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Do the effectiveness principles matter for development?

Evidence from aid effectiveness data

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Abstract: The Principles of Effective Development Co-operation provide an important reference point for foreign aid and international development assistance. Although the principles—country ownership, focus on results, inclusive partnerships, and transparency and mutual accountability—are framed to support more 'effective' development cooperation, there has been insufficient systematic research on their measurement and impact. We address this gap and consider what can be learned about this relationship using the Global Partnership for Effective Development Co-operation's (GPEDC) monitoring framework. We draw on standard social science approaches to conceptualization and measurement and descriptive statistical analysis to explore the relationship between adherence to the effectiveness principles and various development outcomes. We find that, across countries, the empirical relationship between currently available GPEDC data and development outcomes is tenuous at best. Shortcomings in the data are a key reason for this lack of evidence. Some of these could be fixed straightforwardly with adjustments to the indicators and data collection approaches, but many relate to inherent challenges to measurement in this area.

Key words: effectiveness principles, development cooperation, foreign aid, Global Partnership for Effective Development Co-operation, indicators

Note: tables and figures at the end of the paper

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1 Introduction

Development cooperation is considered by many to be among the great successes of international post-Second World War efforts to eradicate poverty and improve wellbeing in developing countries. Nevertheless the overall impact of aid on development, and especially on economic growth, has been sharply debated in research (see e.g., Arndt et al. 2010, 2015; Burnside and Dollar 2000, 2004; Mosley 1986; Rajan and Subramanian 2008). While cross-country studies now provide strong evidence of its overall positive impact (Arndt et al. 2015; Juselius et al. 2014), it is also clear that development cooperation is not always effective and that its record appears to be especially mixed in fragile and conflict-affected states (Carment and Samy 2023; de Ree and Nillesen 2009; Findley 2018; Zürcher 2017, 2022).

Elaborated in their current form at the Fourth High-Level Forum on Aid Effectiveness in Busan in 2011 and reiterated in the Effectiveness Development Co-operation Summit in Geneva in 2022, the Principles of Effective Development Co-operation provide an important reference point for international development assistance, with broad multilateral support. Although the principles—country ownership, focus on results, inclusive partnerships, and transparency and mutual accountability—have been framed as means for supporting more 'effective' assistance, there has been insufficient systematic research attention to their impact.

Research on aid-supported interventions shows, in multiple cases, a link between the principles and better development outcomes. Case studies of aid projects and programmes point, in particular, to the value of local ownership in the success of interventions, with evidence across multiple sectors and countries including, for instance, World Bank health projects in East Timor (Rosser and Bremner 2015), health and education sector projects in Zambia (Leiderer 2015), and public financial management reform programmes in Sierra Leone (Tavakoli et al. 2015). Yet there are gaps in knowledge about the generalizability of findings drawn from particular cases and about the overall relationship at the macro level.

This study has two aims. The first is to evaluate the quality of the indicators compiled by the Global Partnership for Effective Development Co-operation (GPEDC). In doing so we contribute to a broad body of scholarship on the quality of cross-national data on various social science concepts, including but not limited to indicators of democracy (Skaaning 2018), corruption (McMann et al. 2022), governance (Gisselquist 2014), state fragility (Ziaja 2012), state capacity (Vaccaro 2022), ethnicity (McDoom and Gisselquist 2016), conflict (Eck 2012), populism (Norris 2020), and income inequality (Jenkins 2015). While a few scholars discuss the usefulness of the GPEDC indicators (Abdel-Malek 2015; Bhattacharya et al. 2021), to date there is no systematic evidence on the quality of these indicators.

Our second aim is to investigate the relationship between principles and development outcomes at the cross-country level, drawing on these indicators and other development data, thereby contributing to the broader literature on the aid–development nexus. While this literature focuses on the impact of aid on relevant development outcomes such as economic growth (e.g., Arndt et al. 2010, 2015; Mekasha and Tarp 2013, 2019), income equality (e.g., Chong et al. 2009; Herzer and Nunnenkamp 2012), poverty reduction (e.g., Alvi and Senbeta 2012; Chong et al. 2009), health (e.g., Arndt et al. 2015; Wilson 2011), education (e.g., Arndt et al. 2015; Riddell and Niño-Zarazúa 2016), democracy (e.g., Djankov et al. 2008; Gisselquist et al. 2021; Jones and Tarp 2016; Ziaja 2020), institutional quality (e.g., Bräutigam and Knack 2004; Knack 2001), and peace (e.g., Brück et al. 2017; Collier and Hoeffler 2002; de Ree and Nillesen 2009; Justino 2019), it does not focus directly on whether or how improved adherence to the effectiveness principles may affect

development outcomes. Our study offers new evidence on both the quality of the GPEDC indicators and the potential links between these indicators and development outcomes.

To analyse the quality of the GPEDC indicators, we use conventional qualitative social science methods for the evaluation of data quality. We focus in particular on content validity and the data generation process. To analyse the impact of the GPEDC effectiveness principles on development outcomes, we take a quantitative approach using multiple descriptive statistical methods.

Due to the nature of the data and analysis, we do not offer a causal interpretation. Nonetheless our analysis points to two key results. First, the link between the GPEDC indicators and development outcomes across countries is weak at best. Second, this is likely explained in part by shortcomings in the GPEDC data in terms of content validity and reliability, notwithstanding the value of the monitoring exercise and its strengths. Social science literature points to some ways forward, but it should also be acknowledged that adherence to the effectiveness principles is inherently difficult to measure.

These results have important policy implications. Overall they underscore that the strongest 'why' case for the principles is not about their demonstrable impact but a value-based one: they reflect shared global commitments to self-governance and inclusive, effective, accountable, and transparent institutions, as affirmed in Sustainable Development Goals 16 and 17. The GPEDC and international community more generally should focus on this in building momentum for the principles. Alongside this, various adjustments can be made to strengthen the monitoring framework, with the aim of strengthening its use in building knowledge about impact and in providing transparent indicators for mutual accountability.

2 GPEDC monitoring framework and indicators

The four effectiveness principles—country ownership, focus on results, inclusive partnerships, and transparency and mutual accountability—were set out in their current form in the Fourth High-Level Forum on Aid Effectiveness in Busan in 2011, with the official monitoring framework, largely based on the previous Paris Declaration Indicators, established shortly thereafter in 2012. In 2022 the principles were reaffirmed in the Effective Development Co-operation Summit in Geneva, and a new monitoring framework was announced.

In this analysis we draw on data from the latest version of the GPEDC Monitoring Database.[1] At the time of writing, figures available in the database cover the years 2010, 2013, 2015, and 2017. Figures for 2013, 2015, and 2017 represent, respectively, the first, second, and third monitoring rounds of the post-Busan monitoring framework. Data for 2010 instead contains comparable figures from the final year of the Paris Declaration Indicators.

The first countries to compile data under the new framework will do so in 2023, with data to be compiled on all participating countries over the subsequent four years until 2026. The new monitoring framework includes all indicators from the previous version of the monitoring framework except indicator 3 on private sector engagement, which will be replaced by data on the Kampala Principles on Private Sector Engagement in Development Co-operation (GPEDC 2022a). Additionally, the new monitoring framework includes further 'leave no one behind' and strengthening statistical capacity indicators (GPEDC 2022b). The similarities between the new

[1] Accessed via https://effectivecooperation.org/content/gpedc-monitoring-excel-database.

monitoring framework and the previous versions of the monitoring framework underscore the relevance of analysis of the currently available data.

Table 1 provides a summary of the principles along with the indicators (and sub-indicators) which are used to monitor them.[2] For instance, for 'ownership', understood as 'countries set their own national development priorities' and 'development partners align their support to national priorities using country systems', one indicator is the annual predictability of development coordination. This indicator in turn is measured with two sub-indicators: (a) the proportion of development cooperation flows disbursed as scheduled by development partners (5a1), and (b) the proportion of development cooperation flows disbursed beyond scheduled by development partners (5a2).[3] The indicators are intended to 'measure all relevant performance' concerning the implementation of the principles (GPEDC 2016: 28; see also Abdel-Malek 2015).

Indicators such as those of the GPEDC can be evaluated against multiple social science criteria (OECD and JRC 2008). Here we follow McMann et al.'s (2022) recommendation in focusing on content validity and the data generation process.

Content validity refers to how well the measures capture the concept. The GPEDC indicators raise several concerns in terms of content validity. First, the definitions of the core concepts to be measured are vague, which complicates measurement. The principle of country ownership illustrates this. Ownership is understood to mean that recipient countries should set their own national development priorities and development partners should support these priorities (GPEDC 2020). This is based on the view that 'partnerships for development can only succeed if they are led by developing countries, implementing approaches that are tailored to country-specific situations and needs' (GPEDC 2018: 8). Yet what precisely it means for countries to set their own priorities is not elaborated and could be—and is sometimes—understood in different ways. For instance, is any plan elaborated by a relevant national ministry 'country owned'? For a plan to be country owned would it need to be put in place by a government with support from a clear majority of the population, such as one selected via a 'free and fair' electoral process?

A second concern in terms of content validity is that some indicators overlap with more than one principle. For instance the focus on results principle has two key indicators: development partners use country-led results frameworks (1a), and countries strengthen their national results frameworks (1b). Arguably, these indicators could just as well be used to assess the principle of country ownership.

A third concern about content validity is that many of the indicators reflect more formal implementation than adherence in practice. For instance 1b is assessed based on the 'presence of national results frameworks used to define and track the country's development priorities, targets, and results'. The indicator thus speaks to the existence of frameworks that aim to support a focus on results, but it provides little information on whether development cooperation actually has focused on results.

Another key aspect for considering the indicators in social science terms concerns the data generation process.

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[2] The GPEDC provides indicator- or sub-indicator-level figures for each country. Where indicator-level data is not available, we make use of the 'highest-level' sub-indicators available.

[3] While, generally, higher effectiveness principle indicator scores reflect more progress, a higher proportion of beyond-scheduled aid (5a2) actually means lower aid predictability.

For one thing, as we have seen, the GPEDC dataset does not include principle-level data, and indicator-level data is available only for some indicators; for other indicators, only sub-indicators are available. At the time of writing the GPEDC publishes aggregate scores for each recipient country for indicators 1b, 4, 5b, 7, 8, 9a, 9b, and 10, but not for indicators 1a, 2, 3, 5a, and 6. Publishing both for all indicators would allow users to choose the most appropriate level of measurement for their purpose and increase the consistency of the monitoring framework.

Another issue concerns methods of aggregation (i.e. how sub-indicators are aggregated into indicators). Aggregation methods are given selectively and are not justified. In other words, although following different aggregation procedures may impact the scores, there is no explanation of why one method is used instead of another.

In terms of the dataset management structure, the GPEDC's monitoring exercise is voluntary and led by recipient countries which agree to participate in the monitoring activity with the assistance of the Organisation for Economic Co-operation and Development (OECD) and United Nations Development Programme (UNDP) Joint Support Team (GPEDC 2018). Recipient countries are responsible for collecting, validating, and reporting the indicators. Locally reported data should ensure that scores are not biased, for instance by Western views. To collect the data each recipient country assigns a national coordinator who serves as a leader of the national monitoring process (GPEDC, OECD, and UNDP 2019). The voluntariness of participating in the monitoring exercise, however, also has some important drawbacks in relation to data quality, particularly case coverage.

The geographic and temporal coverage of the indicators is limited. For now the GPEDC Monitoring Database covers only four years (2017, 2015, 2013, and 2010) and scores are missing for many countries. As we document in Table S1 (supplementary material section, at the end), no indicator has more than 86 available observations in 2017. The number of available observations is even lower in previous years. Depending on the indicator, the GPEDC dataset covers 55–81 countries in 2015, 39–46 in 2013, and 69–78 countries in 2010. Additionally, some indicators are missing in previous years. The 2015 monitoring round includes data on eight indicators (1, 2, 3, 5, 6, 7, 9, and 10), the 2013 round includes data on five indicators (5, 6, 7, 9, and 10), and the 2010 round includes data only on four indicators (5, 6, 9, and 10). Volatility in the available indicators and scores negatively affects the usefulness of the GPEDC data for over-time comparisons. Moreover, if data missingness is determined by development outcomes, then our understanding on progress in the implementation of the effectiveness principles may be biased.

The GPEDC indicators are based on a large variety of sources. Indicators 9a and 10 are based mainly on existing secondary data from official sources. Indicator 9a is based on data from the public expenditure and financial accountability (PEFA) assessments and indicator 10 is based on data from the OECD. Data for the remaining indicators is collected through survey questionnaires. Indicators 1a, 5a, and 9b are based on questionnaire responses by development partners. Indicator 6 is based on responses by the national coordinator (based on inputs provided by development partners). Indicators 1b, 4, 5b, 7, and 8 are based on responses provided directly by the national coordinator. Indicator 2 is based on responses from the national coordinator, development partners, and civil society organizations (CSOs). Indicator 3 is based on responses from the national coordinator, large enterprises, small and medium-sized enterprises, and trade unions. Using data from different sources decreases the likelihood of potential single source bias and ensures that indicator scores reflect multiple perspectives.

From a social science perspective, however, it can be problematic that for each recipient country a single national coordinator appointed by the national government is responsible for reporting and checking the accuracy of the data and for answering most of the survey questionnaires.

Country governments assess their own performance in implementing the effectiveness principles and may be biased in doing so. Moreover, judgemental divergencies by different national coordinators, development partners, and other respondents may affect reported scores, reducing the quality and comparability of the data. These differences are magnified if respondents also differ across monitoring years, decreasing the quality of coding procedures.

3 Quantitative strategy

In order to explore the relationship between adherence to the principles and development outcomes, we conduct a battery of analyses. Due to space constraints only a selection of these are presented and discussed in this paper, but all analyses point to similar conclusions.

First, we run a series of bivariate linear correlations between the indicators of effectiveness principles and common economic, social, and institutional development outcomes used in previous studies on aid effectiveness. We expect aid to be more effective in countries that have made more progress in the implementation of the principles. Simply put, we expect countries with better scores in the GPEDC indicators to fare better in terms of development outcomes.

Second, we analyse the relationship between the GPEDC indicators and development outcomes using a descriptive time series approach. We explore the extent to which countries with data for all monitoring rounds have made progress in implementing the principles and whether recipient countries' active participation in the monitoring exercise is related to any particular trends in selected institutional development outcomes. Given that participation in the monitoring exercise should facilitate the development of statistical capacity (GPEDC 2016), we expect countries that have participated in all monitoring rounds to have strengthened their institutional capacities over time.

Third, we zoom in on the link between the effectiveness principles and economic growth given the prominence of this outcome in the literature. We analyse whether effectiveness principles scores in 2017 are related to gross domestic product (GDP)/capita growth in 2019, and whether a change in effectiveness principles scores between 2015 and 2017 is related to a change in economic growth between 2018 and 2019. Better implementation of the effectiveness principles should facilitate economic growth.

Fourth, we explore whether the implementation of the principles has affected the link between aid dependence and development outcomes. We split the sample between high-performing and low-performing countries in terms of implementing the principles, and we use correlations to assess differences in the aid–development nexus across the two groups. If adherence to the effectiveness principles matters, we should see differences in the relationship between aid dependence and development outcomes between the two groups of countries. We would expect this link to be less negative in high-performing countries (i.e. in countries where the effectiveness principles are better implemented).

Fifth, we explore the structure of the 2017 GPEDC data and develop aggregate indices at the principle level via exploratory factor analysis. We use these aggregate indices to further analyse the links between effectiveness principles and development outcomes as well as performance in implementing the principles in single countries. By doing so we provide new information on country-level progress at the principle-level.

Sixth, as the geographical and temporal coverage of the GPEDC indicators is limited, we investigate whether this data missingness is affected by development outcomes. We first split the sample between recipient countries that have reported their effectiveness principles indicators and those that have not. We then use boxplots to analyse distributional differences in development outcomes between the two groups of countries in each monitoring year. If data missingness is determined by development outcomes, our understanding of the progress in adhering to the effectiveness principles may be biased.

Based on previous studies on the aid–development nexus, we zoom in on selected development outcomes. The economic and social development outcomes we focus on are GDP/capita, economic growth, poverty, income inequality, education, health, and official development assistance (ODA)/gross national income (GNI). The institutional development outcomes we focus on are democracy, state authority, state capacity, state legitimacy, control of corruption, political stability, and statistical capacity. When possible, development outcomes are measured as at 2019 in order to allow time for the implementation of the effectiveness principles to have had an effect on development outcomes.[4] Table S2 (supplementary material) describes in more detail our data on development outcomes and Table S3 (supplementary material) reports the summary statistics.

4 Quantitative analysis

4.1 Full sample correlation analysis

Bivariate correlations between indicators of the effectiveness principles and common development outcomes (Tables S4–S11, supplementary material) are generally weak and statistically non-significant. There are no bivariate correlations higher than 0.50 or lower than -0.50 between any of the effectiveness principles and our development outcomes; even the strongest correlations are modest in magnitude.

Overall the GPEDC indicator that is most related to development outcomes is the share of untied aid (indicator 10), which is significantly correlated with most measures of economic and social development as well as some measures of institutional quality in multiple years. Countries with a higher share of untied aid tend to have higher poverty (*r:* 0.34 in 2017, 0.42 in 2013, 0.41 in 2010) and infant mortality rates (*r:* 0.39 in 2013, 0.46 in 2010) as well as lower GDP/capita (*r:* -0.50 in 2013, -0.40 in 2010), education (*r:* -0.47 in 2013, -0.41 in 2010), state capacity (*r:* -0.29 in 2017, -0.43 in 2013, -0.47 in 2010), and statistical capacity (*r:* -0.35 in 2010). Untied aid thus mainly goes together with poor development outcomes, although it is positively and significantly related to economic growth (*r:* 0.39 in 2013, 0.30 in 2010).

We find other noteworthy (*r:* >= 0.35 or <= -0.35) statistically significant correlations between alignment at the results level (indicator 1a2) and education (*r:* -0.40 in 2017) and democracy (*r:* -0.35 in 2017); alignment at the monitoring and statistics level (indicator 1a3) and education (*r:* -0.36 in 2017); CSO enabling environment according to development partners (indicator 2dp) and state legitimacy (*r:* 0.39 in 2017); quality of public–private dialogue according to large enterprises (indicator 3psl) and control of corruption (*r:* 0.44 in 2017); the share of as-scheduled aid (indicator 5a1) and statistical capacity (*r:* 0.37 in 2010); the share of beyond-scheduled aid (indicator 5a2) and infant mortality (*r:* 0.35 in 2013) and state capacity (*r:* -0.39 in 2013); the share of budgeted as-

[4] We exclude data for 2020 and 2021 to ensure that our findings are not affected by COVID-19.

scheduled aid (indicator 6a) and authority (*r:* 0.35 in 2013); gender equality in aid (indicator 8) and control of corruption (*r:* 0.42 in 2017); and the quality of public financial management (PFM) systems (indicator 9a) and democracy (*r:* 0.37 in 2017) and statistical capacity (*r:* 0.49 in 2017).

Most of these correlations have the expected sign. The strongest correlations between the inclusive partnerships and transparency and accountability indicators and development outcomes have the expected sign. On the contrary the strongest relationships between the focus on results and development outcome indicators do not have the expected sign. Countries with higher alignment at the results level and at the monitoring and statistics level tend to have less educated citizens. Countries with higher alignment at the results level tend to also be less democratic. Overall the focus on results and ownership indicators tend to be associated with less desirable development outcomes than the inclusive partnerships and transparency and accountability indicators.

4.2 Descriptive time series analysis of indicators of aid effectiveness principles

Participation in the GPEDC monitoring exercise should foster the capacity to implement the effectiveness principles (GPEDC 2018). We therefore expect that countries that have participated in each monitoring round (i.e. actively reporting countries) have made tangible progress in implementing the effectiveness principles. However, in analysing the indicators that exist across monitoring rounds, we do not find any consistent trend in the effectiveness principles scores of actively reporting countries from 2010 to 2017. This does not necessarily mean that actively reporting countries have made less progress than non-actively reporting countries, as we do not have comparable data for this category, but it does demonstrate that active reporting does not generally go hand in hand with progress in adhering to the effectiveness principles.

