

A Multi-Partner Evaluation of the Comprehensive Development Framework

Assessing the Development Impact of CDF-like Experiences

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Abstract

In 1999 the World Bank proposed the “Comprehensive Development Framework: CDF initiative.” The CDF vision is articulated around four major principles: long-term, holistic development framework; country ownership of development programs and policies; country-led partnership among various stakeholders; and, results orientation. Given its recent origin, a direct evaluation of the development impact of the CDF is not possible. However, the principles espoused by the CDF are not new. Moreover, they do suggest some explicit processes that can be approximated by quantitative indicators using available cross-country data. Guided by these processes, this paper develops quantitative indexes of *CDF-like* experiences and analyzes their development impact. There are three main findings and some policy implications to highlight. First, development strategies adopted by countries or the type of institutions they develop are endogenous to country-specific socio-political characteristics and initial conditions. Second, sustaining CDF-like development strategies is more challenging in countries with fractionalized societies and non-inclusive political regimes, especially when their economies are susceptible to external shocks. This suggests that more attention should be given to flexible and counter cyclical assistance programs to help aid-recipient countries smooth the impact of external shocks and that lending programs should provide more time and space for genuine national bargaining processes to evolve and mature, especially in fractionalized societies. Third, CDF-like development is associated with superior development outcomes, including that they promote aid effectiveness. However, when accounting for the CDF-like development effect institutions do not appear to have an independent effect on growth and aid effectiveness. The implication of this finding is that, whenever possible, directly promoting the right types of “deep” development processes is more effective than attempting to influence intermediate outcomes, such as institutions of development policy.

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FOREWORD

An earlier version was prepared as a background paper to a multi-stakeholder evaluation of the Comprehensive Development Framework (CDF). The views expressed in this paper do not necessarily represent Kenya Institute for Policy Research and Analysis (KIPRA) or the World Bank, its Board of Directors or other affiliated organizations. The authors would like to thank, without implication, Shanta Devarajan, David Dollar, Paul Collier, and especially John Eriksson for their comments on an earlier draft. Ibrahim Elbadawi would also like to acknowledge helpful suggestions by Ali A. Ali, Alan Gelb, Aart Kraay and Charles Soludo.

“When I think of a development framework for a country and for regions, I think of a balance sheet with two sides. On the left is the macroeconomic presentation including the Article IV reports of the IMF, the National Income Accounts, the Balance of Payments and Trade Statistics, and all the other financial and economic analysis which are at the core of our current appraisal system... There is however, a clear need for a second side which reflects more adequately an analytical framework that presents the structural, social, and human aspects. It must go beyond the familiar statistics of infant and maternal mortality, unemployment and children in school, to address fundamental long-term issues of the structure, scope and substance of societal development.” James D. Wolfensohn (January 22, 1999: p. 3)¹

“The supply response depends, at a minimum, on communicating reform and its objectives to farmers. Even if the government fully intends to make good on its promises, this is of little use if farmers are actually unaware of the regime shift in pricing. In the cashew case, it is astonishing how little communication there has been with farmers about the reforms in the cashew sector,” Margaret McMillan, Karen Horn and Dani Rodrik (2003: p. 27) on the liberalization of the cashew sector in Mozambique.

¹ *A Proposal for a Comprehensive Development Framework, A Discussion Draft, World Bank: January, 1999.*

I. Introduction

In 1999 World Bank President James D. Wolfensohn introduced the Comprehensive Development Framework (CDF) initiative. The framework is articulated around four major principles: long-term, holistic development framework; country ownership of development programs and policies; country-led partnership among various stakeholders; and, results orientation. The overarching objective of the CDF is achieving faster and sustainable reductions in poverty.² To this end it puts forward a holistic approach to development, which seeks a better balance in policymaking and implementation by highlighting the interdependence of all elements of development—social, structural, human, governance, environmental, macroeconomic, and financial. This approach would, therefore, require a transition from donor-led to aid-recipient country-led development partnership. Needless to say, this transition must be underpinned by genuine leadership and ownership by government at all levels and vigorous participation by representative institutions, civil society and the private sector as well as active support by the international development community.

The CDF initiative has, by and large, been met with positive reviews in the academic and policy circles. For example, in attempting to place the CDF in the context of the development literature, Ali and Disch (2002: p. 3) suggest that, “at the risk of simplification, the advent of the CDF can be taken as signifying a return to the application of the basic concepts of development economics, as distinct from the application of narrow neoclassical economic theory propositions, to developing countries.”³ They go on to characterize this as representing, “a major shift in emphasis in the conduct of development business especially among the multilateral development finance institutions.” And that the central role in the CDF program of long-term holistic frameworks for the design and implementation of development policy is, “a major recognition of the complexity of the development process and its long-term nature” (p. 5).

The development-effectiveness of CDF is, however, an open and untested question, given the very little time available since the launch of this initiative. It is, therefore, not possible to analyze its potential impact on intermediate outcomes, such as the policy and institutional environment, much less on such development goals as poverty reduction or gains in human development. Though the CDF, as an initiative by that name, is new, the principles upon which it is based are not. This suggests that the development impact of

² The Millennium Development Goals (MDGs), most recently endorsed by the UN Millennium Summit in September 2000 represent the international consensus about how, at the global level, progress to that end can be achieved, and how to measure it. The goals have also been placed at the heart of the World Bank's approach to reducing poverty, as set out in its 2001 Poverty Reduction Strategy Process (PRSP). They are therefore indispensable, under CDF, for informing the choices that a country makes in setting out its long-term vision and medium-term strategies for reducing poverty.

³ See also the edited book by Meier (2001), which contains a comprehensive review of the state of development economics, including contributions by Adelman (2001), Yusuf and Stiglitz (2001) and Hoff and Stiglitz (2001). For example, Hoff and Stiglitz present a critical overview of neoclassical economic theory from a development perspective and concentrate on the influence of institutions, the distribution of wealth, history and the types of behavior that have spillover effects. All these influences lead to multiple equilibria, which poses serious problems for development policy design.

the CDF might be gauged by analyzing the experiences of countries that have adopted development strategies that approximate the CDF concept of development. We describe such development experiences as “*CDF-like*” development strategies.

To give empirical content to this concept we develop parallel indicators of “CDF-like” principles, which in turn were aggregated to form an overall CDF-like index. This index was subsequently combined with other global development data to analyze the development impact of *CDF-like* development experiences. Needless to say, the insight from analyzing this type of data does not constitute an evaluation of the CDF initiative, as such. However, the analysis could provide useful lessons for a better design of future explicit CDF development strategies.

Therefore, the key question to be addressed by this paper is whether CDF-like development strategies have actually contributed to better development outcomes, including better institutions; higher growth and lower poverty; enhanced human development as well as improved aid effectiveness.

The rest of the paper is organized as follows: Section two briefly discusses conceptual, data and methodology issues related to the construction of the indexes of the CDF-like principles, leaving detailed description of the construction of the indexes to the Appendix. Section three examines cross-country evidence on the endogeneity of development strategies adopted by countries or the type of institutions they develop to deep structural factors and initial conditions, such as initial level of development and socio-political characteristics. In addition to analyzing these determinants, this section also examines the relationship between the CDF-like development processes and institutions, characterized as intermediate development outcomes. Section four contains analysis of the development impact of CDF-like development strategies, including on institutions, growth and illiteracy. This approach estimates the marginal contribution of CDF-like development strategy using a modified-control group-type model, which allows, among others, for the development processes to be endogenous to country-specific initial economic conditions and social characteristics. Section five assesses the aid effectiveness of CDF-like development strategy in a context of an empirical endogenous growth model. Section six concludes.

