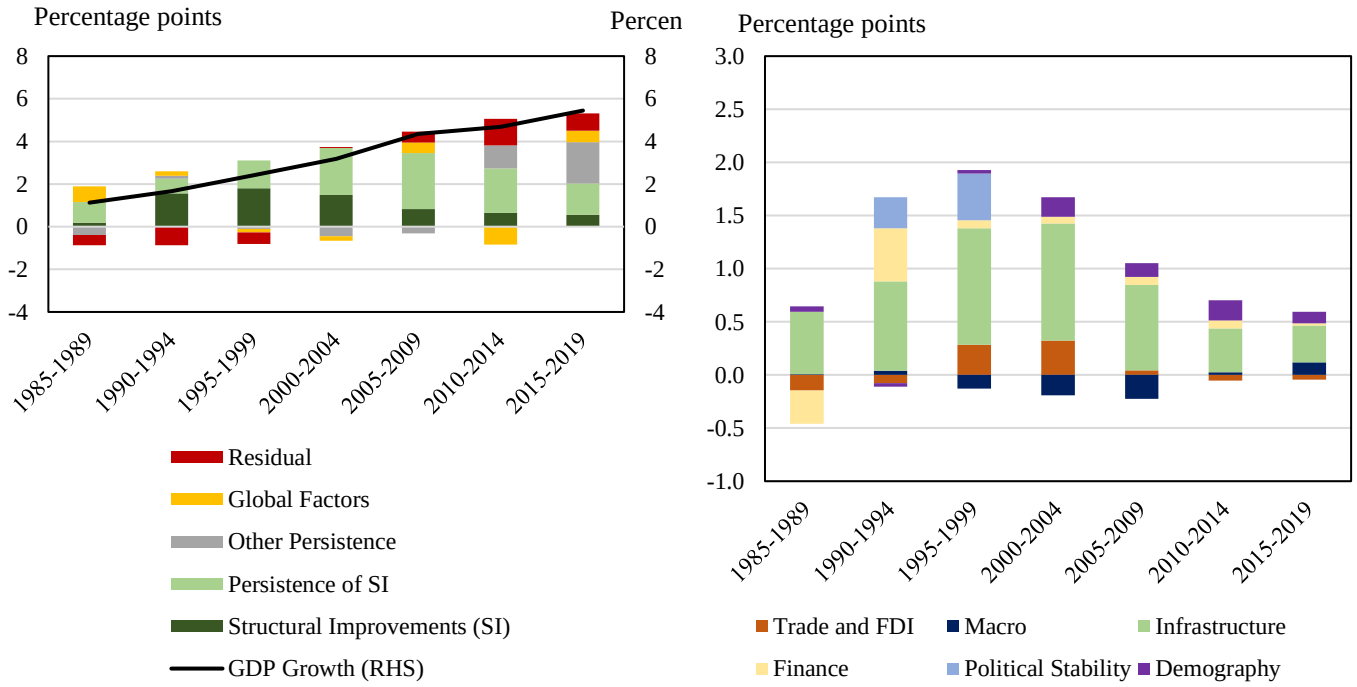


Figure A.2: Standard deviation of growth in Bangladesh (over five years) over time