For instance, in 16 out of 33 actively reporting countries, the share of as-scheduled aid (indicator 5a1)—in the monitoring framework, an indicator of ownership and aid predictability—actually declined from 2010 (Figure 1). In Benin, Burundi, Honduras, Kosovo, Moldova, and Peru, the decline between 2010 and 2017 was over 20 percentage points. The decline has been particularly steep in Benin, where the share of as-scheduled aid dropped from 94 per cent in 2010 to 43 per cent in 2017. Other countries have fared better, but only the scores of Cameroon, Kenya, and Togo improved by more than 20 percentage points.

Another example is the share of budgeted as-scheduled aid (indicator 6a)—in the monitoring framework, an indicator of transparency and accountability—which increased in 16 of the 28 actively reporting countries from 2010 to 2017 (Figure 2). In DR Congo, East Timor, Kenya, Mali, Philippines, Senegal, and Sudan, the increase was larger than 20 percentage points. In East Timor and Sudan, the increase was over 50 percentage points. Yet many other countries have reported a worsening of the state of affairs. In Burundi, Ethiopia, Malawi, Mozambique, Nepal, Peru, and Tanzania, the share of budgeted as-scheduled aid decreased by more than 20 percentage points between 2010 and 2017. In Malawi and Peru, the decrease was over 50 percentage points.

Consider further the use of country systems (indicator 9b)—another indicator of ownership in the monitoring framework—which increased in 16 out of 33 actively reporting countries between 2010 and 2017 (Figure 3). Improvements were larger than 20 percentage points in Albania, Cambodia, Cameroon, Guatemala, Honduras, Madagascar, Nepal, and Vietnam, but decreases were larger than 20 percentage points in Armenia, Ethiopia, Malawi, Peru, and Togo.

In brief, the data suggests no clear pattern of improvement in implementing the effectiveness principles for countries which actively participate in the monitoring exercise. Some actively reporting countries have made important progress, while many others have not, and some have experienced substantial backsliding. Among actively reporting countries, if we consider indicators

that exist in all monitoring rounds, only Madagascar and Cameroon have made considerable progress in more than two effectiveness principles indicators. Madagascar has recorded significant improvements in four (beyond-scheduled aid, budgeted beyond-scheduled aid, use of country systems, and untied aid) and Cameroon in three (as-scheduled aid, budgeted beyond-scheduled aid, and use of country systems) indicators. Conversely, the most significant backsliders have been Ethiopia (budgeted as-scheduled aid, budgeted beyond-scheduled aid, and use of country systems) and Peru (as-scheduled aid, budgeted as-scheduled aid, and use of country systems).

4.3 Descriptive time series analysis of indicators of institutional quality

As previously mentioned, active participation in the GPEDC monitoring exercise should have a positive impact on institutional quality. Yet an analysis of the evolution of institutional quality in actively reporting countries from 2010 to 2020 shows mixed results and important heterogeneity among different aspects of institutional quality and across countries.

Some actively reporting countries showed clear improvements in statistical capacity from 2010 to 2020 (Figure 4). This is the case especially for Albania (70.00 in 2010; 87.78 in 2020), East Timor (55.56 in 2010; 71.11 in 2020), and Togo (51.11 in 2010; 67.78 in 2020). However, other actively reporting countries such as Cambodia (73.33 in 2010; 60.00 in 2020), Ethiopia (80.00 in 2010; 47.78 in 2020), and Guatemala (85.56 in 2010; 73.33 in 2020) experienced significant deteriorations in statistical capacity. In most actively reporting countries statistical capacity actually decreased between 2010 and 2020. Therefore there seems to be no clear reward from active participation in the monitoring exercise in terms of building statistical capacity.

A relatively similar picture emerges from Figure 5, which illustrates the evolution of political stability in actively reporting countries. In countries such as Mali (-0.18 in 2010; -2.14 in 2020), Mozambique (0.39 in 2010; -1.16 in 2020), and Burkina Faso (-0.12 in 2010; -1.55 in 2020), political violence and stability deteriorated significantly from 2010 to 2020. Nepal (-1.58 in 2010; -0.20 in 2020), Sudan (-2.67 in 2010; -1.76 in 2020), and the Philippines (-1.65 in 2010; -0.79 in 2020), instead, experienced the largest improvements in political stability. In most actively reporting countries political stability increased from 2010 to 2020, but negative changes were larger in magnitude. On average, political stability in actively reporting countries decreased.

Figure 6 portrays a more promising picture of democracy in actively reporting countries. Around half of these countries recorded increases in the level of democracy between 2010 and 2020. The most important democratizations occurred in Armenia (0.34 in 2010; 0.80 in 2020), Madagascar (0.23 in 2010; 0.49 in 2020), and Niger (0.26 in 2010; 0.53 in 2020). Democratic erosion took place in some of the actively reporting countries as well, but at a slower pace. It was strongest in Bangladesh (0.46 in 2010; 0.26 in 2020), Cambodia (0.31 in 2010; 0.20 in 2020), and Mali (0.60 in 2010; 0.41 in 2020).

Similarly, our results appear more promising in terms of control of corruption: most actively reporting countries displayed more control of corruption in 2020 than in 2010 (Figure 7). The largest improvements according to the data occurred in Armenia (-0.70 in 2010; 0.03 in 2020), Samoa (0.12 in 2010; 0.69 in 2020), and Ethiopia (-0.69 in 2010; -0.36 in 2020), while the largest setbacks were in Guatemala (-0.53 in 2010; -1.10 in 2020), Madagascar (-0.43 in 2010; -0.97 in 2020), and Mozambique (-0.45 in 2010; -0.72 in 2020).

4.4 Economic growth

Figures S1–11 illustrate the link between economic growth and the GPEDC indicators available in the last two rounds of monitoring. The left-hand panels in the figures provide evidence on the

association between levels of effectiveness principles and levels of economic growth, by presenting the countries with the highest/lowest value in a given indicator of effectiveness principles and their respective annual GDP/capita growth. The right-hand panels provide evidence on the association between changes in effectiveness principles and changes in economic growth by presenting the countries with the largest positive/negative change in a given indicator of effectiveness principles and their respective change in GDP/capita growth. In most cases we do not see any significant difference in economic growth between the countries that have made most and least progress in implementing the principles. There are, however, some noteworthy exceptions to this rule.

In particular, we find that countries with the highest share of aid managed through national systems tend to have high economic growth rates (Figure S10, left-hand panel). Seven out of the ten best-performing countries in using national systems have a GDP/capita growth of at least 2.0 per cent. Only one (Sierra Leone) of the ten poorest performers in using national systems has a GDP/capita growth of at least 2.0 per cent. Moreover, no country with a high use of national systems has a negative growth rate. Negative GDP/capita growth seems to occur therefore only in countries where the share of aid managed through national systems is low.

Countries with high economic growth tend to also have high alignment at the monitoring and statistics level (Figure S3, left-hand panel). There are six high-alignment countries, but only one low-alignment country (Bosnia-Herzegovina), with a GDP/capita growth of higher than 2.0 per cent. Negative economic growth seems to occur only in countries with a small share of beyond-scheduled aid (Figure S6, left-hand panel). Countries with the largest positive changes in economic growth have all experienced a large increase in beyond-scheduled aid (Figure S6, right-hand panel). Negative economic growth seems to occur mainly in countries with weak government involvement in aid (Figure S4, left-hand panel) as well as in countries with the highest share of as-scheduled aid (Figure S5, left-hand panel). Nearly all countries with the smallest share of as-scheduled aid have positive growth rates. Conversely, countries with the largest negative changes in as-scheduled aid have experienced mainly negative changes in economic growth (Figure S5, right-hand panel).

4.5 Split-sample correlation analysis

To analyse whether better implementation of the effectiveness principles affects the relationship between aid dependence and development outcomes, we first split our sample between recipient countries that have implemented the principles well (i.e. countries with scores equal to or above the median) and countries that have not (i.e. countries that score below the median). We repeat this procedure one by one for each effectiveness principle indicator and run bivariate correlations between aid dependence (ODA/GNI) and our development outcomes separately with the two samples for each GPEDC indicator (Tables S12–S13, supplementary material). We find no evidence that better implementation of effectiveness principles is systematically related to a weaker or stronger interaction between aid dependence and development. In most cases there are no substantial differences in the correlation coefficients between the two samples. To determine whether a difference is substantial, we use a Fisher Z-test to assess whether the correlations—when at least one of the two coefficients is significant at conventional levels—are significantly different from each other.

In brief, our split-sample correlations suggest that overall progress in the implementation of the effectiveness principles does not affect the link between aid dependence and development. Out of 286 correlation pairs, only 18 are significantly affected by progress in implementing the effectiveness principles. The most noteworthy exception is that the relationship between aid dependence and institutions seems to be inverse in countries with a small share of as-scheduled aid (indicator 5a1) but mainly non-significant in countries with a large share of as-scheduled aid.

In this case we would expect that poor compliance with the effectiveness principles may be negatively affecting the association between ODA/GNI and institutional quality.

4.6 Principle-level analysis

Principle-level analysis can also be used to probe the linkages between the effectiveness principles and development outcomes. We synthesize the 2017 effectiveness principles data by creating new aggregate indices for each principle, investigate the links between elementary indicators and aggregate indices, analyse the relationship between aggregate indices and development outcomes, and explore overall country-level progress in implementing the principles.

First, we synthesize the data through exploratory factor analysis (Tables S14–S17, supplementary material). We extract one factor per principle to obtain four aggregate indices in total. Yet, by running a series of factor analyses without a priori restrictions on the number of extracted factors, we find that the GPEDC indicators are not actually best represented by one single factor per principle. Given that all factors with eigen values larger than 1.00 are commonly retained, purely statistical considerations would suggest that the five focus on results indicators are best represented by three factors, the five ownership indicators are best represented by three factors, the seven inclusive partnership indicators are best represented by two factors, and the four transparency and accountability indicators are best represented by two factors. Statistically speaking the effectiveness principles are not well represented by the GPEDC monitoring framework and its indicators.

Assuming that the extracted factors represent the four effectiveness principles, and keeping in mind that only 'loadings of 0.30 and above have commonly been listed among those high enough to provide some interpretive value' (Comrey and Lee 1992: 243), the results of our factor analysis indicate that indicator 1a1 (alignment at the objectives level) does not well reflect the focus on results principle, indicators 5a2 (share of beyond-scheduled aid) and 9a (PFM systems quality) do not well reflect the ownership principle, and indicator 8 (gender equality in aid) does not well reflect the transparency and accountability principle. The inclusive partnership indicators instead all have loadings of 0.30 or more, suggesting that they are all linked to the extracted factor.

Considering our previous results, it would be surprising to find any significant links between these aggregate indices and development outcomes. Correlation analysis (Tables S18–S19, supplementary material) confirms that there is no clear relationship between the effectiveness principles and development outcomes at the principle level. The only statistically significant—but weak—associations are between focus on results and education (*r:* -0.39), democracy (*r:* -0.28), and state capacity (*r:* -0.26); between ownership and education (*r:* -0.41); and between transparency and accountability and inequality (*r:* -0.34).

The new aggregate indices show that Somalia, Bangladesh, Moldova, and Sudan are the countries that have best implemented the focus on results, ownership, inclusive partnerships, and transparency and accountability principles, respectively (Table S20, supplementary material). The countries that have been worst at implementing the principles are, respectively, Liberia, Moldova, Kenya, and Benin. Interestingly, some countries fare well in terms of one principle but not in terms of another. The most striking case in this sense is Moldova, which has made more progress than any other country in implementing inclusive partnerships but has the lowest score worldwide in ownership. If we consider all the principles, Rwanda is the highest-ranked country in the world. It has one of the highest scores for focus on results, ownership, and inclusive partnerships, and an average score for transparency and accountability.

4.7 Case coverage and development outcomes

As previously noted, the case coverage of the effectiveness principles data is limited. Do recipient countries that participate in the GPEDC monitoring exercise fare better, equally, or worse than those that do not in terms of development outcomes? We divide our sample into two groups: (1) countries that report their data for a given effectiveness principles indicator and (2) countries that do not. The boxplots in Figures S12–S13 (supplementary material) provide interesting insights on this question.

Figure S12 shows that differences in development outcomes between the two groups of countries can be striking. Recipient countries that do not participate in the monitoring exercise have on average substantially higher GDP/capita than recipient countries that do participate in the monitoring exercise. The differences are less pronounced but are still evident in terms of GDP/capita growth, income inequality, education, and infant mortality. Countries that do not report their effectiveness principles indicators have systematically lower GDP/capita growth, higher income inequality, higher education, and lower infant mortality than countries that do report their effectiveness principles indicators. These results hold virtually regardless of the GPEDC indicator. For poverty instead we do not find any clear difference in median or average values between the two samples of countries, but dispersion is considerably higher in countries that do report their data.

Figure S13 shows that there are also some systematic differences in institutional quality between countries that participate in the GPEDC monitoring exercise and countries that do not. Especially in terms of state capacity, control of corruption, and political stability, countries that do participate in the monitoring exercise have systematically lower scores than countries that do not. The finding holds for all effectiveness principles indicators. In terms of democracy, authority, legitimacy, and statistical capacity, instead we find that countries that report focus on results data have systematically lower levels, on average, of democracy, authority, and statistical capacity compared to countries that do not.

These results suggest that our knowledge about country-level progress in implementing the effectiveness principles and about the relationship between the principles and development outcomes may be distorted by the limited case coverage of the GPEDC indicators. Recipient countries that do not report their effectiveness principles indicators are generally better off than recipient countries that participate in the GPEDC monitoring exercise. Convincing all countries to report their indicators would provide a more accurate picture of the implementation of effectiveness principles worldwide.

5 Conclusions

The effectiveness principles are framed in terms of their instrumental value for aid which is more effective in delivering better development outcomes. While there is diverse evidence pointing to the value of the principles in selected aid projects and programmes, the evidence to date does not offer systematic conclusions about the link between adherence to the effectiveness principles and better development outcomes at the cross-country level. In this study we address this gap using data drawn from the principal effort to monitor adherence to the principles—the GPEDC monitoring framework. To our knowledge this is the first study to provide such analysis.

We use a variety of statistical methods, but regardless of the chosen approach, empirical support for the association between effectiveness principles and development outcomes is weak at best.

This overall finding should be understood as a lack of evidence and not necessarily evidence of absence: i.e. our findings suggest that there is little evidence at the global level, using current monitoring data, that the effectiveness principles support better development outcomes, and equally that there is little evidence that such a relationship does not exist.

Our consideration of the GPEDC monitoring framework and its indicators suggests that the data is a key reason for this lack of evidence. In our view some shortcomings in the data could be fixed straightforwardly with adjustments to the indicators and data collection approaches. To enhance the content validity of the monitoring indicators, the four principles could be more explicitly linked to their indicators and sub-indicators, these links could be justified, and the boundaries between the four principles could be more clearly defined. To improve the data generation process of the indicators, a way forward is to increase geographical coverage by convincing more countries to participate in the monitoring exercise and to increase temporal coverage by collecting and publishing the data on a yearly basis.

That said, the effectiveness principles cover multiple areas that are inherently challenging to measure. A substantial research literature on the measurement of corruption and accountability, for instance, underscores this point. Demonstrating the development impact of the effectiveness principles is also likely to remain complicated even with better data. Moreover, the value of the monitoring exercise arguably lies more in the process of building national attention to the effectiveness principles and their implementation than in building a social scientifically rigorous dataset. In sum, regardless of whether the link between effectiveness principles and development outcomes can be empirically shown with rigour, we believe that the effectiveness agenda should shift its attention to emphasizing the usefulness of the principles in relation to the universally agreed objectives of strengthening international partnerships and cooperation as well as building inclusive, effective, accountable, and transparent institutions, as declared in the 2030 Agenda for Sustainable Development. The strongest 'why' case for the effectiveness principles lies in their intrinsic value in this sense rather than in their unequivocal empirical impact.

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Tables and figures

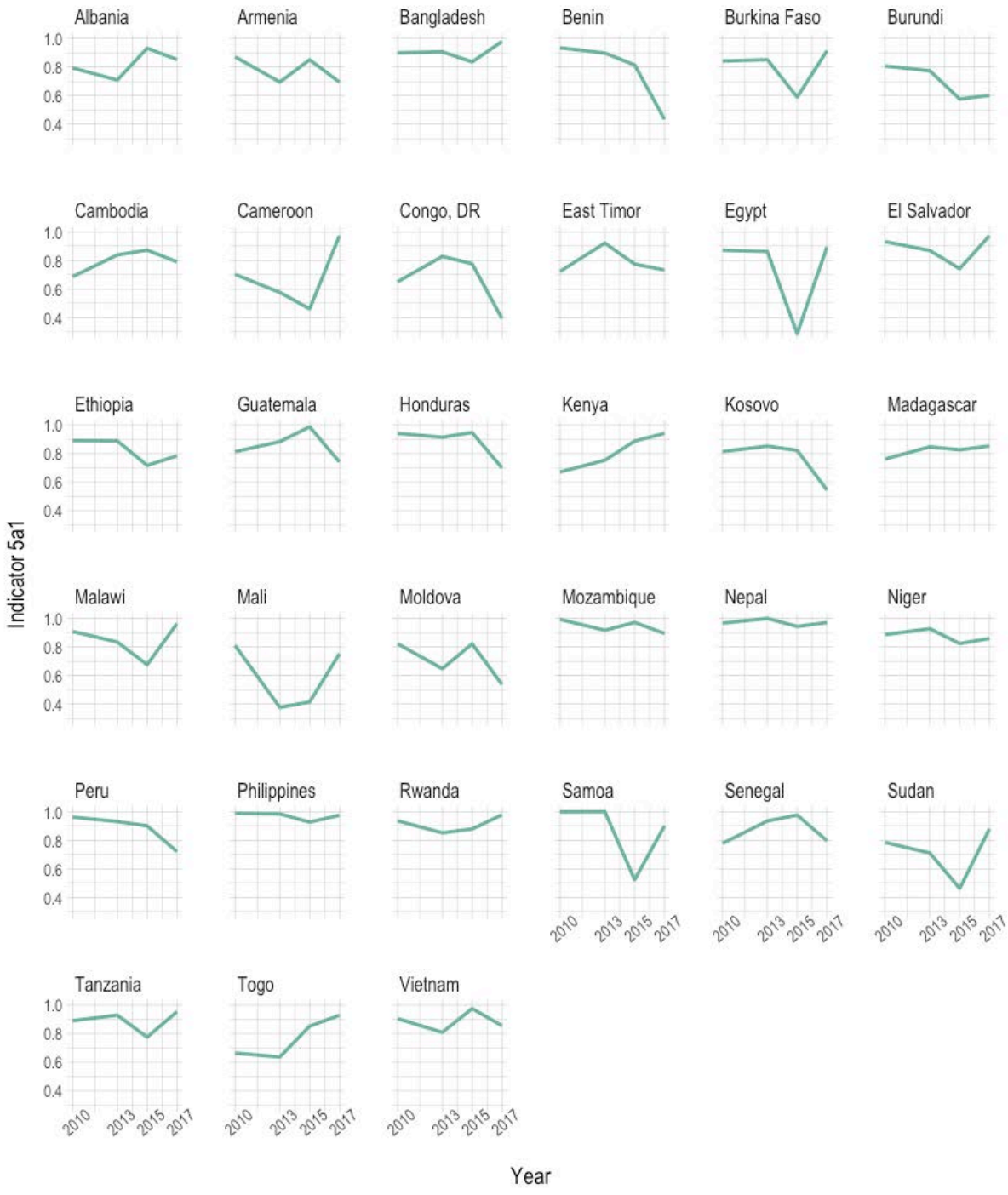
Table 1: Principles of effective development cooperation and GPEDC monitoring indicators dataset for recipient countries