2. Conceptual, Data and Methodology Issues

In this section we start by briefly stating the processes associated with the CDF principles, which provide the conceptual framework for developing the empirical indexes of the CDF-like principles. Then we provide a brief description of how these indexes are constructed, followed by a presentation of summary statistics of the CDF-like and other associated development variables.

2.1 The CDF Principles and Processes

We state below the range of development processes envisaged under each principle, as outlined in the Design Paper for a Multi-Partner Evaluation of the Comprehensive Development Framework (CDF Evaluation Secretariat, World Bank, September 2001: pp. 10-11).

i. Long-term, Holistic Development Framework's Processes involve:

1) Identification of a 15-to-20 year vision statement containing monitorable development goals that:

- take into account the broad aspirations of the population, and
- include sustainable poverty reduction as an overarching goal and related sub-goals that are in the same areas as the MDGs (see footnote 1).

2) Formulation of a comprehensive yet realistic medium-term (3-to-5 year) strategy for making progress toward goals, specifically addressing the need for:

- balance among macroeconomic and financial issues and structural and social concerns;
- setting priorities in the face of capacity and hard budget constraints;
- time-bound, concrete actions, with attention to phasing and sequencing.

ii. Country Ownership's Processes involve:

1) Identification of development goals and formulation of strategy by the country, not by development assistance agencies.

2) Regular and broad-based stakeholder participation, with evidence of sustained public support from top political leadership and intellectual conviction by key policymakers.

iii. Country-Led Partnership's Processes involve:

1) Government leadership in the management and coordination of aid resources, including:

- analytical and diagnostic work;
- aligning external support on the basis of the country's development strategy and development agency comparative advantage;
- harmonization of development agency procedures and practices, e.g. procurement, reporting, and evaluation.

2) Relations among government, development agencies, other stakeholders, marked by:

- mutual trust, consultation, and transparency;
- assumption of accountability for sound financial management and performance;
- effective, demand-led support for strengthening government management and coordination capacity and not undermining it.

iv. Results Orientation's Processes involve:

1) Design of programs in support of the national development framework with clear and evaluable objectives that contribute to framework goals.

2) Monitoring and regular reporting and sharing of progress, with a focus on and accountability for results, including outcomes and goals, rather than only on inputs.

2.2 Indexes of the CDF-like Principles

Guided by the above processes, we develop indexes of CDF-like principles that attempt to approximate the above processes, using available global databases. Starting with the two indexes of country ownership and result-orientation, which draw directly from available indicators of governance and institutional quality, we provide a brief description of the two indexes (a detailed description is provided in the appendix). The index of CDF-like ownership and participation principle is a weighted average of two components of a widely quoted index on the standard of democracy (Polity IV)⁴: on the processes governing the *regulation* and *competition* of political participation.

The index for the CDF-like results orientation is a component of the “Country Policy and Institutional Assessment Index: CPIA”⁵ on the quality of poverty monitoring. Although the CPIA is an internal World Bank’s index, and is, therefore, subject to concerns about subjectivity and transparency, it is nevertheless a very comprehensive index and has recently been substantially enhanced in terms of criteria and transparency. As a recent report by the World Bank’s CDF Secretariat (2001: p. 25) observes, “the CPIA process has recently been strengthened by improving its clarity and making its criteria more explicit by requiring a written explanation of each country’s rating on each question, and implementing regular annual discussions with IDA recipient countries on the results for their country, thereby allowing the CPIA to be an input in the upstream dialogue with IDA countries.”⁶

The remaining two CDF-like indexes are not readily available and must be constructed from globally available data. The CDF-like approximation of the long-term holistic principle is associated with the ability of a country to maintain a balanced development policy across various sectors in the economy. This is measured by the dispersion in the quality of the CPIA ratings across three broad sectors: macro, social and structural.⁷ A

⁴ Source: Monty G. Marshall and Keith Jagers (2000).

⁵ The Country Policy and Institutional Assessment (CPIA) is an internal World Bank index (see notes to Table 3 for a detailed description).

⁶ Moreover, the reports also notes that further work has begun on better linking of CPIA with CDF/PRSP processes, World Bank’s country assistance strategy (CAS) and other economic and sector work (ESW).

⁷ The fourth sector of public sector management, which was added to the CPIA categories in the 1990s, could not be included due to limited data availability.

large dispersion suggests failure to adopt long-term holistic development.

Finally, The CDF-like country-led partnership is characterized as being reflected in the “quality” of aid. The overall quality of aid index, QA, is taken from Elbadawi and Randa (2003). Their index is a “principal components” weighted average of two characteristics of “aid delivery mechanisms”: “Aid Fragmentation” and “Excessive Technical Assistance,” with time-invariant indexes of aid dependency and debt overhang used as exponents in the ultimate QA formula (see appendix). First, Elbadawi and Randa’s concept of aid fragmentation accounts for the combined effects of the well known “donors fragmentation”⁸ and “sectoral concentration” of aid. The latter indicator is associated with a lop-sided allocation of aid across sectors, which suggests failure to pursue “holistic” development. Both indicators are measured by a Herfindahl-Hirschman index, which is a simple, yet sophisticated way of measuring fragmentation. In this study we measure aid fragmentation as one minus the ratio of donor to sectoral concentration raised by the power of $(1 + \text{period average aid dependency} + \text{period average debt overhang})$.

Second, “excessive” technical assistance is given by the excess of actual relative to an “optimum” level of technical assistance, where the latter is a decreasing function of the initial quality of institutions, as measured by an ICRG index.⁹ Again, period average debt overhang and aid dependency are used as exponents.

Third, the period average debt overhang index is in turn constructed as a principal component-weighted average of three debt ratios (stock of debt to GDP, debt service to exports and debt service to government revenues), while the period average index of aid dependency is a weighted average of a qualitative variable reflecting the intensity of aid (as measured by the ratio of Aid/GDP) and the weights are the number of years corresponding to each indicator of aid intensity. Hence the QA index is directly influenced by the nature of the aid delivery mechanism, with debt overhang and the degree of aid dependency providing the magnification effects.

The four indexes are normalized to fall between zero and 100, and the overall CDF-like index is obtained as a weighted average of the four indexes, where the weights are given by principal components. A detailed description of the construction of these indexes is contained in the Appendix.

2.3 Some Summary Statistics

Summary statistics for the five CDF-like indexes for 92 countries spanning the 1980-2000 period are described in Table 1.a, while Table 1.b presents the distribution of the CDF-like principles for the 92 countries over the 1980-2000 period. It is notable that the index of overall CDF-like principles (which will be the only index subsequently used in the empirical analysis) has an approximate bell-shaped distribution. Table 2 gives a summary of the CDF principles by region in 1998-2000. It is evident that Sub-Sahara Africa lags behind the sample median in all the four CDF-like principles as well as the overall CDF-like index, while East Asia dominates other region in terms of the overall

⁸ See for example, Knack and Rahman (2003), who developed an index of donor fragmentation based on a Herfindahl-Hirschman index.

⁹ ICRG is taken from the International Country Risk database, and is a global index composed of a set of indicators of institutional quality (see appendix for more details).

CDF index as well as on ownership and country-led partnership. Figure 1 depicts the evolution of overall CDF-like index by region over 1983-1985 to 1998-2000 periods. East Asia and Latin America and the Caribbean (LAC) region seem to have a higher median CDF-like index than other regions in the sample. The figure also shows the significant improvements in the median overall CDF-like indeed in Sub-Saharan Africa (SSA) from 13 in 1985-1988 to 57 in 1998-2000 period. There is also significant improvement in Middle East and North Africa (MENA) region from an overall CDF-like index of 26 in 1983-1985 to 57 in 1998-2000. However, South Asia and, especially, SSA and MENA continue to lag behind East Asia and LAC.

Finally, and in anticipation of the subsequent analysis of the determinants of a CDF-like development strategy and of its potential development impact, Table 3 provides descriptive statistics for the key variables to be used in the regressions of the following sections.

Table 1.a : Descriptive Statistics of the CDF-like Indexes (1980-2000)

	Mean	Median	Std. Deviation	Min	Max
CDF –like (overall)	54	57	25	11	95
CDF-like long-term holistic principle	61	62	16	17	100
CDF-like county ownership	53	57	30	0	100
CDF-like country-led partnership	73	75	12	31	97
CDF-like results orientation	54	55	16	11	81

Notes to Table 1.a:

1. Of the 92 countries, 48 are classified as low-income countries, 29 as low middle-income, and 15 as high middle-income:

SSA, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Comoros, Congo Dem., Congo Rep., Cote d'Ivoire, Djibouti, Ethiopia, Gabon, Gambia, Ghana, Guinea, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sierra Leon, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia, Zimbabwe: **MENA** Algeria, Bhutan, Egypt, Iran, Jordan, Morocco, Tunisia, Turkey, Yemen, **LAC**, Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay **East Asia**, Cambodia, China, Fiji, Indonesia, Malaysia, Papua New Guinea, Philippines, Thailand, Vietnam **South Asia** Bangladesh, India, Nepal, Pakistan, Sri Lanka **Eastern Europe** Azerbaijan, Bulgaria, Czech Republic, Georgia, Kazakhstan, Kyrgyz Republic, Latvia, Mongolia, Poland, Romania, Russia, Tajikistan.

2. The overall CDF-like index is a weighted average of the four CDF-like components, where the weights (0.0116 for long-term holistic, 0.7898 for ownership, 0.0666 for partnership and 0.132 for results orientation) are given by principal components, using the covariance approach (see the appendix). Since there is no wide variation in the variance of the CDF-like subcomponents, the covariance approach of the principal components analysis is the more appropriate than the standardized means approach. Moreover, the qualitative characteristics of the index do not change if a simple average index is used.

3. CDF-like indexes are normalized to range between 0 and 100.

Table 1.b: Distribution of CDF-like Principles (1980-2000)

Score	Long-term holistic	Country ownership	Country led partnership	Results orientation	Overall CDF-like
0-20	1	19	0	3	10
20-40	9	12	2	14	20
40-60	32	23	10	39	22
60-80	42	16	56	32	24
80-100	8	22	24	4	16

Table 2: CDF-like Principles by Region (1980-2000)

	Long-term Holistic	Country Ownership	Country led partnership	Results Orientation	Overall CDF-like
Global sample	66	71	77	55	69
Sub-Sahara Africa	65	57	70	49	57
Middle East and North Africa	63	57	85	51	57
Latin America and the Caribbean	62	86	77	62	79
East Asia	65	86	80	69	82
South Asia	62	71	76	65	69
Eastern Europe	76	79	76	60	77

Notes to Table 2:

Eastern European values are average for 1992-2000

Table 3: Descriptive Statistics of Relevant Development variables (1980-2000)

	Mean	Median	Std. Deviation	Min	Max
GDP growth per capita	0.85	0.50	2.09	-4.67	8.27
Democracy	3.33	2.33	3.00	0.00	10.00
Shock	-1.34	-1.01	2.80	-10.12	3.93
CPIA	2.95	2.92	0.52	1.63	4.24
ICRG	2.56	2.62	0.75	0.98	5.01
Illiteracy	38.5	37.4	23.6	3.08	88.4
Social Fractionalization	50.0	52.0	35.8	2.00	144.0
Ratio of Aid to GNP	8.67	5.63	9.25	0.05	50.5
GNP per Capita	1237	535	1551	104	8027

Notes to Table 3:

1. Democracy is the democracy index from Polity IV database discussed above. It varies between 1 and 10, with 10 being the highest value.
2. Social fractionalization is given by the index of ethnic heterogeneity, which is the sum of indices of racial division, linguistic division, and religious division. It was constructed by Vanhanen (1999) and ranges from zero (lowest heterogeneity) to 144 (highest heterogeneity).
3. The shock variable is calculated as:

$$Shock = Change\ in\ \log\ (Terms\ of\ Trade) \times lagged(Exports + Imports) / GDP.$$

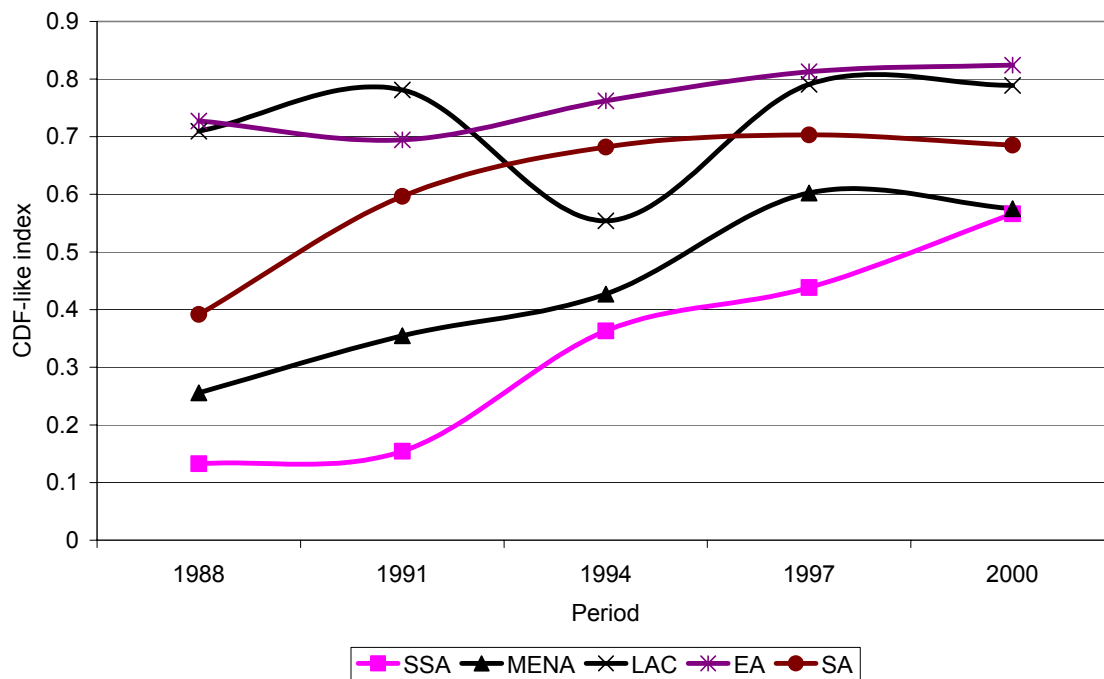
4. The Country Policy and Institutional Assessment (CPIA) is an internal World Bank index. This index has 20 different components receiving equal weight in the overall index. World Bank country specialist rates each of the twenty components ordinally on a scale of 1-6, using standardized criteria. The components are grouped into four categories: (a) Macroeconomic management and sustainability of reforms (general macroeconomic performance, fiscal policy, management of external debt, macroeconomic management capacity, sustainability of structural reforms); (b) Structural policies for sustainable and equitable growth (trade policy, foreign exchange regime, financial stability and depth, banking sector efficiency and resource mobilization, property rights and rule based governance, competitive environment for the private sector, factor and product markets, environmental policies and regulations); (c) Policies for reducing inequalities (poverty monitoring and analysis, pro-poor targeting and programs, safety nets); (d) Public sector management (quality of budget and public investment process, efficiency and equality of revenue mobilization, efficiency and equality of public expenditures and accountability of the public survive).