Principle	Description	Indicator	Sub-indicators or additional description
Focus on results	'Development support is directed to achieving measurable results & progress is monitored'	Countries strengthen their national results frameworks (1b)	Presence of national results frameworks used to define and track the country's development priorities, targets, and results (1b)
		Development partners use country-led results frameworks (1a)	Alignment at objectives level: percentage of development interventions whose objectives are drawn from country-led result frameworks (1a1)
			Alignment at results level: percentage of development interventions whose objectives are drawn from country-led result frameworks (1a2)
			Alignment at monitoring and statistics level: percentage of development interventions whose objectives are drawn from country-led result frameworks (1a3)
			Percentage of new interventions that plan a final evaluation with government involvement (1a4)
Ownership	'Countries set their own national development priorities' and 'development partners align their support to national priorities using country systems'	Development co-operation is predictable: annual predictability (5a)	Proportion of development cooperation flows disbursed as scheduled by development partners (5a1)
			Proportion of development cooperation flows disbursed beyond scheduled by development partners (5a2)
		Development co-operation is predictable: medium-term predictability (5b)	Existence of annual forward-looking spending plans shared with the partner government (5b)
		Quality of countries' public financial management systems (9a)	Quality of national budgeting, financial reporting, auditing, and procurement systems (9a)
		Development partners use country systems (9b)	Proportion of disbursed development cooperation that is managed using country-owned norms, procedures and systems for budget management and execution, financial reporting, auditing, and procurement (9b)
		Aid is untied (10)	Share of development cooperation committed for disbursement without legal and regulatory barriers to open competition for procurement (10)
Inclusive partnerships	'Development partnerships are inclusive, recognising & building on the different and complementary role of all actors'	Quality of public–private dialogue (3)	Country scores according to national government (3gov)
			Country scores according to important business groups and large firms (3psl)
			Country scores according to small and medium-sized enterprises (3sme)
			Country scores according to trade unions (3tu)
		Civil society organizations operate within an environment that maximizes their engagement in and contribution to development (2)	Country scores according to national government (2gov)
			Country scores according to focal points from civil society organizations (2cso)
			Country scores according to development partners (2dp)

Transparency and mutual accountability	'Countries and development partners are jointly responsible for achieving these goals & ensuring that information is available to partners, citizens, & beneficiaries'	Transparent information on development co-operation is publicly available (4)	Percentage of development partners providing development cooperation that are included in a government's data management tools (4)
		Mutual accountability among development actors is strengthened through inclusive reviews (7)	Existence of inclusive mutual assessment reviews (7)
		Development co-operation is included in budgets subject to parliamentary oversight (6)	Proportion of development cooperation flows as scheduled recorded in national budget (6a)
			Proportion of development cooperation flows beyond scheduled recorded in national budget (6b)
		Countries have systems to track and make public allocations for gender equality and women's empowerment (8)	Existence of gender responsive programmes and resource allocations, of mechanisms to track these resource allocations, and public availability of information on these resource allocations (8)

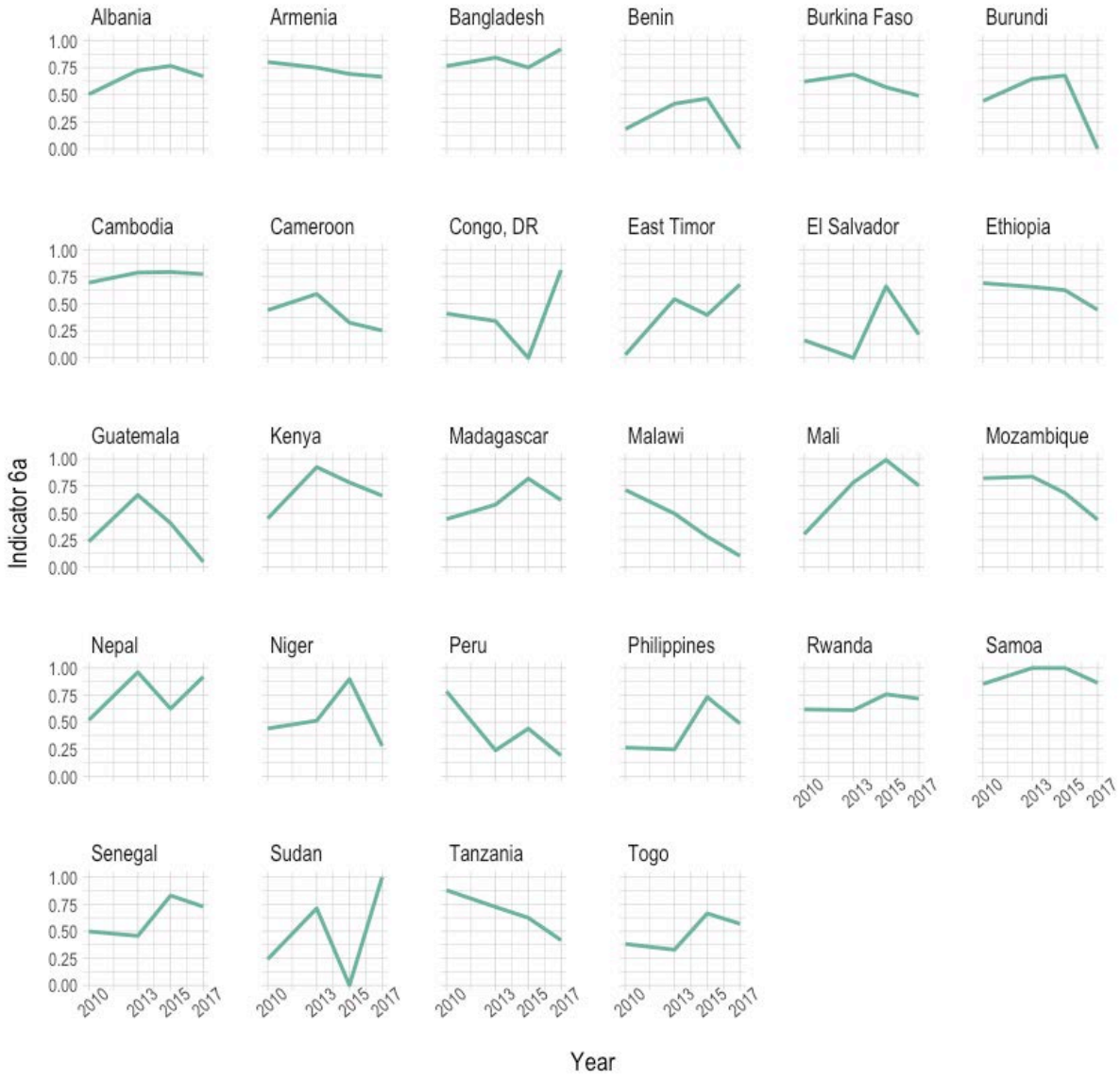
Source: GPEDC (2018, 2020: 2, 2021).

Figure 1: The share of as-scheduled aid (indicator 5a1) from 2010 to 2017



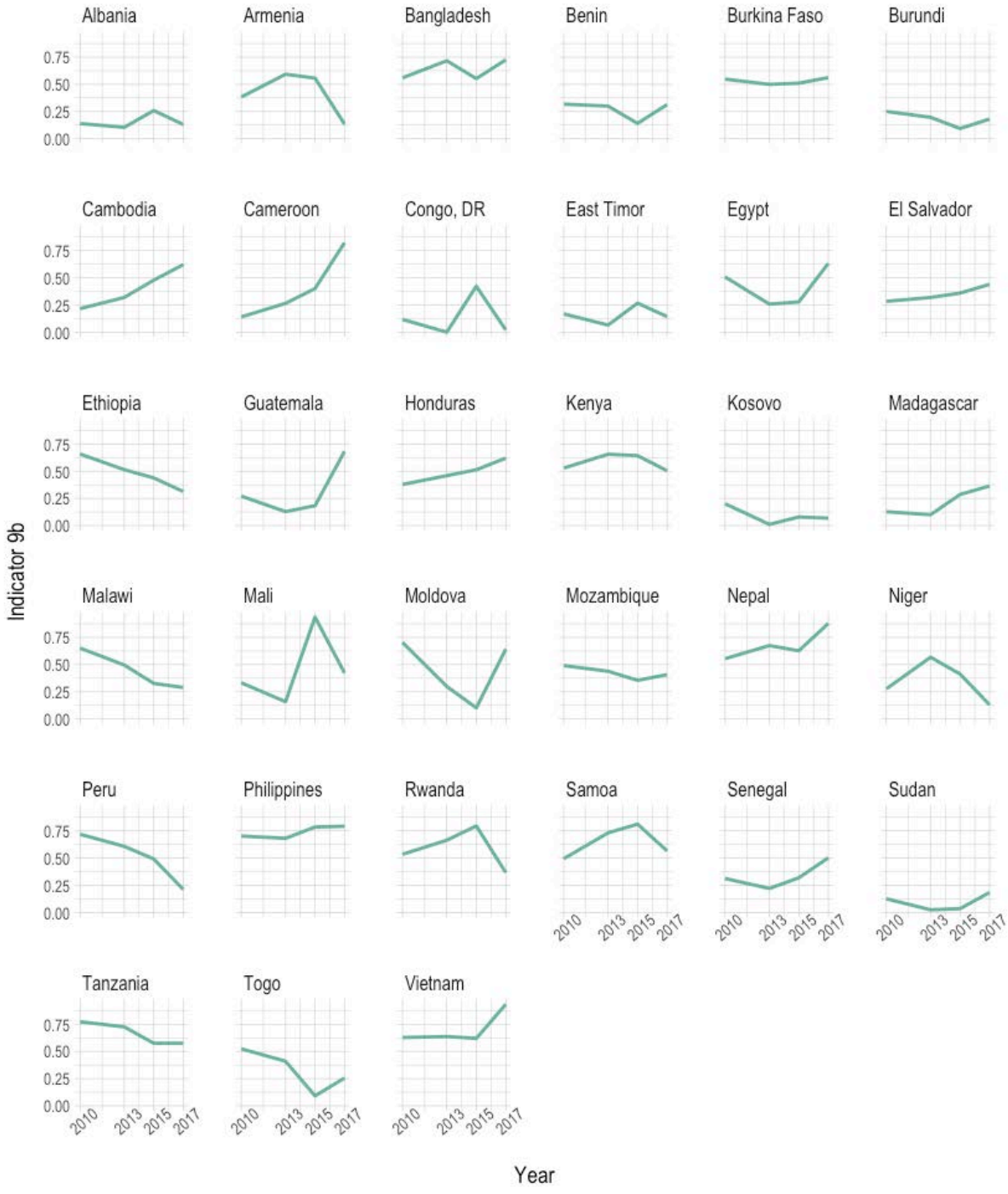
Source: authors' construction.

Figure 2: The share of budgeted as-scheduled aid (indicator 6a) from 2010 to 2017



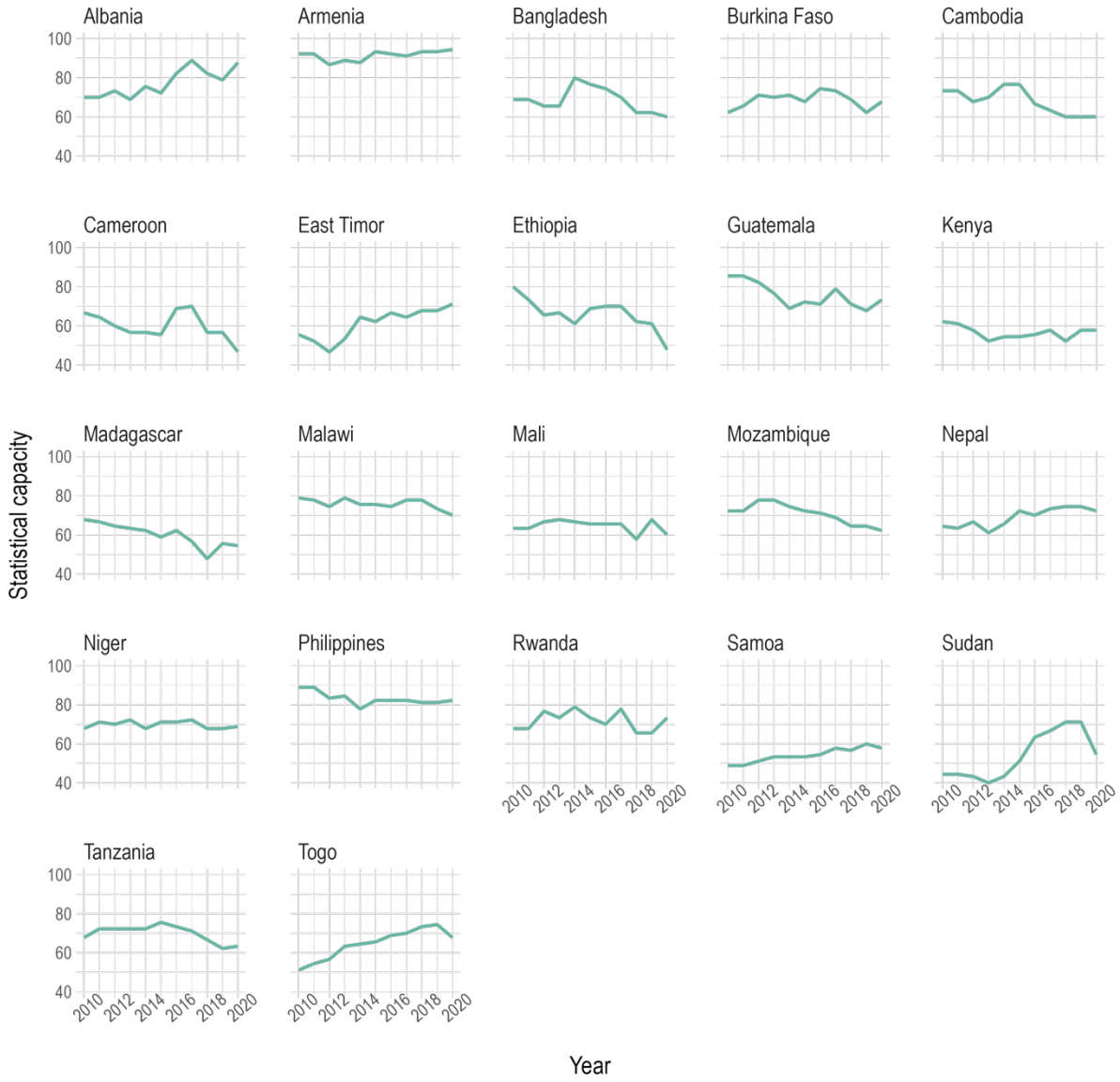
Source: authors' construction.

Figure 3: Use of country systems by development partners (indicator 9b) from 2010 to 2017



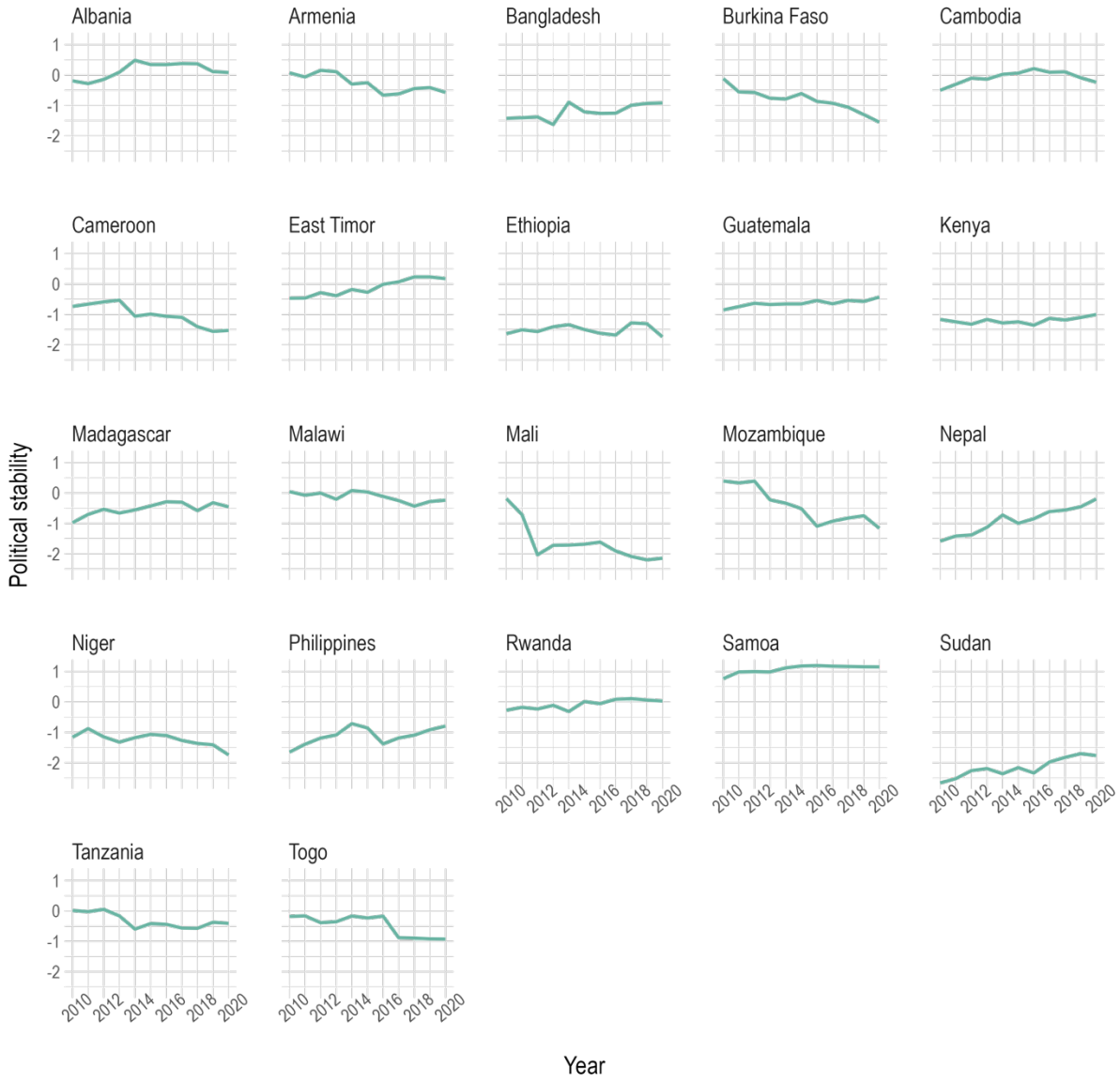
Source: authors' construction.

Figure 4: Statistical capacity (2010–20) in actively reporting countries



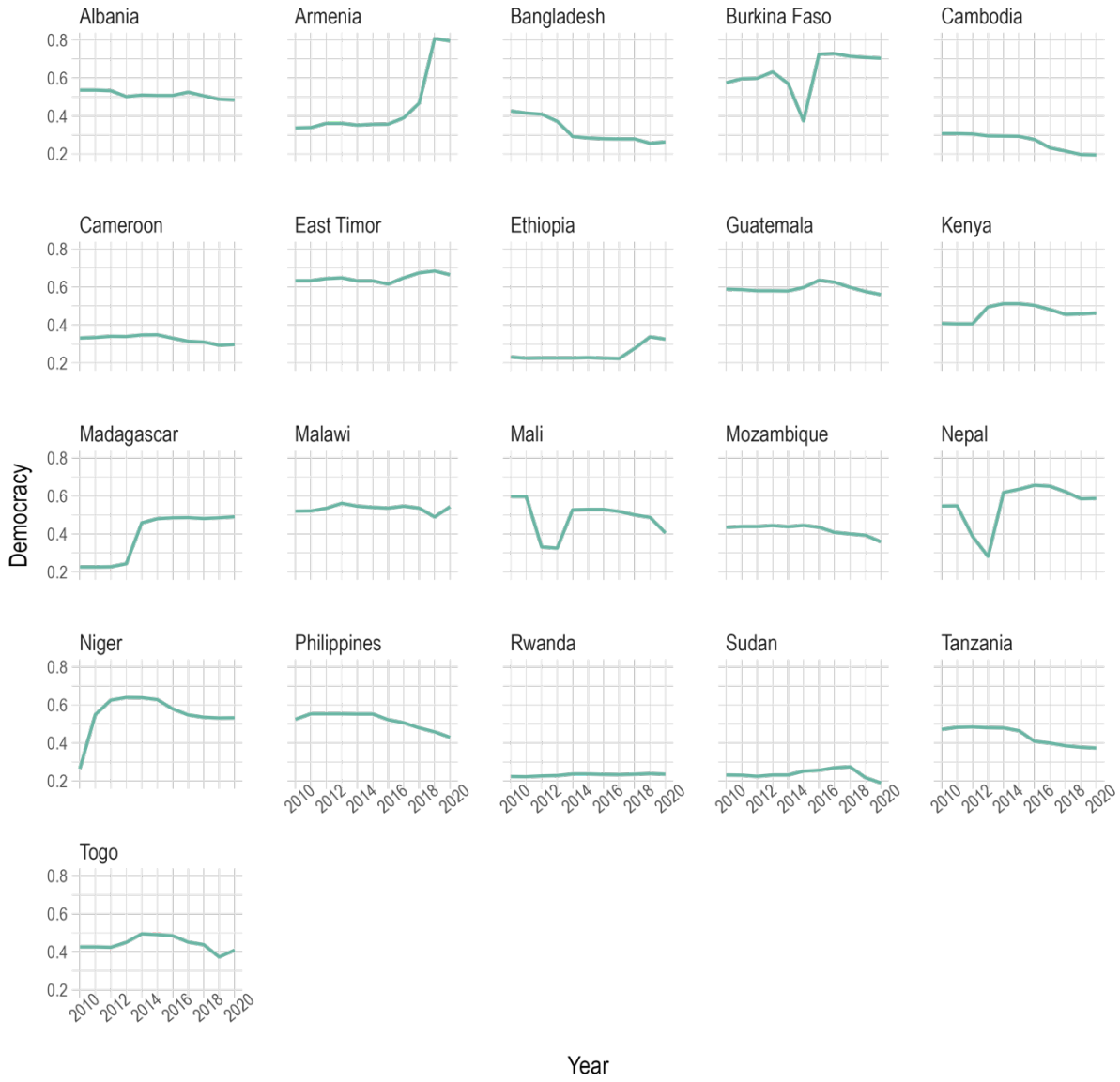
Source: authors' construction.

Figure 5: Political stability (2010–20) in actively reporting countries



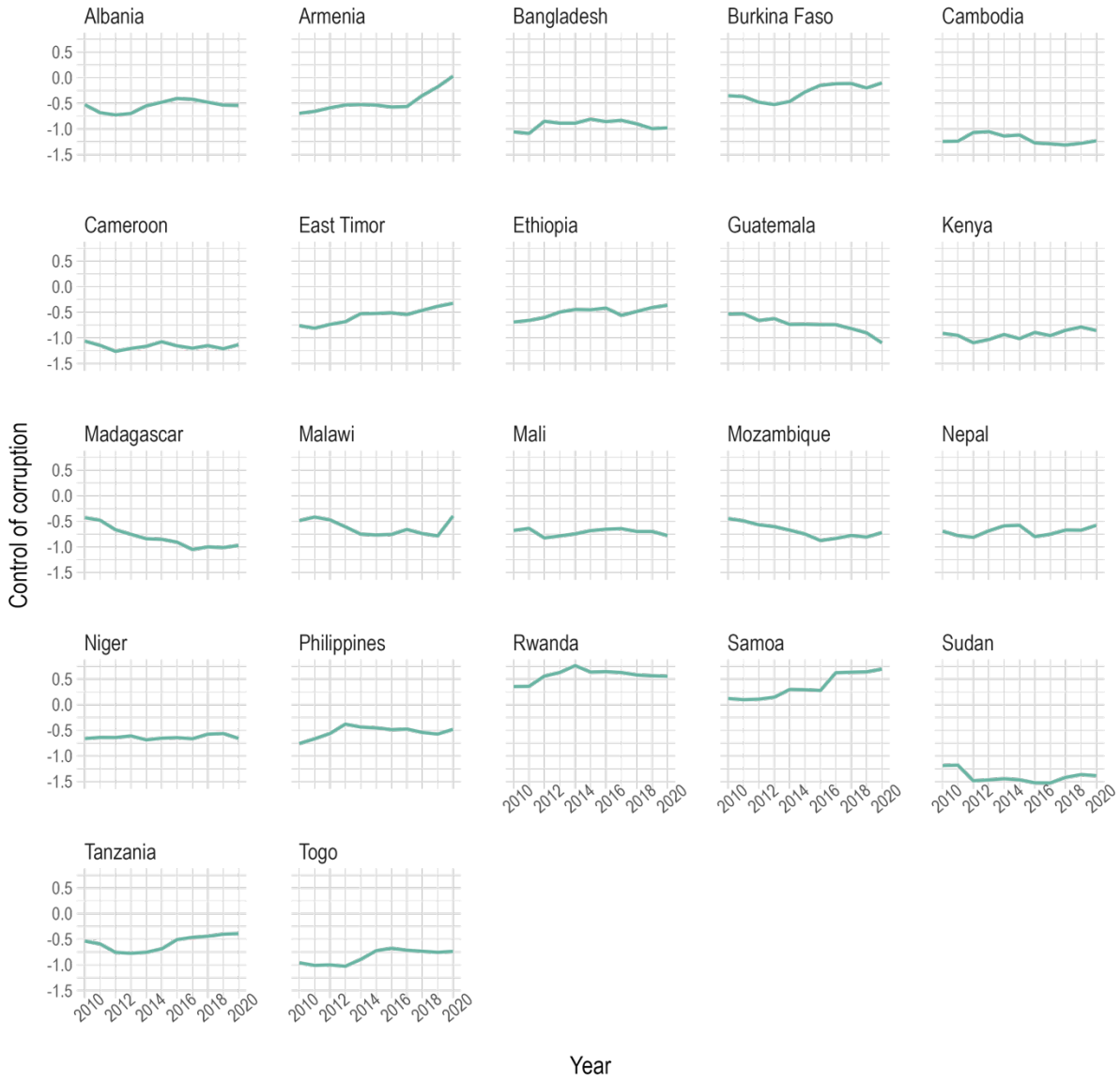
Source: authors' construction.

Figure 6: Democracy (2010–20) in actively reporting countries



Source: authors' construction.

Figure 7: Control of corruption (2010–20) in actively reporting countries



Source: authors' construction.

Supplementary material

Table S1: Countries with available data on effectiveness principles across monitoring years

	Year			
GPEDC indicator	2017	2015	2013	2010
Indicator 1a1	84	81	0	0
Indicator 1a2	80	81	0	0
Indicator 1a3	80	81	0	0
Indicator 1a4	80	81	0	0
Indicator 1b	86	0	0	0
Indicator 2gov	46	59	0	0
Indicator 2cso	44	0	0	0
Indicator 2dp	34	0	0	0
Indicator 3gov	47	55	0	0
Indicator 3psl	42	0	0	0
Indicator 3sme	38	0	0	0
Indicator 3tu	35	0	0	0
Indicator 4	73	0	0	0
Indicator 5a1	83	79	40	78
Indicator 5a2	83	79	44	78
Indicator 5b	65	79	46	0
Indicator 6a	60	72	39	72
Indicator 6b	54	66	41	69
Indicator 7	83	81	46	0
Indicator 8	69	0	0	0
Indicator 9a	51	0	0	0
Indicator 9b	84	80	46	78
Indicator 10	69	78	45	73

Note: entries are numbers of observations (recipient countries) with available data for a given indicator and year.

Table S2: Definition, year, and source of development outcomes data

Variable	Definition	Year	Source
GDP/capita	GDP/capita (latent variable model point estimate, based on multiple sources)	2019	Coppedge et al. (2022)
Growth	Annual GDP/capita growth	2019	World Bank (2022)
Poverty	Poverty headcount ratio at 1.90$ a day	2019	World Bank (2022)
Inequality	Gini index	2019	World Bank (2022)
Education	Years of education among citizens older than 15	2019	Coppedge et al. (2022)
Health	Infant mortality rate	2019	World Bank (2022)
ODA/GNI	Official development assistance/GNI	2019	World Bank (2022)
Democracy	Electoral democracy index	2019	Teorell et al. (2019)
Authority	State authority index	2015	Ziaja et al. (2019)
Capacity	State capacity index	2015	Ziaja et al. (2019)
Legitimacy	State legitimacy index	2015	Ziaja et al. (2019)
Corruption	Control of corruption	2019	Kaufmann et al. (2011)
Statistical capacity	Overall statistical capacity score	2019	World Bank (2022)
Political stability	Political stability and absence of violence	2019	Kaufmann et al. (2011)

Note: if data for 2019 is missing in indicators collected from the World Bank's World Development Indicators, we use the value of the last available year before 2019.

Table S3: Summary statistics of the main variables used in our analysis

Variable	Observations	Mean	SD	Min	Max
Indicator 1a1	66	0.822	0.164	0.308	1.000
Indicator 1a2	66	0.563	0.199	0.084	1.000
Indicator 1a3	66	0.481	0.198	0.000	1.000
Indicator 1a4	64	0.555	0.239	0.000	1.000
Indicator 1b	67	0.794	0.164	0.000	1.000
Indicator 2gov	41	0.617	0.174	0.000	0.979
Indicator 2cso	38	0.534	0.131	0.313	0.865
Indicator 2dp	31	0.623	0.142	0.333	0.979
Indicator 3gov	41	0.656	0.238	0.000	1.000
Indicator 3psl	37	0.546	0.227	0.000	1.000
Indicator 3sme	34	0.500	0.286	0.000	1.000
Indicator 3tu	30	0.556	0.287	0.000	1.000
Indicator 4	59	0.812	0.266	0.000	1.000
Indicator 5a1	66	0.856	0.147	0.393	1.000
Indicator 5a2	66	0.180	0.197	0.000	0.819
Indicator 5b	55	0.588	0.333	0.000	1.000
Indicator 6a	50	0.490	0.301	0.000	1.000
Indicator 6b	45	0.331	0.278	0.000	0.889
Indicator 7	66	0.500	0.504	0.000	1.000
Indicator 8	57	1.035	0.654	0.000	2.000
Indicator 9a	43	2.465	1.099	1.000	4.000
Indicator 9b	66	0.366	0.248	0.000	0.933
Indicator 10	51	0.797	0.130	0.478	0.994
GDP/capita	67	5.906	5.760	0.737	28.706
Growth	67	-4.188	4.712	-16.322	8.252
Poverty	63	22.924	23.338	0.000	78.800
Inequality	63	38.183	6.918	24.400	56.200
Education	54	5.532	2.635	1.310	10.902
Health	67	33.981	20.120	2.000	80.100
ODA/GNI	66	6.267	6.537	-0.005	25.684
Democracy	67	0.446	0.180	0.128	0.899
Authority	67	0.502	0.181	0.000	0.790
Capacity	67	0.400	0.177	0.100	0.880
Legitimacy	67	0.428	0.175	0.000	0.790
Corruption	67	-0.659	0.625	-1.816	1.553
Political stability	67	-0.591	0.801	-2.801	1.117
Statistical capacity	67	65.406	14.894	26.667	96.667

Note: our dataset includes only countries that exist in the German Development Institute's Constellations of Fragility dataset (Ziaja et al. 2019). Therefore, countries and territories such as Kiribati, Antigua and Barbuda, Saint Lucia, and Cook Islands are dropped from our statistical analysis, even if they have participated in the GPEDC monitoring exercise. The GPEDC data in this table refers to 2017.

Table S4: Correlations between indicators of focus on results and economic and social development outcomes

		GDP/capita	n	Growth	n	Poverty	n	Inequality	n	Education	n	Health	n
2017	1a1	0.119	66	0.068	66	-0.043	62	-0.010	62	0.141	53	0.070	66
	1a2	-0.135	66	0.246*	66	0.177	62	0.131	62	-0.400**	53	0.230	66
	1a3	0.035	66	0.150	66	0.024	62	0.072	62	-0.361**	53	0.152	66
	1a4	-0.270*	64	0.140	64	-0.063	60	0.146	60	-0.229	52	0.039	64
	1b	-0.254*	67	0.077	67	0.160	63	0.187	63	-0.266	54	0.073	67
2015	1a1	0.035	66	0.048	66	-0.032	64	0.187	64	0.140	56	0.035	66
	1a2	0.148	66	-0.154	66	-0.065	64	0.072	64	0.101	56	-0.131	66
	1a3	0.119	66	-0.099	66	-0.016	64	0.040	64	0.096	56	-0.095	66
	1a4	-0.151	66	0.057	66	0.056	64	0.221	64	-0.144	56	-0.038	66

Note: Pearson's correlation coefficients; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; n = observations. In indicators of poverty, inequality, and health, lower scores represent normatively more desirable outcomes.

Table S5: Correlations between indicators of focus on results and institutions

		Democracy	n	Authority	n	Capacity	n	Legitimacy	n	Corruption	n	Statistical capacity	n	Political stability	n
2017	1a1	-0.011	66	-0.061	66	-0.085	66	-0.001	66	-0.061	66	0.050	66	-0.094	66
	1a2	-0.350**	66	-0.019	66	-0.319**	66	-0.277*	66	-0.244*	66	-0.213	66	-0.099	66
	1a3	-0.342**	66	0.067	66	-0.153	66	-0.145	66	-0.064	66	-0.130	66	-0.017	66
	1a4	-0.028	64	-0.071	64	-0.155	64	0.027	64	0.022	64	-0.033	64	0.064	64
	1b	-0.044	67	-0.010	67	-0.174	67	-0.135	67	0.247*	67	0.131	67	0.005	67
2015	1a1	-0.040	66	-0.028	66	-0.044	66	-0.012	66	-0.081	66	-0.084	66	0.091	66
	1a2	-0.010	66	0.187	66	0.090	66	0.277*	66	0.104	66	0.035	66	0.241	66
	1a3	0.061	66	0.167	66	0.086	66	0.086	66	0.058	66	0.015	66	0.183	66
	1a4	-0.017	66	0.056	66	-0.046	66	-0.111	66	-0.069	66	-0.127	66	0.103	66

Note: Pearson's correlation coefficients; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; n = observations. Higher values represent normatively more desirable outcomes across institutional indicators.

Table S6: Correlations between indicators of ownership and economic and social development outcomes

		GDP/capita	n	Growth	n	Poverty	n	Inequality	n	Education	n	Health	n
2017	5a1	0.235	66	-0.120	66	-0.173	62	-0.093	62	0.109	53	-0.066	66
	5a2	0.016	66	-0.009	66	-0.124	62	-0.149	62	0.058	53	-0.058	66
	5b	-0.026	55	0.236	55	-0.087	52	-0.166	52	-0.051	42	0.081	55
	9a	0.267	43	-0.109	43	-0.219	41	-0.145	41	0.333	35	-0.167	43
	9b	-0.065	66	0.046	66	-0.256*	62	0.140	62	0.049	53	-0.316**	66
	10	-0.145	51	0.184	51	0.335*	49	0.028	49	-0.205	40	0.268	51
2015	5a1	0.295*	65	-0.167	65	-0.184	63	0.080	63	0.308*	55	-0.228	65
	5a2	-0.138	65	0.160	65	-0.060	63	0.025	63	-0.250	55	0.005	65
	5b	-0.098	66	0.072	66	0.120	64	-0.109	64	-0.015	56	-0.028	66
	9b	-0.103	65	-0.164	65	0.026	63	0.032	63	-0.076	55	0.022	65
	10	-0.204	63	0.167	63	0.134	61	-0.154	61	-0.083	53	0.117	63
2013	5a1	-0.092	37	0.140	37	0.053	36	-0.004	36	-0.154	32	-0.078	37
	5a2	-0.309	37	0.175	37	0.274	36	-0.116	36	-0.205	32	0.349*	37
	5b	-0.035	37	0.149	37	-0.102	36	-0.162	36	-0.037	32	0.067	37
	9b	0.097	37	-0.014	37	-0.097	36	0.023	36	0.094	32	-0.257	37
	10	-0.497**	36	0.390*	36	0.417*	35	0.069	35	-0.466**	31	0.393*	36
2010	5a1	0.182	70	-0.138	70	-0.209	68	0.071	68	0.095	58	-0.244*	70
	5a2	-0.244*	70	0.049	70	0.095	68	-0.137	68	-0.079	58	0.228	70
	9b	0.111	70	0.053	70	-0.111	68	-0.137	68	0.060	58	-0.208	70
	10	-0.403***	67	0.300*	67	0.410***	65	0.196	65	-0.413**	55	0.457***	67

Note: Pearson's correlation coefficients; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; n = observations. In indicators of poverty, inequality, and health, lower scores represent normatively more desirable outcomes.

Table S7: Correlations between indicators of ownership and institutions

		Democracy	n	Authority	n	Capacity	n	Legitimacy	n	Corruption	n	Statistical capacity	n	Political stability	n
2017	5a1	0.042	66	0.192	66	0.103	66	0.208	66	0.256*	66	0.002	66	0.209	66
	5a2	0.132	66	0.019	66	0.159	66	0.102	66	-0.048	66	0.077	66	-0.044	66
	5b	-0.099	55	0.206	55	-0.186	55	-0.110	55	0.108	55	-0.055	55	0.132	55
	9a	0.372*	43	0.135	43	0.233	43	0.248	43	0.339*	43	0.489***	43	0.308*	43
	9b	0.039	66	-0.090	66	0.223	66	0.100	66	0.276*	66	0.231	66	0.041	66
	10	-0.245	51	0.270	51	-0.285*	51	0.023	51	-0.099	51	-0.017	51	-0.140	51
2015	5a1	0.192	65	0.010	65	0.282*	65	0.187	65	0.242	65	0.015	65	0.328**	65
	5a2	-0.065	65	-0.210	65	-0.072	65	-0.083	65	-0.123	65	-0.028	65	-0.142	65
	5b	-0.048	66	0.296*	66	-0.024	66	0.054	66	0.028	66	0.063	66	0.044	66
	9b	0.147	65	0.078	65	-0.053	65	0.180	65	0.142	65	-0.031	65	-0.043	65
	10	-0.057	63	0.143	63	-0.135	63	0.054	63	0.011	63	-0.068	63	-0.016	63
2013	5a1	0.056	37	0.176	37	0.020	37	0.221	37	0.233	37	0.104	37	0.128	37
	5a2	-0.038	37	-0.049	37	-0.386*	37	0.057	37	-0.153	37	0.003	37	-0.303	37
	5b	0.084	37	0.379*	37	-0.052	37	0.128	37	0.329*	37	0.094	37	0.166	37
	9b	0.152	37	0.106	37	0.239	37	0.123	37	0.335*	37	0.159	37	0.096	37
	10	-0.243	36	0.122	36	-0.434**	36	-0.055	36	-0.260	36	-0.135	36	-0.206	36
2010	5a1	-0.038	70	0.035	70	0.332**	70	0.050	70	0.240*	70	0.371**	70	0.111	70
	5a2	-0.128	70	-0.038	70	-0.218	70	-0.123	70	-0.073	70	0.122	70	-0.176	70
	9b	-0.017	70	0.343**	70	0.216	70	0.197	70	0.301*	70	0.275*	70	0.063	70
	10	-0.166	67	0.145	67	-0.465***	67	-0.004	67	-0.001	67	-0.347**	67	-0.008	67

Note: Pearson's correlation coefficients; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; n = observations. Higher values represent normatively more desirable outcomes across institutional indicators.

Table S8: Correlations between indicators of inclusive partnerships and economic and social development outcomes

		GDP/capita	n	Growth	n	Poverty	n	Inequality	n	Education	n	Health	n
2017	2gov	0.222	41	-0.314*	41	-0.220	40	-0.068	40	0.033	33	-0.048	41
	2cso	-0.163	38	0.025	38	-0.101	37	-0.222	37	-0.181	30	0.172	38
	2dp	-0.044	31	0.080	31	-0.322	30	-0.180	30	-0.045	25	0.111	31
	3gov	0.009	41	0.089	41	0.136	39	0.010	39	0.015	33	0.166	41
	3psl	-0.008	37	-0.063	37	0.111	35	0.223	35	-0.232	30	0.042	37
	3sme	-0.202	34	0.070	34	0.207	32	0.263	32	-0.325	28	0.333	34
	3tu	0.107	30	0.064	30	0.248	28	0.067	28	-0.002	24	0.015	30
2015	2	-0.226	52	0.029	52	0.015	50	-0.133	50	0.094	46	0.063	52
	3	0.115	50	-0.164	50	-0.048	49	0.039	49	-0.004	44	-0.071	50

Note: Pearson's correlation coefficients; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; n = observations. In indicators of poverty, inequality, and health, lower scores represent normatively more desirable outcomes.