5. ICRG – is constructed using measures of bureaucratic quality, Law and Order, and Corruption. Higher magnitude of these measures represent better institutions. We used principal components to construct our ICRG variables according to the following equation:

$$ICRG = 0.28Bureacracy + 0.39Law\ \&\ order + 0.33Corruption$$

6. Data on other standard variables are taken from the World Bank SIMA database.

Figure 1: CDF-Like by Region



3. The Determinants of CDF-like Development Strategies

Given that CDF-like development strategies constitute a set of development processes that determine development outcomes, including intermediate ones such as institutions, it can, therefore, be argued that countries adopting CDF-like development strategies should be more capable of developing better policies and institutions. On the other hand, it could also be argued that countries with high quality institutions and development-oriented policies should be more capable at implementing a CDF-like development strategy.

A further, and in our view, a more plausible, argument would suggest that both good policy and institutional environment as well as the propensity of a country to adopt a CDF-like development strategy may both be driven by much deeper factors, such as initial level of development, the degree of social or economic fractionalization in society and the capacity of society to mediate potentially conflictive interests among different economic or social groups. It is, therefore, entirely possible that causation could go from CDF-like development strategy to good policy and institutions, or from the latter to the former or that no causation exists and that both are driven by the more deeper country-specific characteristics.

Subscribing to the above argument, we estimate a model that assumes that CDF-like development strategy (as well as institutions, as measured by the overall institutional and policy environment: CPIA; or the overall quality of institutions: ICRG) to depend on the deep social and political characteristics of the country in question, as measured by (social fractionalization) and (democracy), as well as the country's initial level of development (initial income per capita). In this context we would like to test the hypothesis that both the type of the development processes and the emerging institutions are driven by the same underlining factors. Moreover, we would also like to test whether or not these factors have independent influence on institutions once we acquire control for CDF-like development strategy. The justification for this hypothesis is that the influence of the country-specific characteristics on institutions are likely to be channeled through the range of processes that characterize the type of the development strategies in question. In other words, we hypothesize that while these processes are themselves endogenous to country characteristics, they are sufficient for shaping intermediate development outcomes, such as institutions. For completeness we also test for the hypothesis of whether country characteristics have independent effects on the choice of a CDF-like development strategy once we acquire control of institutions.

Finally, we would also like to analyze the sustainability of CDF-like development strategies. In particular we would like to test the combined effects on the volatility of CDF-like index of exogenous shocks (such as terms of trade shocks), social fractionalization and the quality of political and governance institutions for mediating inter-social and economic group differences (e.g. as reflected by the presence of representative and accountable governance). Recent literature suggests that growth volatility is higher in countries characterized by "latent" social conflicts, weak or non-representative political institutions and economies that are susceptible to exogenous shocks.¹⁰

Indeed, formal econometric results strongly support the above hypotheses. Given that the

¹⁰ See for example, Rodrik (1999) and Elbadawi (2002).

CDF-like and institution variables are positive by construction, a Tobit panel regression was used to estimate the models (pooled and random-effects Tobit regressions are reported in Tables 4.a & 4.b, respectively). The overall explanatory power of the estimated model is good taking into account the fact that we are dealing with panel data estimation. The likelihood ratios across the models show the overall significance of the estimated coefficient. The results are remarkably robust across the two sets of

**Table 4.a: Factors Influencing Development Strategies and Institutions
(Pooled Tobit Regressions)**

Dependent Variable	Determinants of CDF-like				Determinants of CPIA & ICRG			
	CDF-like (1)	Std Deviation of CDF-like (2)	CDF-like (1')	CDF-like (1'')	CPIA (3)	CPIA (3')	ICRG (4)	ICRG (4')
Log Initial GDP per capita	0.0151 (1.25)	-0.0156 (-2.10)**	-0.0288 (-1.41)	-0.0394 (-1.57)	0.0670 (1.67)***	0.0621 (1.47)	0.3315 (10.29)*	0.3130 (9.10)*
Social Fractionalization	-0.0033 (-8.92)*	0.0006 (2.37)**	-0.0022 (-2.54)**	-0.0029 (-4.97)*	-0.0032 (-2.50)**	-0.0013 (-0.67)	-0.0054 (-3.05)*	0.0025 (0.99)
Initial Democracy	0.0164 (4.42)*	-0.0025 ^{ch} (-0.75)	0.0002 (0.03)	0.0012 (0.19)	0.0314 (2.58)**	0.0035 (0.20)	0.1017 (7.26)*	0.0970 (4.80)*
Democracy x Social Fractionalization	0.0006 (10.21)*	0.00006 ^{ch} (1.68)***	0.0004 (3.41)*	0.0006 (8.94)*	0.0004** (2.16)	0.0001 (0.41)	0.00003 (0.11)	-0.0014 (3.43)*
Predicted CDF-like						0.7941 (2.18)**		1.5972 (3.50)*
Predicted CPIA			0.4403 (2.14)**					
Predicted ICRG				0.1231 (2.04)**				
Shock x Social Fractionalization		0.000002 (2.20)**						
Error-Correction Lagged		-0.1047 (-2.50)**						
Constant	0.4440	0.1400	-0.5790	0.5178	2.6221	2.2931	0.4556	-0.4722
LR χ^2 – Test [P-value]	233.75 [0.0000]	23.11 [0.0008]	154.42 [0.0000]	154.01 [0.0000]	45.05 [0.0000]	41.43 [0.0000]	330.51 [0.0000]	331.95 [0.0000]
# of Observation	326	84	231	231	304	298	371	367
Number of Countries	93	56	80	80	82	89	102	101
Pseudo R	2.6661	-0.1230	18.3493	3.7289	0.0732	0.0684	0.2753	0.2810

Notes:

1. Autocracy is given by 10 – Democracy, where Democracy is measured by Polity IV (see footnote of Table 3 for definition of other variables).
2. Predicted CPIA and ICRG variables are obtained from regressions 3 & 4, respectively.
3. The “Error-Correction” term is given by the residual of the regression of regression 1 (i.e. equal to: Predicted CDF-like – CDF-like).

4. t-values are reported in brackets, where robust standard errors are used.
5. *Significant at 1% level, ** significant at 5% level, *** significant at 10% level.
6. LR χ^2 – Tests the null hypothesis that coefficients are NOT significant overall.

**Table 4.b: Factors Influencing Development Strategies and Institutions
(Random Effects Tobit Regressions)**

Dependent Variable	Determinants of CDF-like				Determinants of CPIA & ICRG			
	CDF-like (1)	Std Deviation of CDF-like (2)	CDF-like (1')	CDF-like (1'')	CPIA (3)	CPIA (3')	ICRG (4)	ICRG (4')
Log Initial GDP per capita	0.0051 (0.51)	-0.0154 (-2.09)*	-0.0156 (-1.24)	-0.0414 (2.48)*	0.0388 (0.70)	0.0388 (0.65)	0.2268 (5.54)*	0.2734 (5.76)*
Social Fractionalization	-0.0047 (-14.76)*	0.0006 (2.42)*	0.0028 (-5.63)*	-0.0041 (-8.26)*	-0.0012 (-0.74)	0.0018 (0.69)	-0.0077 (-3.15)*	0.0049 (1.97)**
Initial Democracy	0.0087 (3.37)*	-0.0026 (-0.78)	-0.0032 (-0.90)	-0.0042 (-1.13)	0.0466 (3.91)*	0.0206 (0.87)	0.1015 (8.11)*	0.1379 (5.90)*
Democracy x Social Fractionalization	0.0009 (18.93)*	0.00007 (1.74)***	0.0007 (10.30)*	0.0008 (12.86)*	-0.00002 (-0.11)	-0.0005 (-1.25)	0.0004 (1.67)***	-0.0017 (-4.63)*
Predicted CDF-like						0.9390 (2.96)*		1.4202 (3.90)*
Predicted CPIA			0.2906 (2.68)*					
Predicted ICRG				0.1003 (2.92)*				
Shock x Social Fractionalization x Autocracy Error-Correction Lagged		0.000002 (2.23)**						
Constant	0.5970	0.1388	-0.1672	0.6628	2.7376	2.2540	1.2202	-0.2544
LR χ^2 – Test [P-value]	632.71 [0.0000]	27.22 [0.0001]	620.35 [0.0000]	240.39 [0.0000]	22.66 [0.0001]	17.21 [0.0041]	257.7 ^w [0.0000]	251.12 ^w [0.0000]
# of Observation	326	84	231	231	304	298	371	367
Number of Countries	93	56	80	80	90	89	102	101