Table S9: Correlations between indicators of inclusive partnerships and institutions

		Democracy	n	Authority	n	Capacity	n	Legitimacy	n	Corruption	n	Statistical capacity	n	Political stability	n
2017	2gov	0.176	41	-0.001	41	0.154	41	0.210	41	0.226	41	0.172	41	0.278	41
	2cso	0.160	38	-0.042	38	-0.146	38	0.073	38	0.210	38	0.141	38	0.045	38
	2dp	0.308	31	-0.133	31	-0.076	31	0.387*	31	0.139	31	0.115	31	0.155	31
	3gov	-0.024	41	0.344*	41	-0.137	41	0.301	41	0.099	41	-0.052	41	-0.004	41
	3psl	0.108	37	0.129	37	-0.040	37	0.309	37	0.441**	37	0.056	37	0.146	37
	3sme	-0.168	34	0.008	34	-0.259	34	0.183	34	0.174	34	-0.193	34	-0.167	34
	3tu	0.133	30	0.184	30	0.035	30	0.289	30	0.223	30	0.220	30	0.079	30
2015	2	-0.033	52	0.342	52	-0.006	52	0.000	52	0.004	52	0.083	52	0.111	52
	3	0.119	50	0.161	50	0.080	50	0.009	50	0.204	50	-0.120	50	0.188	50

Note: Pearson's correlation coefficients; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; n = observations. Higher values represent normatively more desirable outcomes across institutional indicators.

Table S10: Correlations between indicators of transparency and mutual accountability and economic and social development outcomes

		GDP/capita	n	Growth	n	Poverty	n	Inequality	n	Education	n	Health	n
2017	4	-0.271*	59	0.162	59	-0.001	56	0.044	56	-0.128	48	0.082	59
	6a	-0.053	50	0.107	50	0.016	47	-0.295*	47	0.066	40	0.015	50
	6b	-0.026	45	-0.005	45	0.106	43	-0.181	43	0.092	36	0.145	45
	8	-0.013	57	0.051	57	-0.219	53	0.021	53	-0.011	45	-0.199	57
2015	6a	-0.028	60	-0.007	60	-0.028	58	0.078	58	-0.076	50	-0.262*	60
	6b	-0.127	53	0.147	53	0.061	51	0.014	51	-0.010	45	-0.064	53
2013	6a	-0.094	37	0.152	37	-0.003	36	-0.161	36	-0.117	32	0.108	37
	6b	-0.153	36	0.095	36	0.051	35	0.030	35	0.009	31	0.150	36
2010	6a	0.159	65	0.098	65	-0.027	63	-0.027	63	0.079	54	-0.238	65
	6b	-0.068	63	0.006	63	0.180	61	0.133	61	-0.062	52	0.237	63

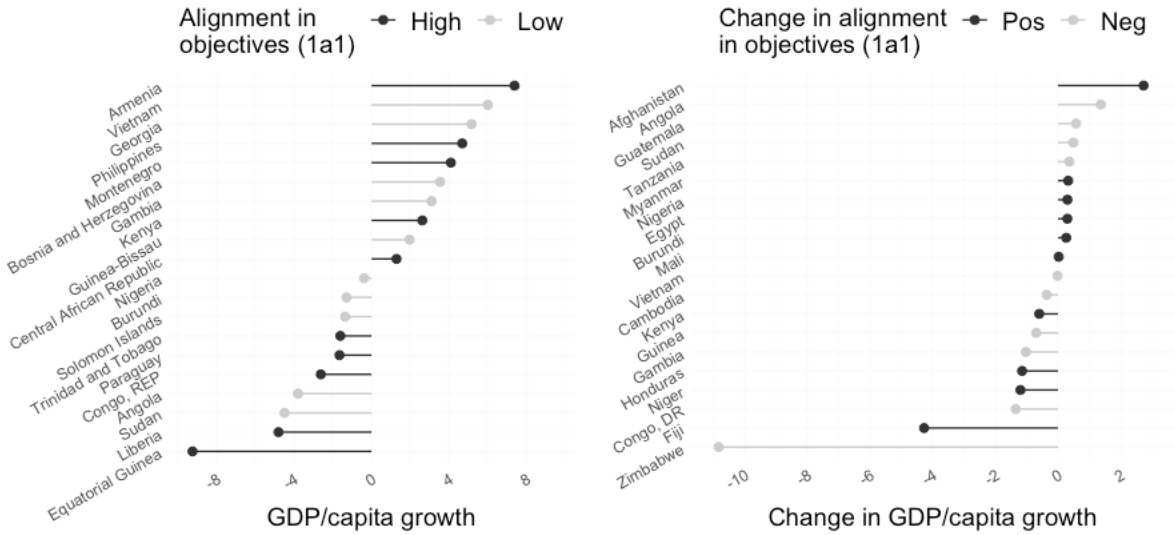
Note: Pearson's correlation coefficients; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; n = observations. In indicators of poverty, inequality, and health, lower scores represent normatively more desirable outcomes.

Table S11: Correlations between indicators of transparency and mutual accountability and institutions

		Democracy	n	Authority	n	Capacity	n	Legitimacy	n	Corruption	n	Statistical capacity	n	Political stability	n
2017	4	0.211	59	-0.086	59	-0.068	59	0.226	59	0.290	59	0.079	59	0.064	59
	6a	0.062	50	0.012	50	-0.067	50	0.032	50	-0.035	50	-0.065	50	-0.165	50
	6b	0.121	45	-0.033	45	-0.234	45	-0.014	45	-0.246	45	-0.050	45	-0.192	45
	8	0.083	57	0.247	57	0.110	57	0.180	57	0.417**	57	0.144	57	0.188	57
2015	6a	0.324*	60	0.242	60	0.184	60	0.253	60	0.325*	60	0.249	60	0.157	60
	6b	-0.063	53	0.014	53	-0.094	53	0.094	53	-0.098	53	-0.120	53	-0.058	53
2013	6a	-0.182	37	0.353*	37	-0.123	37	0.052	37	0.055	37	-0.129	37	-0.026	37
	6b	0.034	36	-0.112	36	-0.215	36	0.117	36	-0.048	36	0.144	36	-0.071	36
2010	6a	-0.046	65	0.318**	65	0.246*	65	0.052	65	0.063	65	0.336**	65	-0.039	65
	6b	-0.078	63	-0.111	63	-0.225	63	-0.150	63	0.008	63	-0.209	63	-0.085	63

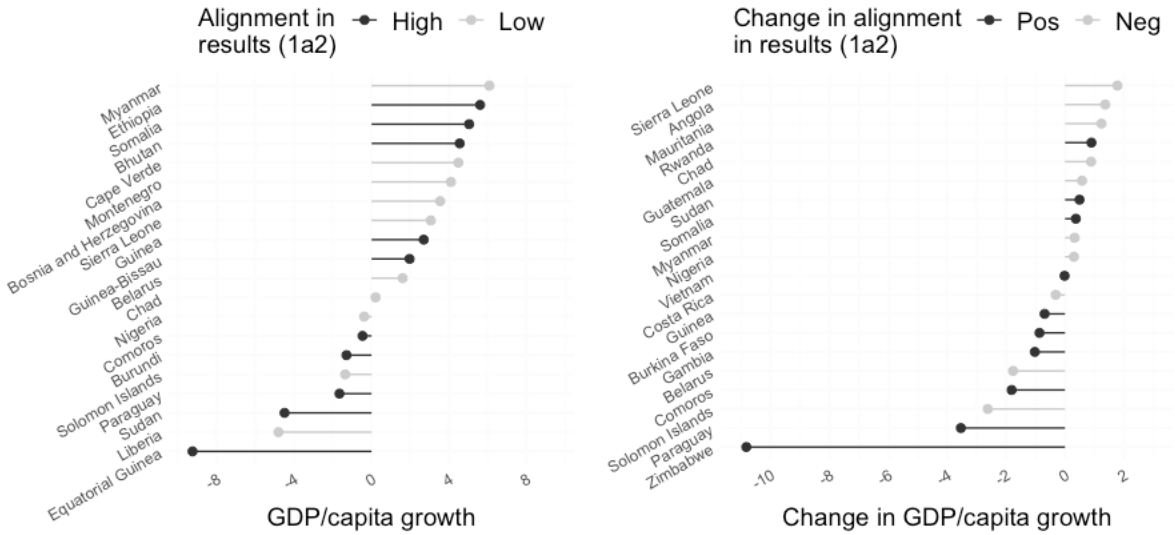
Note: Pearson's correlation coefficients; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; n = observations. Higher values represent normatively more desirable outcomes across institutional indicators.

Figure S1: GDP/capita growth in 2019 in countries with highest/lowest score in alignment at objectives level in 2017 (left panel). Change in GDP/capita growth from 2018 to 2019 in countries with largest positive/negative change in alignment at objectives level from 2015 to 2017 (right panel).



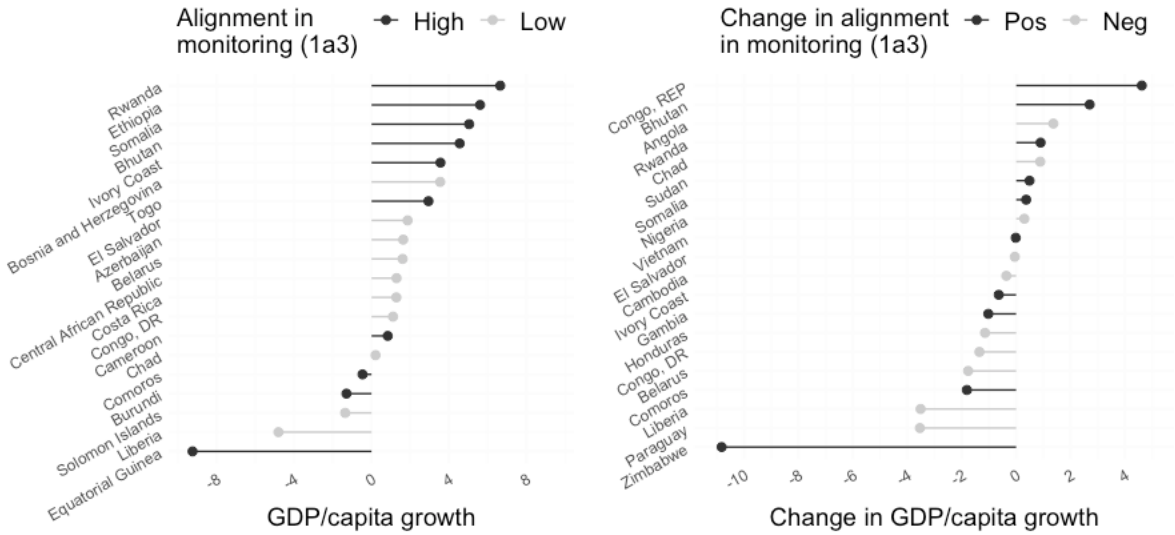
Note: GDP/capita growth is measured in 2019. Change in GDP/capita growth is measured as the change between 2018 and 2019. Change in alignment at objectives level is measured as the change between 2015 and 2017.

Figure S2: GDP/capita growth in 2019 in countries with highest/lowest score in alignment at results level in 2017 (left panel). Change in GDP/capita growth from 2018 to 2019 in countries with largest positive/negative change in alignment at results level from 2015 to 2017 (right panel).



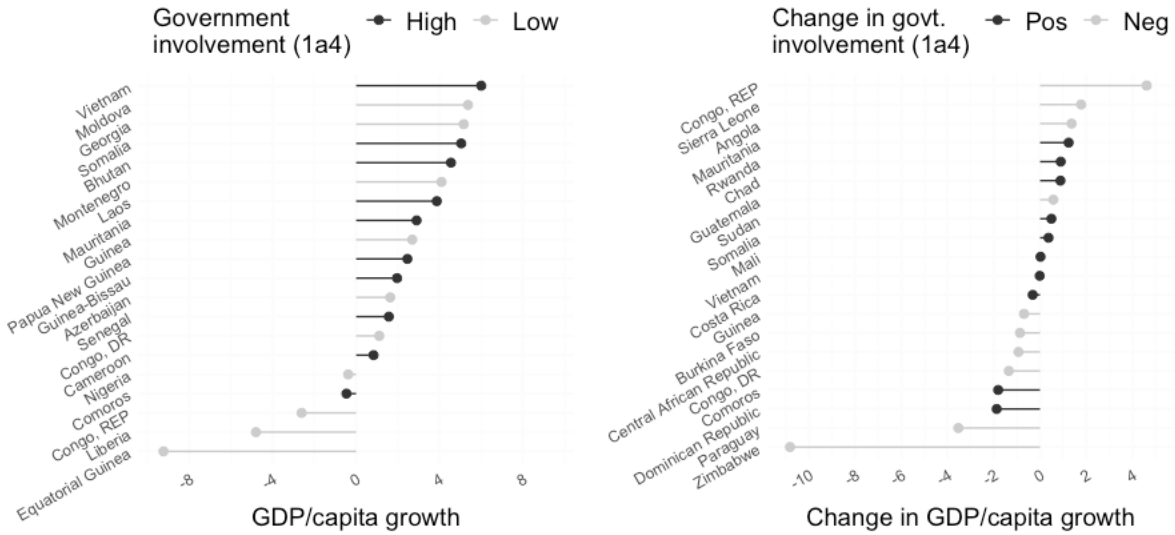
Note: GDP/capita growth is measured in 2019. Change in GDP/capita growth is measured as the change between 2018 and 2019. Change in alignment at results level is measured as the change between 2015 and 2017.

Figure S3: GDP/capita growth in 2019 in countries with highest/lowest score in alignment at monitoring/statistics level in 2017 (left panel). Change in GDP/capita growth from 2018 to 2019 in countries with largest positive/negative change in alignment at monitoring/statistics level from 2015 to 2017 (right panel).



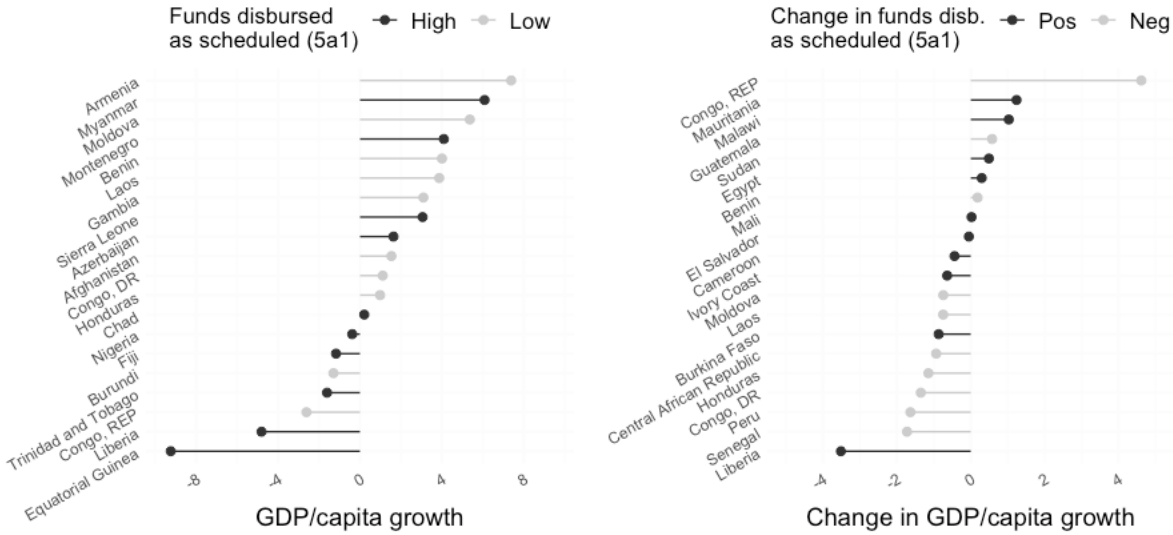
Note: GDP/capita growth is measured in 2019. Change in GDP/capita growth is measured as the change between 2018 and 2019. Change in alignment at monitoring/statistics level is measured as the change between 2015 and 2017.

Figure S4: GDP/capita growth in 2019 in countries with highest/lowest score in government involvement in final evaluation in 2017 (left panel). Change in GDP/capita growth from 2018 to 2019 in countries with largest positive/negative change in government involvement in final evaluation from 2015 to 2017 (right panel).



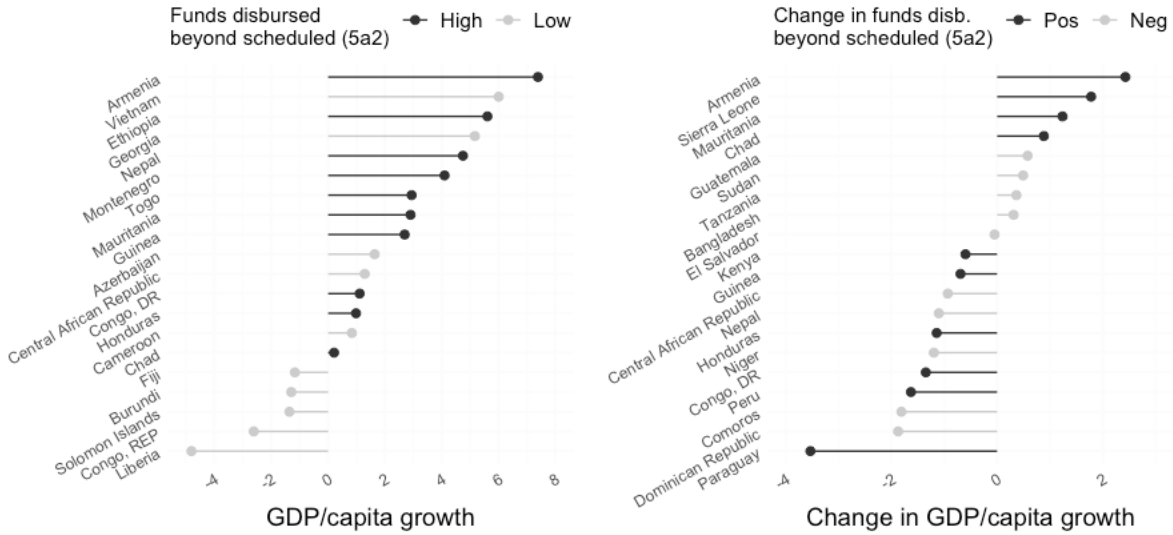
Note: GDP/capita growth is measured in 2019. Change in GDP/capita growth is measured as the change between 2018 and 2019. Change in government involvement is measured as the change between 2015 and 2017.

Figure S5: GDP/capita growth in 2019 in countries with highest/lowest score in funds disbursed as scheduled in 2017 (left panel). Change in GDP/capita growth from 2018 to 2019 in countries with largest positive/negative change in funds disbursed as scheduled from 2015 to 2017 (right panel).



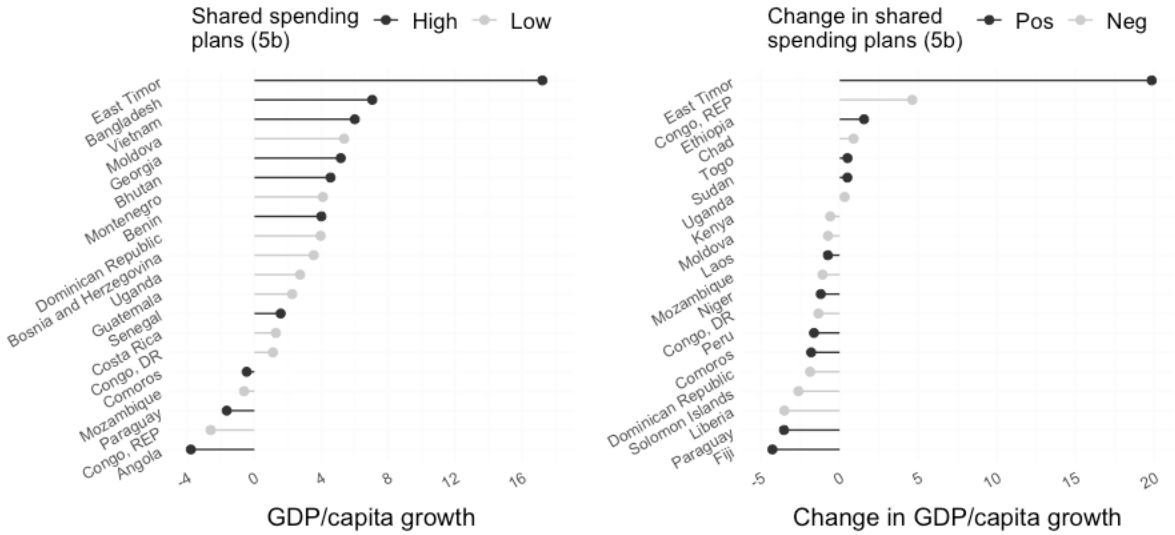
Note: GDP/capita growth is measured in 2019. Change in GDP/capita growth is measured as the change between 2018 and 2019. Change in funds disbursed as scheduled is measured as the change between 2015 and 2017.

Figure S6: GDP/capita growth in 2019 in countries with highest/lowest score in funds disbursed beyond scheduled in 2017 (left panel). Change in GDP/capita growth from 2018 to 2019 in countries with largest positive/negative change in funds disbursed beyond scheduled from 2015 to 2017 (right panel).



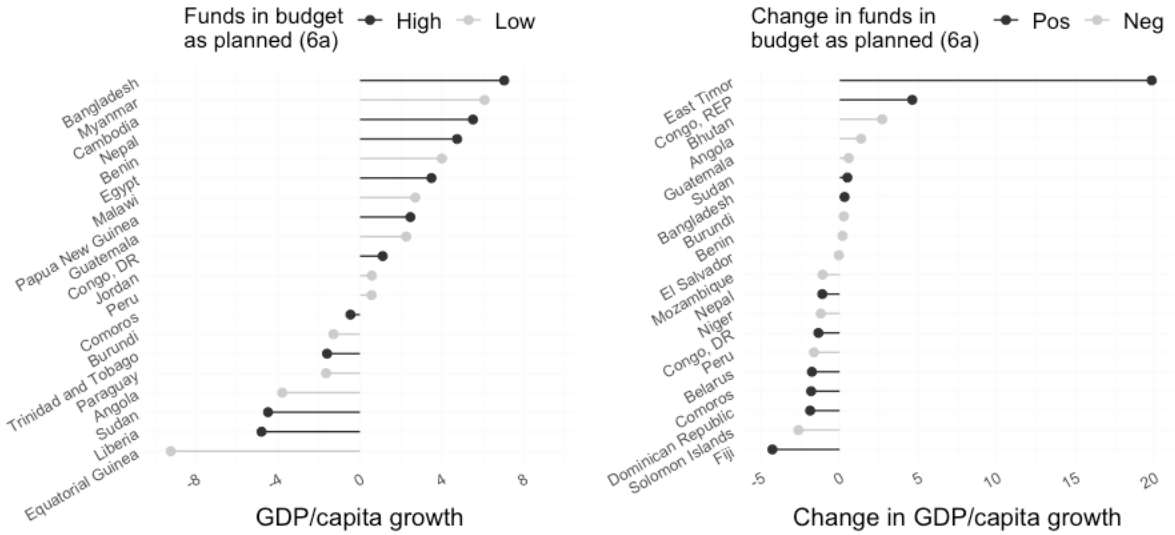
Note: GDP/capita growth is measured in 2019. Change in GDP/capita growth is measured as the change between 2018 and 2019. Change in funds disbursed beyond scheduled is measured as the change between 2015 and 2017.

Figure S7: GDP/capita growth in 2019 in countries with highest/lowest score in shared forward-looking spending plans in 2017 (left panel). Change in GDP/capita growth from 2018 to 2019 in countries with largest positive/negative change in shared forward-looking spending plans from 2015 to 2017 (right panel).



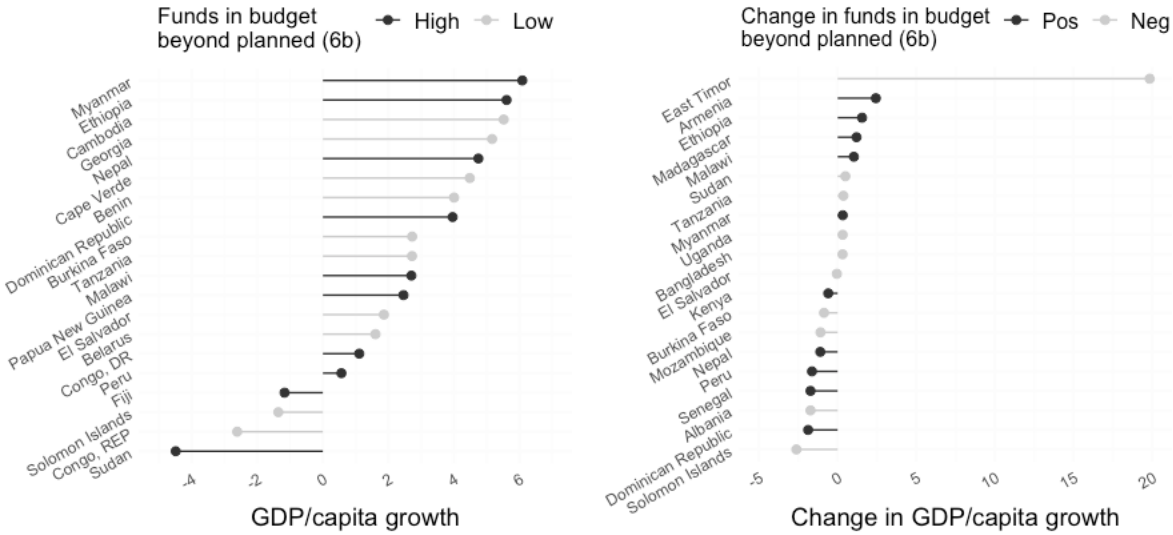
Note: GDP/capita growth is measured in 2019. Change in GDP/capita growth is measured as the change between 2018 and 2019. Change in shared forward-looking spending plans is measured as the change between 2015 and 2017.

Figure S8: GDP/capita growth in 2019 in countries with highest/lowest score in funds in budget as planned in 2017 (left panel). Change in GDP/capita growth from 2018 to 2019 in countries with largest positive/negative change in funds in budget as planned from 2015 to 2017 (right panel).



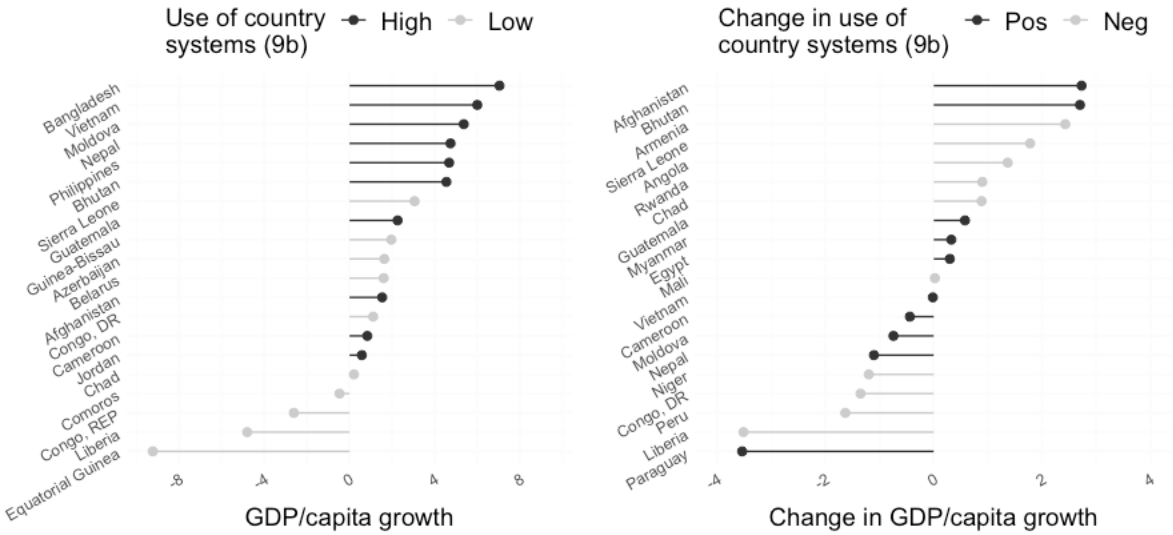
Note: GDP/capita growth is measured in 2019. Change in GDP/capita growth is measured as the change between 2018 and 2019. Change in funds in budget as planned is measured as the change between 2015 and 2017.

Figure S9: GDP/capita growth in 2019 in countries with highest/lowest score in funds in budget beyond planned in 2017 (left panel). Change in GDP/capita growth from 2018 to 2019 in countries with largest positive/negative change in funds in budget beyond planned from 2015 to 2017 (right panel).



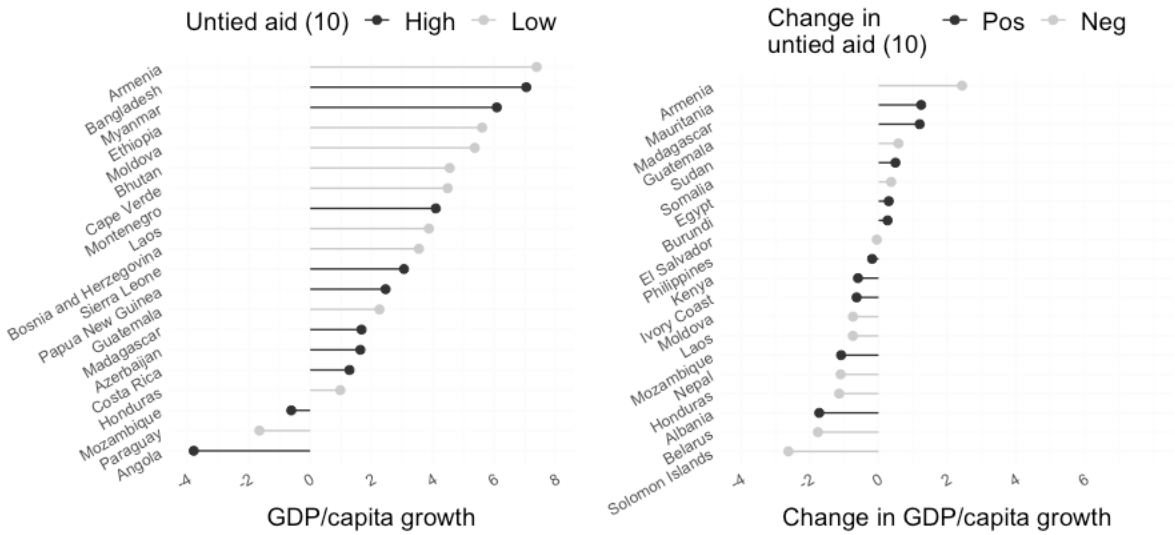
Note: GDP/capita growth is measured in 2019. Change in GDP/capita growth is measured as the change between 2018 and 2019. Change in funds in budget beyond planned is measured as the change between 2015 and 2017.

Figure S10. GDP/capita growth in 2019 in countries with highest/lowest score in use of country systems in 2017 (left panel). Change in GDP/capita growth from 2018 to 2019 in countries with largest positive/negative change in use of country systems from 2015 to 2017 (right panel).



Note: GDP/capita growth is measured in 2019. Change in GDP/capita growth is measured as the change between 2018 and 2019. Change in the use of country systems is measured as the difference between the 2015 score and the 2017 score.

Figure S11: GDP/capita growth in 2019 in countries with highest/lowest score in untied aid in 2017 (left panel). Change in GDP/capita growth from 2018 to 2019 in countries with largest positive/negative change in untied aid from 2015 to 2017 (right panel).



Note: GDP/capita growth is measured in 2019. Change in GDP/capita growth is measured as the change between 2018 and 2019. Change in the share of untied aid is measured as the change between 2015 and 2017.

Table S12: Split-sample bivariate correlations between ODA/GNI and economic and social development outcomes

GPEDC indicator	GDP/capita		Growth		Poverty		Inequality		Education		Health	
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
1a1	-0.582***	-0.496**	0.174	0.101	0.546**	0.765***	0.055	0.225	-0.600**	-0.421*	0.406*	0.542**
1a2	-0.593***	-0.474**	0.160	0.101	0.564**	0.708***	0.174	0.078	-0.422*	-0.651***	0.510**	0.423*
1a3	-0.553***	-0.518**	0.123	0.177	0.492**	0.788***	0.215	0.044	-0.487**	-0.537**	0.557***	0.358*
1a4	-0.556**	-0.509**	0.134	0.213	0.619***	0.605***	0.316	-0.168	-0.447*	-0.579**	0.511**	0.540**
1b	-0.562***	-0.511**	0.123	0.165	0.641***	0.646***	0.255	-0.009	-0.434*	-0.556**	0.520**	0.383*
2gov	-0.630**	-0.541*	0.208	0.065	0.685**	0.713***	0.189	0.291	-0.575*	-0.558*	0.214	0.497*
2cso	-0.575*	-0.557*	0.086	0.348	0.751***	0.587**	0.229	0.306	-0.609*	-0.612**	0.428	0.293
2dp	-0.670**	-0.629**	0.388	0.217	0.657*	0.729**	0.216	0.083	-0.701**	-0.510	0.354	0.346
3gov	-0.584**	-0.579**	0.142	0.159	0.651**	0.774***	-0.083	0.494*	-0.486	-0.647**	0.509*	0.476*
3psl	-0.598*	-0.640***	0.155	0.104	0.677*	0.696***	-0.096	0.459*	-0.447	-0.683**	0.361	0.539**
3sme	-0.578*	-0.610**	0.099	0.152	0.675**	0.722**	0.154	0.448	-0.586*	-0.622*	0.549*	0.445
3tu	-0.498	-0.676**	-0.073	0.217	0.227	0.692**	0.466	0.329	-0.488	-0.719**	0.516	0.462
4	-0.553**	-0.604***	0.163	0.046	0.434*	0.787***	0.032	-0.071	-0.565**	-0.440*	0.072	0.617***
5a1	-0.576***	-0.498**	0.222	0.024	0.641***	0.631***	0.242	-0.018	-0.558**	-0.343	0.689***	0.245
5a2	-0.576***	-0.493**	0.165	0.132	0.660***	0.534**	0.169	0.032	-0.504**	-0.471*	0.475**	0.487**
5b	-0.521**	-0.559**	0.169	-0.012	0.577**	0.464*	0.000	0.044	-0.349	-0.581**	0.430*	0.258
6a	-0.527**	-0.504*	0.265	-0.175	0.657***	0.443*	-0.104	0.214	-0.493*	-0.335	0.188	0.400
6b	-0.521*	-0.524*	-0.135	0.171	0.516*	0.537*	0.314	-0.015	-0.732***	-0.317	0.442*	0.315
8	-0.674*	-0.526***	0.356	0.112	0.734*	0.582***	0.731*	0.045	-0.667*	-0.425*	0.668*	0.345*
9a	-0.472	-0.564**	0.068	0.075	0.538*	0.650***	-0.059	0.061	-0.437	-0.369	0.478	0.592**
9b	-0.577***	-0.481**	0.326	-0.202	0.681***	0.519**	0.204	0.156	-0.517*	-0.477**	0.505**	0.347
10	-0.542**	-0.589**	0.021	0.143	0.733***	0.619**	0.040	0.073	-0.508*	-0.481*	0.548**	0.397*

Note: Pearson's correlation coefficients; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Coefficient pairs in red are statistically significant from each other. Low = low-scoring countries in terms of a given GPEDC indicator. High = high-scoring countries in terms of a given GPEDC indicator.

Table S13: Split-sample bivariate correlations between ODA/GNI and institutional quality

GPEDC indicator	Democracy		Authority		Capacity		Legitimacy		Corruption		Political stability		Statistical capacity	
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
1a1	-0.274	0.172	-0.096	-0.101	-0.481**	-0.485**	-0.118	-0.112	-0.191	0.000	-0.363*	-0.235	-0.530**	-0.368*
1a2	-0.018	-0.063	-0.054	-0.188	-0.536**	-0.430*	-0.096	-0.131	-0.145	-0.063	-0.294	-0.300	-0.563***	-0.245
1a3	0.015	-0.158	-0.112	-0.070	-0.524**	-0.420*	-0.079	-0.171	-0.132	-0.085	-0.294	-0.298	-0.535**	-0.290
1a4	0.239	-0.352*	-0.106	-0.189	-0.534**	-0.500**	0.060	-0.456**	-0.096	-0.142	-0.239	-0.364*	-0.375*	-0.563***
1b	0.121	-0.237	-0.060	-0.127	-0.511**	-0.449*	-0.016	-0.279	-0.052	-0.155	-0.301	-0.298	-0.453**	-0.334
2gov	0.066	-0.119	0.389	0.303	-0.330	-0.452*	0.400	0.138	0.103	0.390	0.101	0.019	-0.073	-0.385
2cso	-0.059	-0.081	0.373	0.382	-0.461	-0.341	0.247	0.260	0.032	0.312	-0.035	0.110	-0.175	-0.354
2dp	-0.130	-0.177	0.067	0.433	-0.569*	-0.265	0.361	-0.304	-0.188	0.471	-0.119	-0.084	-0.422	-0.185
3gov	-0.062	-0.146	-0.045	0.177	-0.520*	-0.401	-0.043	0.026	-0.172	0.176	-0.363	-0.043	-0.372	-0.342
3psl	-0.147	-0.004	-0.237	0.167	-0.464	-0.460*	-0.129	0.115	-0.241	0.202	-0.278	-0.163	-0.316	-0.340
3sme	-0.082	-0.126	-0.285	0.209	-0.574*	-0.347	-0.037	-0.185	-0.415	0.235	-0.385	-0.140	-0.416	-0.200
3tu	-0.105	-0.048	-0.744**	0.215	-0.482	-0.445	-0.333	-0.051	-0.244	0.360	-0.487	-0.045	-0.426	-0.437
4	-0.037	-0.125	0.058	0.234	-0.211	-0.645***	-0.006	-0.003	0.048	-0.108	-0.191	-0.117	-0.157	-0.570**
5a1	-0.183	0.166	-0.472**	0.469**	-0.647***	-0.306	-0.414*	0.332	-0.417*	0.205	-0.648***	0.251	-0.572***	-0.251
5a2	0.012	-0.101	-0.092	-0.114	-0.549***	-0.401*	-0.102	-0.118	-0.176	0.053	-0.380*	-0.171	-0.479*	-0.418*
5b	0.043	0.277	0.425*	-0.056	-0.488**	-0.270	0.155	0.516**	0.005	0.266	-0.046	0.107	-0.287	-0.266
6a	-0.068	0.254	0.425*	0.169	-0.310	-0.413*	0.043	0.341	0.076	0.275	-0.228	0.163	0.112	-0.455*
6b	0.386	-0.003	0.208	0.482*	-0.428*	-0.395	0.721***	-0.014	0.203	0.162	0.051	0.182	-0.515*	-0.199
8	-0.146	0.118	-0.681*	0.334*	-0.581	-0.421**	-0.588	0.235	-0.596	0.150	-0.765**	0.055	-0.617*	-0.235
9a	0.268	-0.155	-0.175	0.403*	-0.518*	-0.603**	0.099	0.055	-0.272	-0.006	-0.506*	0.004	-0.085	-0.601**
9b	-0.017	-0.046	-0.169	-0.043	-0.518**	-0.337	-0.187	0.102	-0.176	0.047	-0.327	-0.233	-0.370*	-0.512**
10	-0.198	0.109	-0.189	0.447*	-0.602**	-0.322	-0.097	0.153	-0.163	-0.086	-0.290	-0.093	-0.668***	-0.224

Note: Pearson's correlation coefficients; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Coefficient pairs in red are statistically significant from each other. Low = low-scoring countries in terms of a given GPEDC indicator. High = high-scoring countries in terms of a given GPEDC indicator.