Notes:

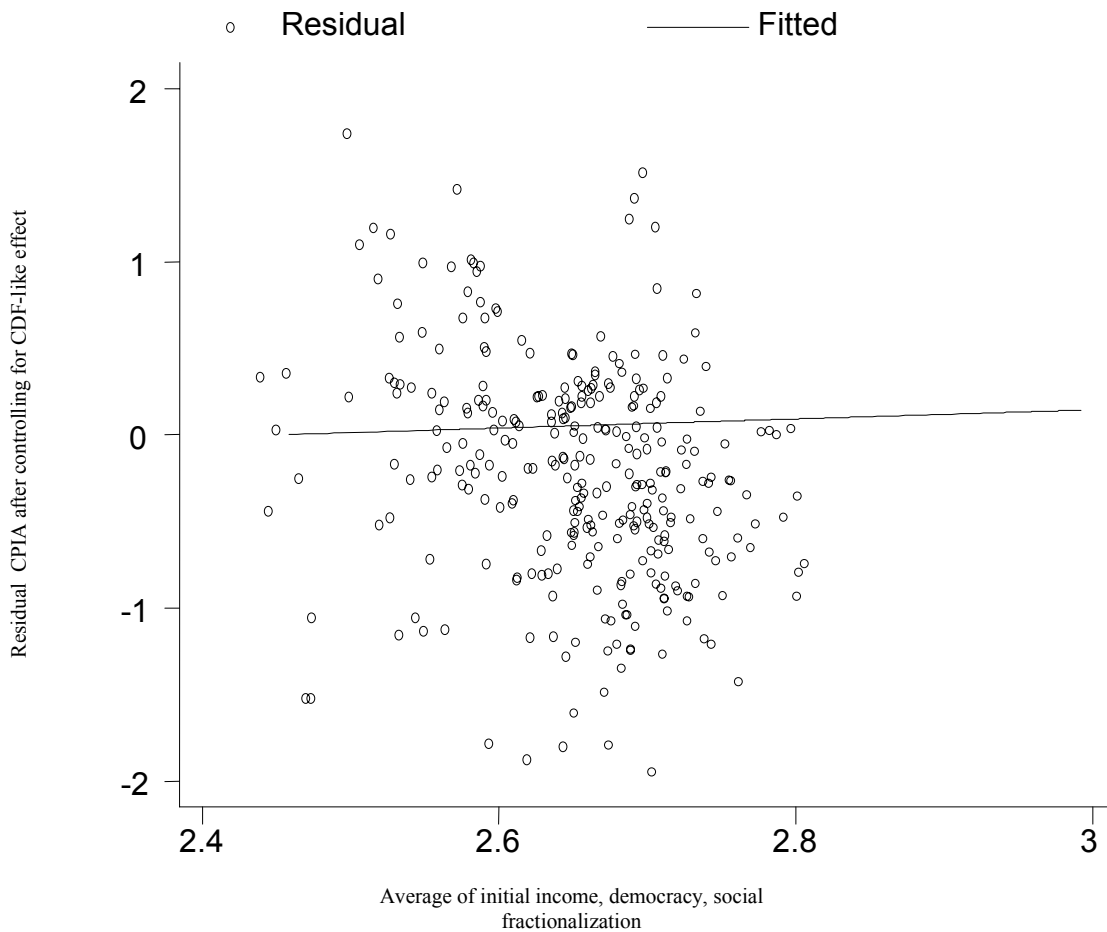
1. Autocracy is given by 10 – Democracy, where Democracy is measured by Polity IV (see footnote of Table 3 for definition of other variables).
2. Predicted CPIA and ICRG variables are obtained from regressions 3 & 4, respectively.
3. The “Error-Correction” term is given by the residual of the regression of regression 1 (i.e. equal to: Predicted CDF-like – CDF-like).
4. t-values are reported in brackets, where robust standard errors are used.
5. *Significant at 1% level, ** significant at 5% level, *** significant at 10% level.
6. LR χ^2 – Tests the null hypothesis that coefficients are NOT significant overall.

regressions. The results of pooled and random-effects Tobit regressions both strongly

corroborate the endogeneity of both CDF-like and ICRG indexes to the country-specific characteristics. According to these results countries with higher initial income, functioning democracy and less fractionalized societies are likely to adopt CDF-like development strategies (see regressions 1 of Tables 4.a & 4.b) as well as to have better institutions (regressions 3 & 4 of the two tables).

Moreover, controlling for CPIA or ICRG in the CDF-like equation (regressions 1' & 1'' in both tables) at least some of these variables continue to be significant. On the other hand, when controlling for CDF-like development strategies in the CPIA regression the effects of the fundamental variables on CPIA disappear (regression 3' in both tables and Figure 2). However, this finding does not carry over for the case of ICRG, where some of the fundamental variables remain significant even after controlling for the CDF-like effect (regressions 4'). The difference in the results could be explained by the fact that ICRG is a broader definition of institutions that also accounts for some of the CDF processes, while CPIA is confined to assessing institutions of direct relevance to economic policy.

Figure 2: Index of CDF-like Fully Accounts for CPIA



Therefore, the evidence suggest that both the choice of a development strategy and the evolution of institutions are endogenous to “fundamental” country-specific factors. And that the latter tend to affect institutions, especially those directly relevant to economic policy, through the chosen development strategy. This latter and very interesting finding can be justified on the ground that CDF-like development strategy is about processes that should influence better intermediate outcomes, such as institutions. Hence, the initial economic, social and political characteristics of any given country must influence that country’s institutions through their influence on development processes and strategies.

Finally, the volatility of CDF-like development strategy (measured by the standard deviation of the CDF-like index) is positively influenced by a composite term reflecting the combined effects of terms of trade shocks, social fractionalization, and autocracy (regression 2 of the two tables). This finding is consistent with the evidence from the growth literature referred to above. Moreover, our results confirm a concern expressed in the context of implementation of the current CDF initiative, where it has been noted that, “sustainability becomes a problem when countries are facing economic crisis. In such countries, macroeconomic issues dominate over social and structural ones in terms of policy priorities” (CDF Secretariat, 2001: p. 8).

4. The Marginal Contribution of CDF-like Development

As we argued above the decision by countries to adopt a CDF-like or any other type of a development strategy is itself endogenous to country-specific socioeconomic and political characteristics as well as other factors exogenous to the country. These same factors are also likely to be important determinants of country economic performance, such as economic growth. This suggests that an adequate framework for estimating the marginal contribution of CDF-like development strategy should allow for correction of the “sample selectively” bias that results from the non-randomness of the decision to pursue a CDF-like development strategy.