Table S14: Factor analysis of indicators of focus on results (2017)

Elementary indicator	Factor 1	Uniqueness
1a1	0.08	0.99
1a2	0.90	0.20
1a3	0.86	0.26
1a4	0.61	0.63
1b	0.34	0.88
Eigen value	2.04	
Kaiser-Meyer-Olkin	0.54	

Table S15: Factor analysis of indicators of ownership (2017)

Elementary indicator	Factor 1	Uniqueness
5a1	0.60	0.63
5a2	-0.07	0.99
5b	0.48	0.77
9a	-0.28	0.92
9b	-0.35	0.88
10	0.71	0.49
Eigen value	1.31	
Kaiser-Meyer-Olkin	0.42	

Table S16: Factor analysis of indicators of inclusive partnerships (2017)

Elementary indicator	Factor 1	Uniqueness
2gov	0.74	0.46
2cso	0.81	0.35
2dp	0.67	0.55
3gov	0.45	0.80
3psl	0.79	0.37
3sme	0.75	0.44
3tu	0.72	0.49
Eigen value	3.55	
Kaiser-Meyer-Olkin	0.72	

Table S17: Factor analysis of indicators of transparency and mutual accountability (2017)

Elementary indicator	Factor 1	Uniqueness
4	-0.64	0.59
6a	0.70	0.51
6b	0.59	0.65
8	-0.10	0.99
Eigen value	1.26	
Kaiser-Meyer-Olkin	0.44	

Table S18: Correlations between effectiveness principles and development outcomes

	GDP/capita	n	Growth	n	Poverty	n	Inequality	n	Education	n	Health	n
Focus on results	-0.173	64	0.213	64	0.065	60	0.151	60	-0.394**	52	0.167	64
Ownership	-0.139	33	0.253	33	0.386	32	0.009	32	-0.413*	26	0.335	33
Inclusive partnerships	-0.151	21	0.085	21	-0.017	20	-0.083	20	-0.215	17	0.233	21
Transparency and mutual accountability	0.157	43	-0.067	43	0.025	41	-0.340*	41	0.291	35	-0.040	43

Note: Pearson's correlation coefficients; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; n = observations. In poverty, inequality, and health, lower scores represent normatively more desirable outcomes.

Table S19: Correlations between effectiveness principles and institutional quality

	Democracy	n	Authority	n	Capacity	n	Legitimacy	n	Corruption	n	Statistical capacity	n	Political stability	n
Focus on results	-0.279*	64	0.019	64	-0.263*	64	-0.119	64	-0.041	64	-0.180	64	0.024	64
Ownership	-0.270	33	0.423	33	-0.306	33	-0.128	33	0.009	33	-0.207	33	-0.108	33
Inclusive partnerships	0.097	21	-0.201	21	-0.204	21	0.082	21	0.382	21	0.232	21	-0.112	21
Transparency and mutual accountability	-0.104	43	0.040	43	-0.053	43	-0.168	43	-0.340	43	-0.119	43	-0.215	43

Note: Pearson's correlation coefficients; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; n = observations. Higher values represent normatively more desirable outcomes across institutional indicators.

Table S20: Country scores of aggregate indices of focus on results, ownership, inclusive partnerships, and transparency and mutual accountability in 2017

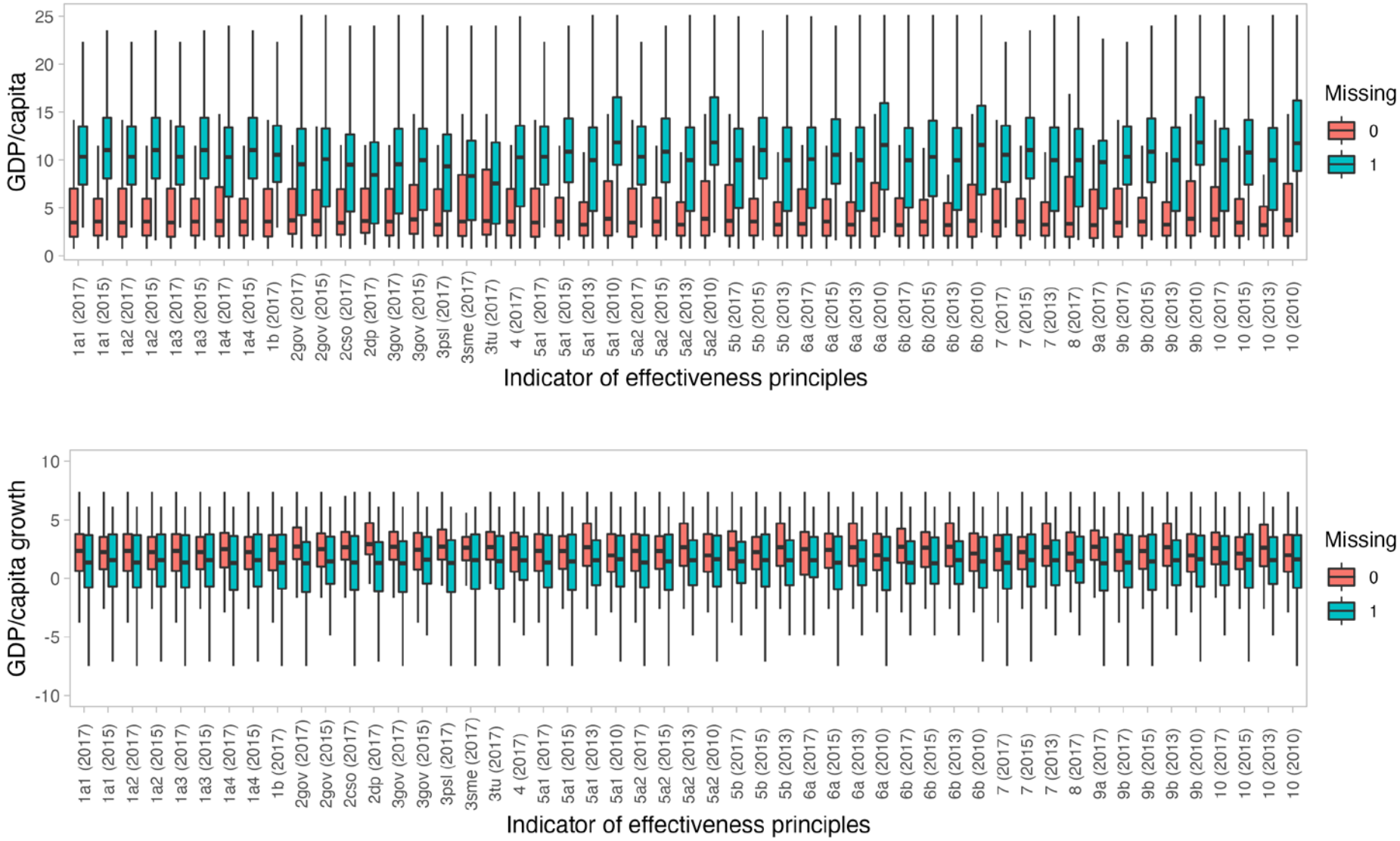
Country	Focus on results	Country	Ownership	Country	Inclusive partnerships	Country	Transparency and mutual accountability
Somalia	1.000	Bangladesh	1.000	Moldova	1.000	Sudan	1.000
Bhutan	0.966	Niger	0.954	Rwanda	0.986	Nepal	0.837
Comoros	0.918	Togo	0.917	Burkina Faso	0.916	Dominican Republic	0.837
Rwanda	0.825	Malawi	0.877	Ivory Coast	0.787	Papua New Guinea	0.831
Ethiopia	0.813	Belarus	0.873	Papua New Guinea	0.754	Armenia	0.786
Vietnam	0.775	Rwanda	0.868	Niger	0.733	Congo, DR	0.660
Cameroon	0.746	Madagascar	0.861	Philippines	0.657	Liberia	0.658
Togo	0.742	Kenya	0.844	Mauritania	0.633	Belarus	0.648
Equatorial Guinea	0.738	Tanzania	0.808	Mali	0.627	Kenya	0.636
Guinea-Bissau	0.724	Burkina Faso	0.805	Dominican Republic	0.534	Congo, REP	0.605
Mauritania	0.713	Montenegro	0.796	Georgia	0.523	Trinidad and Tobago	0.597
Gambia	0.688	Cambodia	0.780	Belarus	0.510	Ethiopia	0.560
Senegal	0.675	Mali	0.774	Cambodia	0.448	Comoros	0.552
Egypt	0.673	East Timor	0.769	Bangladesh	0.448	Egypt	0.541
Paraguay	0.669	Ivory Coast	0.764	Bosnia and Herzegovina	0.414	Fiji	0.508
Burkina Faso	0.655	Albania	0.757	Cameroon	0.377	Madagascar	0.492
Benin	0.651	Liberia	0.748	Comoros	0.373	Gambia	0.486
Ivory Coast	0.648	Guinea-Bissau	0.739	Peru	0.306	East Timor	0.482
Malawi	0.644	Costa Rica	0.729	Albania	0.302	Senegal	0.479
Albania	0.633	Mozambique	0.710	Madagascar	0.229	Bangladesh	0.470
Papua New Guinea	0.627	Georgia	0.674	Kenya	0.000	Uganda	0.443
Bangladesh	0.626	Philippines	0.670			Peru	0.416
Guinea	0.613	El Salvador	0.654			Rwanda	0.415
Sudan	0.607	Bhutan	0.627			Albania	0.413
Laos	0.602	Paraguay	0.586			Mali	0.409
Mozambique	0.588	Nepal	0.574			Haiti	0.408
Nepal	0.573	Ethiopia	0.530			Myanmar	0.401

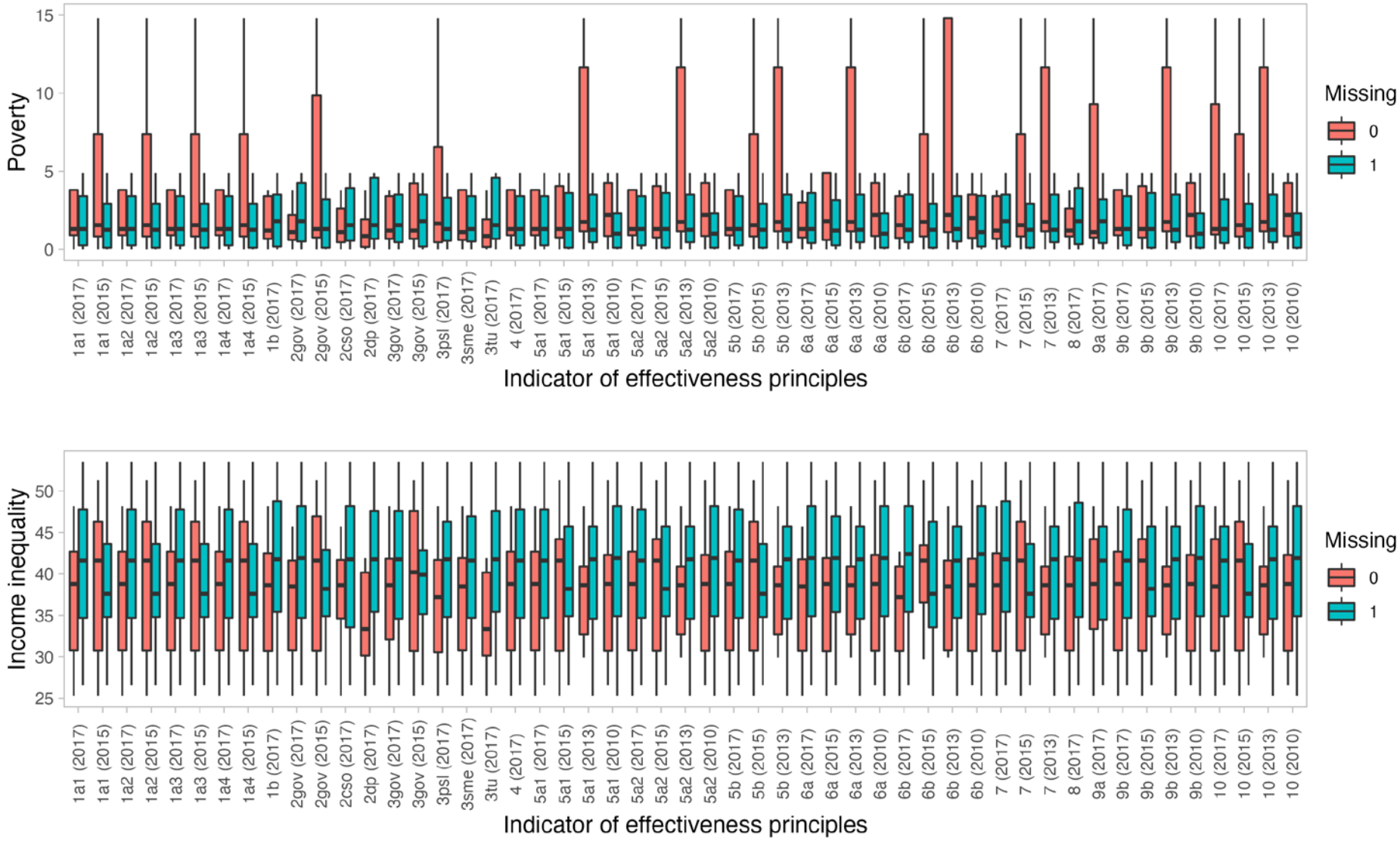
Dominican Republic	0.565	Cape Verde	0.514	Togo	0.399
Mali	0.564	Armenia	0.482	Solomon Islands	0.381
Philippines	0.524	Uganda	0.474	Cambodia	0.380
Congo, REP	0.522	Honduras	0.306	Malawi	0.344
Niger	0.521	Guatemala	0.254	Niger	0.335
Honduras	0.496	Moldova	0.000	Laos	0.282
Tanzania	0.495			Mozambique	0.266
Madagascar	0.494			Cameroon	0.226
Peru	0.489			Georgia	0.224
Jordan	0.488			Tanzania	0.224
Cambodia	0.480			Philippines	0.222
Kenya	0.479			Burkina Faso	0.199
Angola	0.475			Bhutan	0.143
Haiti	0.461			El Salvador	0.116
Trinidad and Tobago	0.447			Guatemala	0.045
Guatemala	0.420			Benin	0.000
Afghanistan	0.420				
Fiji	0.408				
East Timor	0.388				
Armenia	0.387				
Uganda	0.360				
Costa Rica	0.352				
Central African Republic	0.307				
Myanmar	0.307				
Moldova	0.302				
Chad	0.284				
Sierra Leone	0.242				
Azerbaijan	0.242				
El Salvador	0.235				
Georgia	0.219				
Montenegro	0.218				

Nigeria	0.204
Cape Verde	0.195
Belarus	0.193
Congo, DR	0.172
Bosnia and Herzegovina	0.020
Liberia	0.000

Note: scores are min-max normalized from 0 (low) to 1 (high).

Figure S12: Distribution of development outcomes in indicators of effectiveness principles according to data missingness (1 = missing)




Poverty
15
10
5
0
Missing
0
1
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1a1 (2015)
1a2 (2017)
1a2 (2015)
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1a4 (2017)
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2gov (2017)
2gov (2015)
2cso (2017)
2dp (2017)
3gov (2017)
3gov (2015)
3psl (2017)
3sme (2017)
3tu (2017)
4 (2017)
5a1 (2017)
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9b (2015)
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9b (2010)
10 (2017)
10 (2015)
10 (2013)
10 (2010)
Indicator of effectiveness principles
Income inequality
50
45
40
35
30
25
Missing
0
1
1a1 (2017)
1a1 (2015)
1a2 (2017)
1a2 (2015)
1a3 (2017)
1a3 (2015)
1a4 (2017)
1a4 (2015)
1b (2017)
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3sme (2017)
3tu (2017)
4 (2017)
5a1 (2017)
5a1 (2015)
5a1 (2013)
5a1 (2010)
5a2 (2017)
5a2 (2015)
5a2 (2013)
5a2 (2010)
5b (2017)
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6a (2010)
6b (2017)
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6b (2010)
7 (2017)
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7 (2013)
8 (2017)
9a (2017)
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9b (2013)
9b (2010)
10 (2017)
10 (2015)
10 (2013)
10 (2010)
Indicator of effectiveness principles