The problem of selectivity bias arises in evaluating the impact of CDF-like development strategy (or at a more narrow level economic reforms) on average economic performance (e.g. real GDP growth) when the average performance of the CDF-like countries would differ from that of non CDF-like countries even if the former do not pursue a CDF-like development strategy. This interpretation of the selection bias problem borrows from the literature on the impact of social programs,¹¹ especially its application for assessing the impact of World Bank’s structural adjustment (e.g. Elbadawi, 1998). Drawing from this literature we estimate a modified control-group model, based on the following equations:

$$(1) \quad I(CDF - like)_{it} = C'_{it}\gamma$$

$$(2) \quad g_{it} = F_{it}^{g'}\beta_F + C'_{it}\beta_S + I(CDF - like)_{it} + v_i + \varepsilon_{it} \quad \text{for } t > k$$

$$(3) \quad g_{is} = F_{is}^{g'}\beta_F + C'_{is}\beta_S + I(CDF - like)_{is} + v_i + \varepsilon_{is} \quad \text{for } s < k$$

Where i stands for country; t , k and s are time periods; $I(\cdot)$ is the CDF-like index, which is assumed to be zero (non CDF-like) during the initial period ($s < k$); C stands for socioeconomic and initial country-specific characteristics; g is the rate of real GDP growth (as an indicator of economic performance); F^g are the fundamentals associated with g ; v and ε are random disturbance terms.

Combining the estimate of equation 1 (from the Tobit regressions of Table 4: $C'_{it}\hat{\gamma}$) with equations 2 and 3 gives us the estimating equation that will be used for analyzing the marginal contribution of a CDF-like development strategy:

$$(4) \quad g_{it} - g_{is} = (F_{it}^{g'} - F_{is}^{g'})\beta_F + (C'_{it} - C'_{is})\beta_S + C'_{it}\hat{\gamma} + \varepsilon_{it}$$

A version of equation 4 is used to estimate the change in growth, illiteracy rates and institutions (measured by CPIA and ICRG), where we make a further simplifying assumption by setting $s = t-1$ in the above equation.¹² Table 5 reports the empirical results, which suggest that CDF-like development strategies have had strong marginal contribution to growth, literacy and institutions. At least for the growth and institutions equations the overall explanatory power of the empirical model is quite high (with an R-squared above 0.80 for growth, 0.72 for CPIA and 0.59 for ICRG). The explanatory

¹¹ See for example, Heckman (1979); Heckman and Hotz (1989) and literature cited therein.

¹² This is not an overly restrictive simplification because the regressions are based on three-year periods, which is consistent with the cycle suggested for the medium-term implementation plan associated with CDF (see section two above).

power for the illiteracy equation is, however, rather modest with an R-square of 0.38. This is not uncommon for human development variables due to the difficulty of accounting for the full range of their determinants. Diagnostic tests suggests that the model is well specified, where a Hausman's test validates the fixed-effects estimation and the Cook-Weisberg test finds no evidence of heteroscedasticity— a typical problem in cross-section analysis.

The marginal contribution of CDF-like strategy is fairly robust and consistent with prior expectation. In addition, except for the illiteracy equation there appears to be a strong catch-up effect, as evidenced by the negative and significant coefficients of lagged growth, lagged CPIA and lagged ICRG on their respective equations. On the other hand, high initial illiteracy rates seems to be associated with increased illiteracy in the future. Even though the coefficients of differenced democracy, the interaction of differenced democracy and social fractionalization, and lagged GDP per capita have the correct signs, they are statistically insignificant. This is not surprising since their influence is already accounted for in the predicted CDF variable (from regression 1 of Table 4 above). That is, in the presence of CDF-like development strategy country-specific characteristics (measured by the level of development, social cohesion and quality of institutions for promoting cooperation among social groups) will have no independent effect on development outcomes.

Returning to the estimates of the marginal impact of CDF-like, the primary focus of this analysis, Table 6 translates these estimates into elasticity form, which allows better appreciation of the marginal development impact of CDF-like strategies. The derived elasticities suggest that the development impact of moving up the ladder of CDF-like development strategy could have substantial development impact.

**Table 5: CDF-like Contributions to Development Outcomes
(Fixed Effects Estimation)**

Dependent Variable	Change in Growth [†] (1)	Change in Growth [†] (1')	Change in Illiteracy [†] (2)	Change in Illiteracy [†] (2')	Change in CPIA (3)	Change in ICRG (4)
Predicted CDF	11.5114 (2.23)**	11.6137 (2.50)**	-0.6213 (-2.73)**	-0.6282 (-2.36)**	1.0209 (2.12)**	1.2737 (2.39)**
Change in Democracy	0.0183 (0.08)	0.1314 (0.65)	-0.0024 (-0.32)	-0.0032 (-0.36)	0.0049 (0.16)	0.0119 (0.37)
Change in democracy x Social Fractionalization	-0.0036 (-1.31)	-0.0051 (-1.96)**			0.0001 (0.33)	-0.000008 (-0.02)
Lagged log GDP Per Capita	-0.0079 (-4.24)*	-0.0015 (-3.69)*	0.1970 (1.04)	0.1655 (0.89)	-0.6271 (-2.32)**	-0.5831 (-1.56)
Lagged Change in log GDP Per Capita	6.6928 (1.15)	-5.1860 (-0.87)	0.3377 (1.43)	0.2549 (1.07)	-0.3208 (-0.56)	
Lagged growth	-2.5424 (-10.93)*	-1.6423 (-6.59)*	-0.0177 (-2.08)**	-0.0035 (-0.45)	0.0380 (3.56)*	0.0315 (1.75)***
Lagged CPIA	-0.3973 (-0.46)		-0.0877 (-2.40)**		-1.0242 (-15.58)*	
Lagged ICRG		-1.1153 (-1.82)***		0.0664 (1.43)		-0.7342 (-8.45)*
Lagged Illiteracy	-0.6481 (-5.19)*	-0.5482 (-4.83)*	0.0282 (2.36)**	-0.0055 (-0.48)		0.0321 (2.17)**
Lagged Change in growth	0.8051 (6.19)*	0.3466 (3.61)*	0.0127 (2.25)**	0.0004 (0.07)	0.0138 (2.26)**	0.0136 (1.30)
Lagged change in CPIA	-0.0242 (-0.04)					
Lagged change in ICRG		1.0669 [1.88]***				-0.5198 (-6.97)*
Lagged change in illiteracy	-1.0531 (-0.75)	-1.1849 (-1.08)			0.0168 (0.13)	-0.2380 (-1.59)
Education (Secondary School Enrollment)	-0.1038 (-2.33)**	-0.1201 (-3.56)*	0.0040 (1.42)	0.0031 (1.15)		
Lagged Democracy	0.1601 (0.77)	0.1840 (1.02)	-0.0083 (-0.80)	-0.0023 (-0.20)	0.0576 (3.48)*	0.0416 (1.85)***
Constant	37.9476	26.2849	-3.8923	-3.0583	6.5278	4.0287
R-squared	81.14	76.80	38.12	21.65	71.59	57.82
F – Test	36.07	30.04	2.97	3.94	33.26	17.32
[P-value]	[0.0000]	[0.0000]	[0.0006]	[0.0000]	[0.0000]	[0.0000]
# of Observation	203	209	281	282	219	227
# of Countries	81	78	84	78	77	77
Cook-Weisberg Test (χ^2 -test)	0.91 [0.3388]		0.09 [0.7607]		0.71 [0.3985]	1.28 [0.2581]
[P-value]						
Hausman Tests	210.31		38.29		265.73	100.78
[P-value]	[0.0000]		[0.0002]		[0.0000]	[0.0000]

Notes:

1. Periods of estimation: 1980-82, 1983-85, 1986-88, 1989-91, 1992-94, 1995-97, 1998-2000.
2. Predicted CDF-like is obtained from the regression 1 of Table 4.a.
3. t-values are reported in brackets, where robust Standard Errors are used.
4. *Significant at 1% level; ** significant at 5% level; *** significant at 10% level.
5. Time dummies used in the growth and illiteracy regressions.
6. Cook-Weisberg is a heteroskedasticity test. The null hypothesis is that of homoskedasticity.
7. The Hausman and the F-statistics test for the null hypothesis that fixed effects are zero.
8. The full list of the countries in the sample is reported in the notes to Table 1.

Table 6. Marginal contribution of CDF-like Development

Dependent variable	Marginal contribution of Overall CDF-like index (in elasticity form)
(1) Growth	0.84
(2) Institutions: CPIA	0.20
(3) Illiteracy	-0.42
(4) Institutions: ICRG	0.47

Notes:

1.The Table contains the derived long run elasticities based on coefficients of the “predicted” overall CDF-like index from the regressions of Table 5 above in the performance equation for growth, illiteracy rate, CPIA and ICRG (regressions 1, 2, 3 and 4, respectively).

2.The mean of the predicted CDF=0.59, growth=3.18, CPIA=2.92, illiteracy rate=31.12, ICRG=3.07.

Consider the case of Africa, which by far, constitutes the most serious challenge for development. The story of African growth during the last two decades is summarized in Table 7. Our sample contains 22 countries from the region,¹³ of which two experienced negative average growth in period 1998-2000. These two countries (DRC and Zambia) have suffered from civil war (as for the case of DRC) or major dysfunctional governance (as for the case of Zambia). The bulk of the countries (17) achieved positive but less than 5% growth rates. These countries grew at an average rate of 2.7% and have had an average CDF-like score of 39 compared to a global sample median of 66. Two post-conflict countries (Ethiopia and Uganda), which achieved considerable catch-up growth averaged more than 5% growth rates and had an average CDF-like score of 42. Finally, Botswana was the only country to have achieved an average growth rate of 8%, which appears consistent with her high CDF-like score of 81.

With these rates of per capita growth, only Botswana is expected to meet the MDGs target on poverty (i.e. halving poverty by 2015), while Ethiopia may not be able to do more than prevent poverty from rising. Uganda should be able to do better than that but may not be able to meet the MDGs target. On the other hand, for the remaining 19 countries poverty is expected to *increase* rather than decrease with prevailing growth rates, especially for the negative growth group. It is clear, therefore, that meeting the MDG targets in Africa would require nothing less than a major re-orientation of the development discourse. In short it would require CDF-like development strategies.¹⁴

An illustration of the potential for meeting the MDGs by adopting CDF-like development strategies is provided by the case of Nigeria, the most populous African country (Figure 3). Nigeria achieved average annual growth rate of about 2.0% during the last two decades with a CDF-like score of only 19. The experiences of two other populous countries should be a useful guide for Nigeria. For example, Egypt CDF-like score for the period was about 50 and grew by more than 5%, while India’s CDF-like score was about 75 and grew by close to 7%. While, obviously, these orders of magnitude should

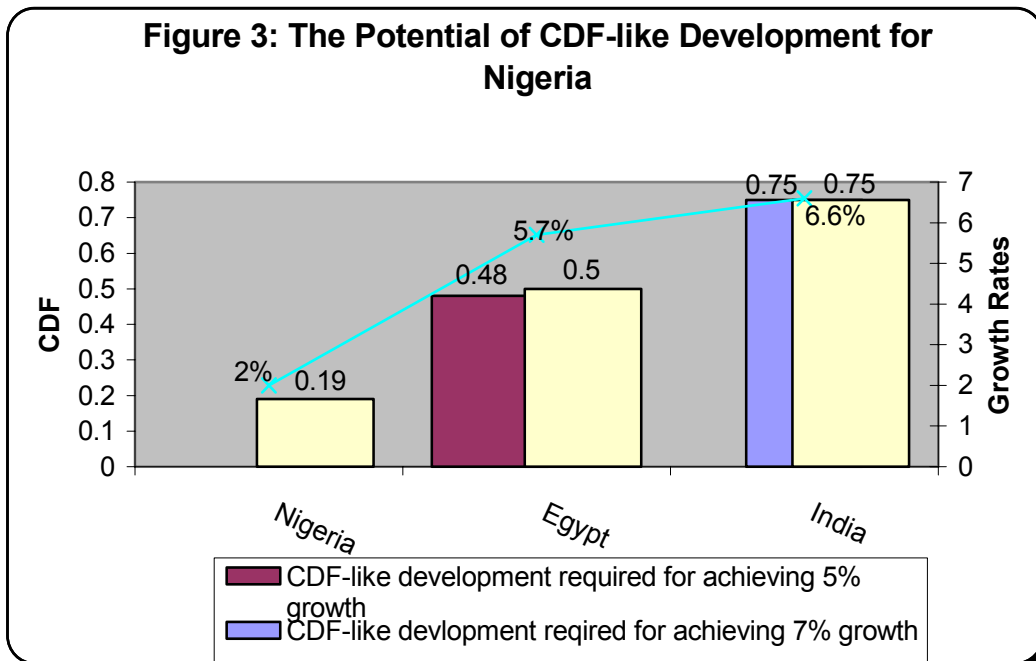
¹³ In fact these are the African countries in the sample for which we have data on growth and the CDF-like index.

¹⁴ See Elbadawi and Gelb (2003) for a review of growth performances in a larger sample of African countries.

not be taken as more than approximate benchmarks, they do, however, suggest that the development impact of CDF-like development strategies is not negligible.

Table 7: The Story of Growth in Sub-Saharan Africa (1980-2000)

Country groupings	List of countries	Number of countries	Average annual growth	Average CDF-like score
Negative growth	Democratic Republic of Congo, Zambia	2	-0.81	0.38
Positive but less than 5%	Republic of Congo, Niger, Cote d'Ivoire, Togo, Nigeria, Tanzania, Zimbabwe, Madagascar, Mozambique, Kenya, Mali, Malawi, Senegal, The Gambia, Burkina Faso, Ghana	16	2.7	0.35
More than 5% but less than 7%	Ethiopia, Uganda	2	5.7	0.42
7% or more	Botswana	1	8	0.81



Note: CDF values are rescaled between zero and 1.

5. CDF-like Development and Aid Effectiveness

Having established the positive development impact of CDF-like development strategies, we now investigate whether these strategies make aid to be more effective; or put differently, whether there are higher payoffs to be gained by providing aid to countries pursuing CDF-like development strategies. This analysis will be based on estimation of an extended Burnside-Dollar-type growth equation (Burnside and Dollar, 2000), which in addition to accounting for policy environment will also control for the type of development strategy, as measured by the CDF-like index.

The growth model was estimated using a fixed-effects instrumental variable and fixed-effects instrumental variable GMM technique. The econometric results obtained by the two approaches are broadly similar. To ensure robustness a battery of diagnostic tests were deployed to test for fixed effects, exogeneity of regressions, heteroskedasticity of random disturbances and validity of instruments (see notes to Table 8.a & 8.b). The two endogeneity tests (the Wu-Hausman and the Durbin-Wu-Hausman tests) suggest that OLS estimator of the same regression would yield inconsistent estimates, and hence instrumental variable estimation must be used; while the Hansen J test and the Sargan tests over-identifying restrictions. Both tests suggest that excluded instruments are valid instruments, i.e., uncorrelated with the error term, and that they are correctly excluded from the estimated equation. Finally the Hausman test finds that fixed effects are significant and the Pagan and Hall's tests find no evidence of heteroskedasticity in the instrumental variables.

The results of Table 8.a suggest that controlling for the initial conditions of development (per capita income) and initial level of human capital, direct impact of aid on growth was insignificant and that its effect is subject to diminishing returns. This result corroborates a major finding in the aid effectiveness literature.¹⁵ Moreover, there is evidence that aid is more effective under CDF-like development strategy (the interaction of aid and CDF-like variable). However, when accounting for the development strategy policy and institutional environment (CPIA and ICRG) does not appear to have an independent effect on aid effectiveness (the coefficients of the interaction terms between both of the CPIA and ICRG with aid) are insignificant. The more parsimonious regressions of Table 8.b, which drop the institutions variables, show very significant effects for CDF-like, which suggests the evidence of collinearity between the CDF-like and the institution variables.