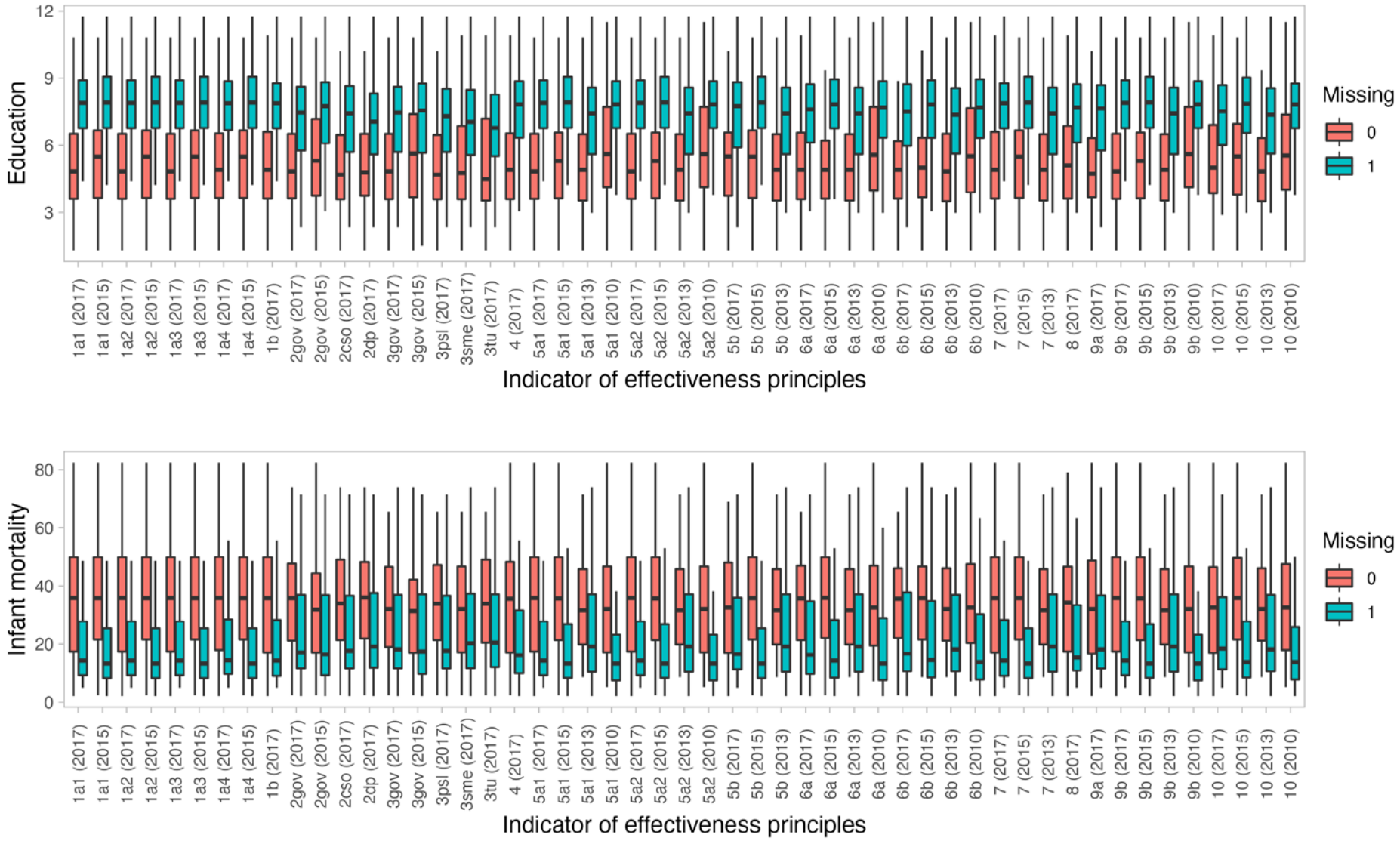
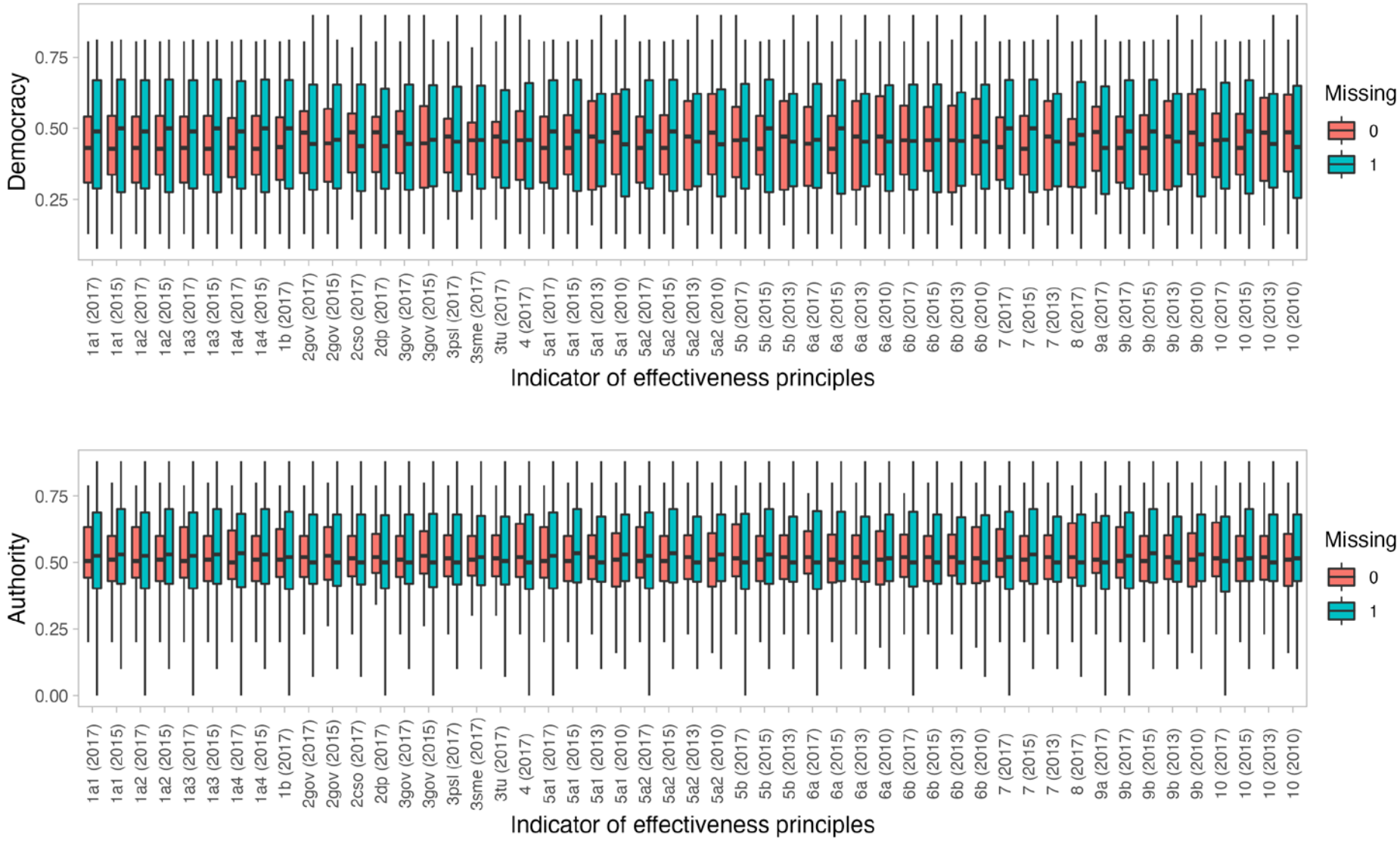
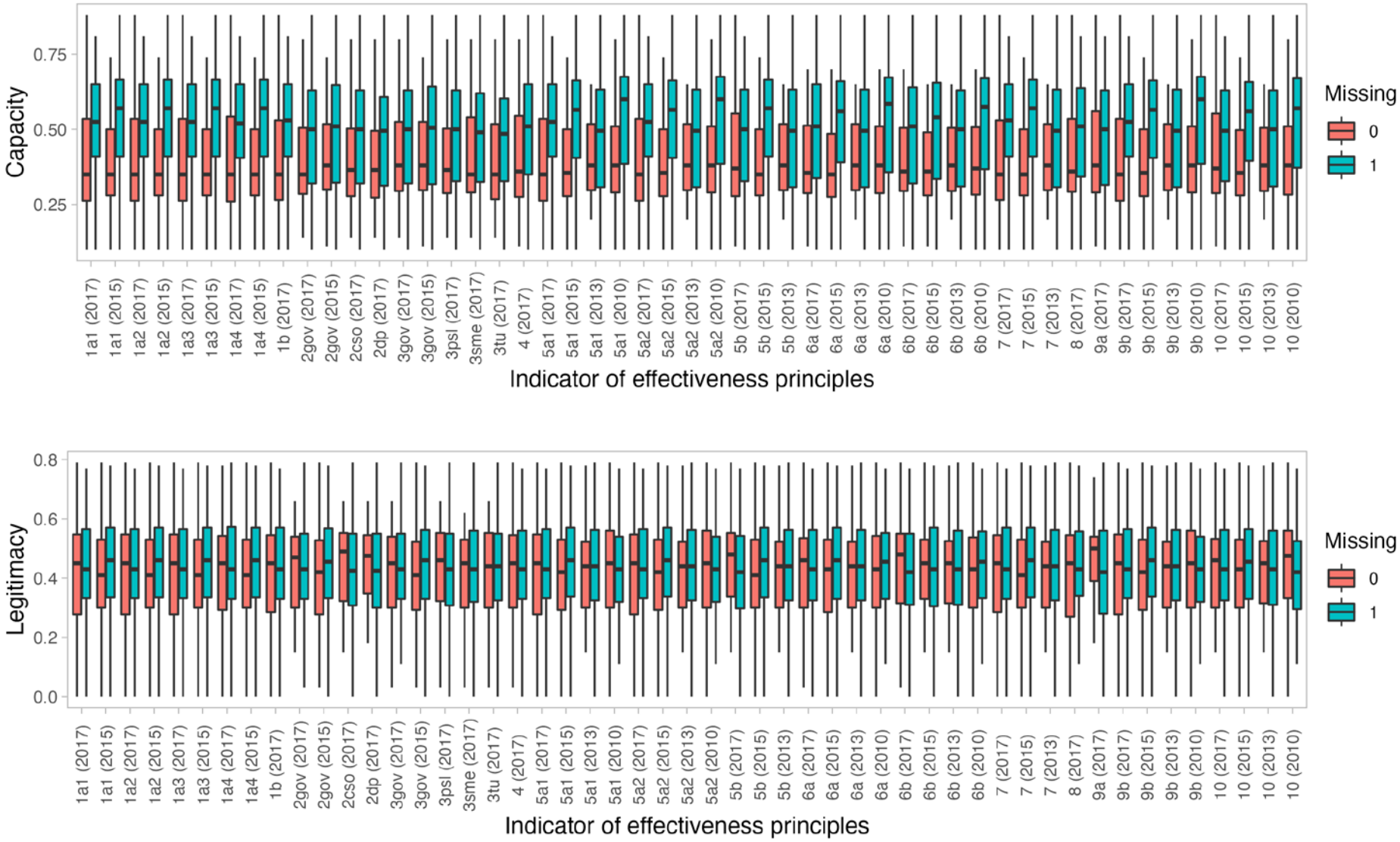

Education
12
9
6
3
Missing
0
1
1a1 (2017)
1a1 (2015)
1a2 (2017)
1a2 (2015)
1a3 (2017)
1a3 (2015)
1a4 (2017)
1a4 (2015)
1b (2017)
2gov (2017)
2gov (2015)
2cso (2017)
2dp (2017)
3gov (2017)
3gov (2015)
3psl (2017)
3sme (2017)
3tu (2017)
4 (2017)
5a1 (2017)
5a1 (2015)
5a1 (2013)
5a1 (2010)
5a2 (2017)
5a2 (2015)
5a2 (2013)
5a2 (2010)
5b (2017)
5b (2015)
5b (2013)
6a (2017)
6a (2015)
6a (2013)
6a (2010)
6b (2017)
6b (2015)
6b (2013)
6b (2010)
7 (2017)
7 (2015)
7 (2013)
8 (2017)
9a (2017)
9b (2017)
9b (2015)
9b (2013)
9b (2010)
10 (2017)
10 (2015)
10 (2013)
10 (2010)
Indicator of effectiveness principles
Infant mortality
80
60
40
20
0
Missing
0
1
1a1 (2017)
1a1 (2015)
1a2 (2017)
1a2 (2015)
1a3 (2017)
1a3 (2015)
1a4 (2017)
1a4 (2015)
1b (2017)
2gov (2017)
2gov (2015)
2cso (2017)
2dp (2017)
3gov (2017)
3gov (2015)
3psl (2017)
3sme (2017)
3tu (2017)
4 (2017)
5a1 (2017)
5a1 (2015)
5a1 (2013)
5a1 (2010)
5a2 (2017)
5a2 (2015)
5a2 (2013)
5a2 (2010)
5b (2017)
5b (2015)
5b (2013)
6a (2017)
6a (2015)
6a (2013)
6a (2010)
6b (2017)
6b (2015)
6b (2013)
6b (2010)
7 (2017)
7 (2015)
7 (2013)
8 (2017)
9a (2017)
9b (2017)
9b (2015)
9b (2013)
9b (2010)
10 (2017)
10 (2015)
10 (2013)
10 (2010)
Indicator of effectiveness principles

Figure S13: Distribution of institutional quality in indicators of effectiveness principles according to data missingness (1 = missing)




Capacity
0.75
0.50
0.25
Missing
0
1
1a1 (2017)
1a1 (2015)
1a2 (2017)
1a2 (2015)
1a3 (2017)
1a3 (2015)
1a4 (2017)
1a4 (2015)
1b (2017)
2gov (2017)
2gov (2015)
2cso (2017)
2dp (2017)
3gov (2017)
3gov (2015)
3psl (2017)
3sme (2017)
3tu (2017)
4 (2017)
5a1 (2017)
5a1 (2015)
5a1 (2013)
5a1 (2010)
5a2 (2017)
5a2 (2015)
5a2 (2013)
5a2 (2010)
5b (2017)
5b (2015)
5b (2013)
6a (2017)
6a (2015)
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6a (2010)
6b (2017)
6b (2015)
6b (2013)
6b (2010)
7 (2017)
7 (2015)
7 (2013)
8 (2017)
9a (2017)
9b (2017)
9b (2015)
9b (2013)
9b (2010)
10 (2017)
10 (2015)
10 (2013)
10 (2010)
Indicator of effectiveness principles
Legitimacy
0.8
0.6
0.4
0.2
0.0
Missing
0
1
1a1 (2017)
1a1 (2015)
1a2 (2017)
1a2 (2015)
1a3 (2017)
1a3 (2015)
1a4 (2017)
1a4 (2015)
1b (2017)
2gov (2017)
2gov (2015)
2cso (2017)
2dp (2017)
3gov (2017)
3gov (2015)
3psl (2017)
3sme (2017)
3tu (2017)
4 (2017)
5a1 (2017)
5a1 (2015)
5a1 (2013)
5a1 (2010)
5a2 (2017)
5a2 (2015)
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5a2 (2010)
5b (2017)
5b (2015)
5b (2013)
6a (2017)
6a (2015)
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6b (2015)
6b (2013)
6b (2010)
7 (2017)
7 (2015)
7 (2013)
8 (2017)
9a (2017)
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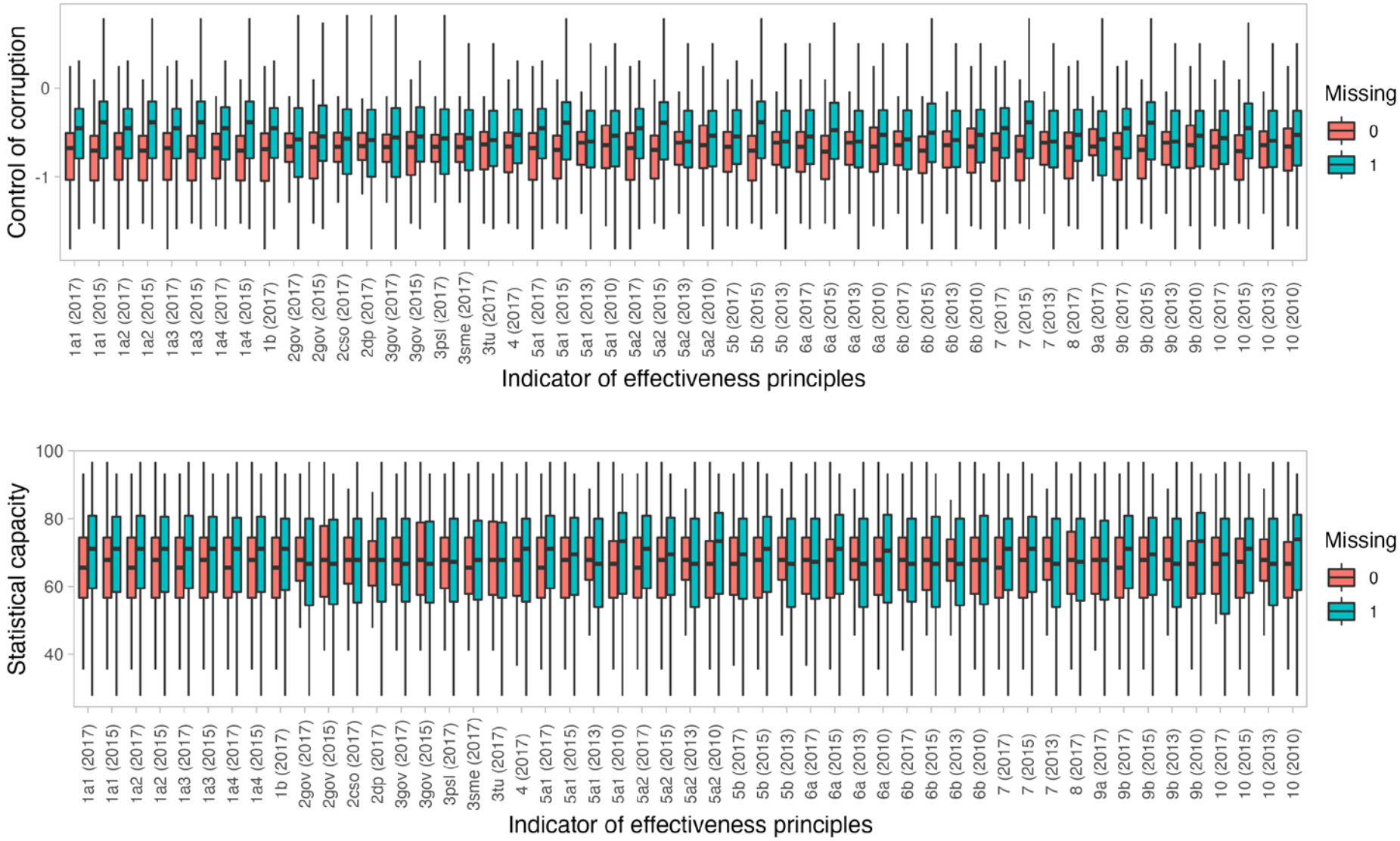
9b (2013)
9b (2010)
10 (2017)
10 (2015)
10 (2013)
10 (2010)
Indicator of effectiveness principles


Control of corruption
0
-1
Missing
0
1
1a1 (2017)
1a1 (2015)
1a2 (2017)
1a2 (2015)
1a3 (2017)
1a3 (2015)
1a4 (2017)
1a4 (2015)
1b (2017)
2gov (2017)
2gov (2015)
2cso (2017)
2dp (2017)
3gov (2017)
3gov (2015)
3psl (2017)
3sme (2017)
3tu (2017)
4 (2017)
5a1 (2017)
5a1 (2015)
5a1 (2013)
5a1 (2010)
5a2 (2017)
5a2 (2015)
5a2 (2013)
5a2 (2010)
5b (2017)
5b (2015)
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6a (2017)
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6a (2010)
6b (2017)
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7 (2017)
7 (2015)
7 (2013)
8 (2017)
9a (2017)
9b (2017)
9b (2015)
9b (2013)
9b (2010)
10 (2017)
10 (2015)
10 (2013)
10 (2010)
Indicator of effectiveness principles
Statistical capacity
100
80
60
40
Missing
0
1
1a1 (2017)
1a1 (2015)
1a2 (2017)
1a2 (2015)
1a3 (2017)
1a3 (2015)
1a4 (2017)
1a4 (2015)
1b (2017)
2gov (2017)
2gov (2015)
2cso (2017)
2dp (2017)
3gov (2017)
3gov (2015)
3psl (2017)
3sme (2017)
3tu (2017)
4 (2017)
5a1 (2017)
5a1 (2015)
5a1 (2013)
5a1 (2010)
5a2 (2017)
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5a2 (2010)
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9a (2017)
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9b (2010)
10 (2017)
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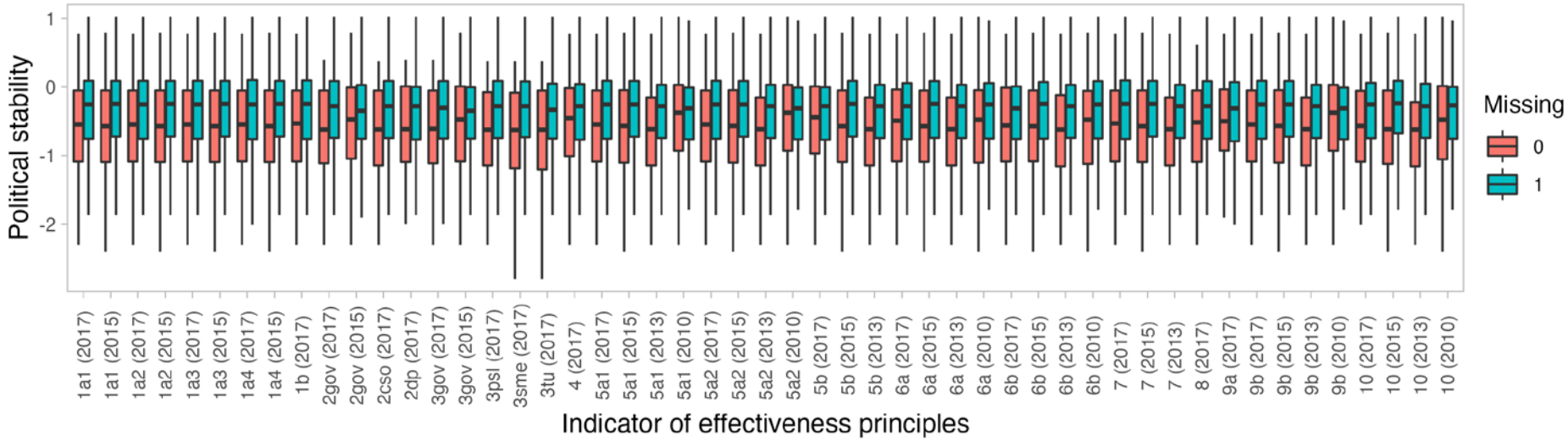
10 (2010)
Indicator of effectiveness principles


Political stability
1
0
-1
-2
1a1 (2017)
1a1 (2015)
1a2 (2017)
1a2 (2015)
1a3 (2017)
1a3 (2015)
1a4 (2017)
1a4 (2015)
1b (2017)
2gov (2017)
2gov (2015)
2cso (2017)
2dp (2017)
3gov (2017)
3gov (2015)
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5a1 (2017)
5a1 (2015)
5a1 (2013)
5a1 (2010)
5a2 (2017)
5a2 (2015)
5a2 (2013)
5a2 (2010)
5b (2017)
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9a (2017)
9b (2017)
9b (2015)
9b (2013)
9b (2010)
10 (2017)
10 (2015)
10 (2013)
10 (2010)
Indicator of effectiveness principles
Missing
0
1