These findings obviously do not suggest that institutions have no influence on aid effectiveness but that the processes associated with a CDF-like development strategy fully account for the impact of intermediate development outcomes such as institutions. Therefore, the contribution of this analysis to the aid effectiveness literature is that aid enhances growth when the aid-recipient country is applying a CDF-like development strategy and that it is more important to focus on promoting the right type of development processes than attempting to influence intermediate outcomes, such as institutions. A further articulation of the potential impact of CDF-like development on growth and aid

¹⁵ See for example, Burnside and Dollar (2000); Elbadawi and Randa (2003) and other literature cited therein.

effectiveness can be seen from simulations based on regression 4' of Table 8.b and reported in Figure 4 below.

Table 8.a: CDF-like Development Strategies and Aid Effectiveness

Dependent Variable: Growth of GDP per capita	Fixed Effects IV (1)	Fixed Effects IV (1')	Fixed Effects GMM (2)	Fixed Effects GMM (2')
Lagged log of real GDP per Capita	-5.0686 (-2.71)**	-4.3172 (-2.43)	-3.6875 (-2.34)**	-3.1143 (-2.17)**
Lagged Schooling	0.0547 (1.64)	0.0596 (1.70)	0.0577 (2.25)**	0.0767 (2.58)**
Aid	-0.0877 (-0.07)	0.3591 (0.60)	0.5473 (0.54)	0.8710 (1.41)
Aid Squared	-0.0112 (-1.20)	-0.0167 (-1.67)	-0.0156 (-1.78)***	-0.0246 (-2.34)**
CDF-like x Aid	1.8813 (1.65)***	2.1308 (1.93)**	1.4245 (1.43)***	1.9456 (1.96)**
CDF-like Squared x Aid	-2.0707 (-1.57)***	-2.3112 (-1.84)***	-1.4138 (-1.22)	-1.8109 (-1.59)***
CPIA x Aid	0.0587 (0.07)		-0.2143 (-0.34)	
CPIA Squared x Aid	0.0114 (0.09)		0.0456 (0.44)	
ICRG x Aid		0.0270 (0.07)		-0.2358 (-0.59)
ICRG Squared x Aid		-0.0089 (-0.12)		0.0278 (0.39)
Constant	28.1386	21.8648	18.4028	12.2839
F – Test	4.03 [0.0002]	3.64 [0.0006]		
# of observations	212	212	212	212
# of Countries	66	66	66	66
Wu-Hausman	3.8001	4.2585		
Endogeneity F-Test [P-value]	[0.0013]	[0.0005]		
Durbin-Wu- Hausman χ^2 -Test [P-value]	21.9916 [0.0010]	24.3395 [0.0005]		
Pagan-Hall: General Heteroskedasticity χ^2 - Test [P-value]	91.489 [1.0000]	62.379 [1.0000]	85.715 [1.0000]	20.600 [1.0000]
Pagan-Hall Test with assumed normality Heteroskedasticity χ^2 - [P-value]	123.577 [1.0000]	107.112 [1.0000]	128.329 [0.9937]	81.748 [1.0000]
Sargan Over identification χ^2 - Test [P-value]	11.898 [0.3714]			
Hansen J χ^2 Test [P-value]	15.585 [0.1573]		15.585 [0.1585]	14.427 [0.2103]
Hausman Tests [P-value]	29.00 [0.0000]			

Notes:

1. Periods of estimation: 1980-82, 1983-85, 1986-88, 1989-91, 1992-94, 1995-97, 1998-2000.
2. t-values in parenthesis, where robust standard errors used in each version estimation.
3. * - significant at 1% level, ** - significant at 5% level, *** - significant at 10% level.
4. Time dummies were used in all equations.

5. Instruments used: life expectancy, illiteracy rates lagged, mortality rates, log of arable land as % total land area, lagged aid to gross domestic investment, lagged cpi, gross enrolment in secondary schools.

6. The Null hypothesis of the above Diagnostic Tests are as follows:

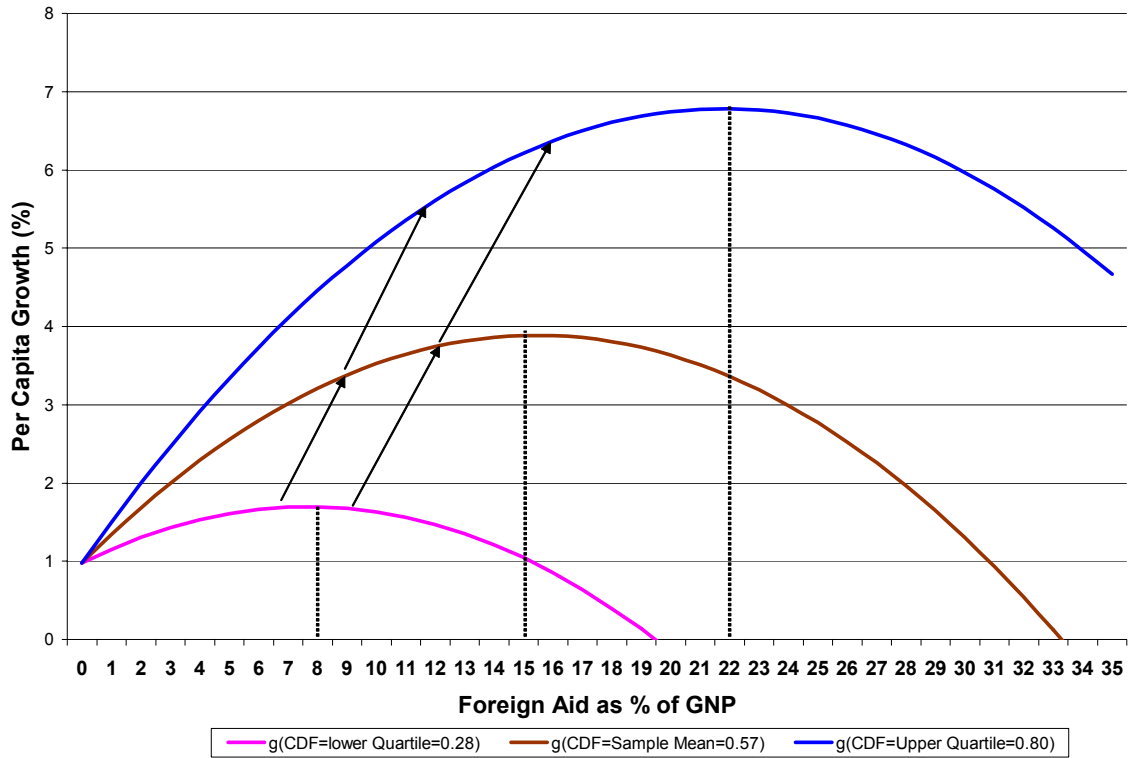
- Wu-Hausman F and Durbin-Wu-Hausman χ^2 Tests: Regressors are exogenous
- Pagan-Hall χ^2 -Test: Disturbances are homoskedastic
- Sargan χ^2 -Test: Instruments are Valid
- Hansen J χ^2 -Test: Instruments are valid
- The Hausman and the F-statistics test for the null hypothesis that fixed effects are zero.

7. The full list of the countries in the sample is reported in the notes to Table 1.

Table 8.b: CDF-like Development Strategies and Aid Effectiveness

Dependent Variable: Growth of GDP per capita	Fixed Effects	Fixed Effects	Fixed Effects	Fixed Effects
	GMM (3)	GMM (3')	GMM (4)	GMM (4')
Lagged log of real GDP per Capita	-3.0316 (-2.12)**	-2.8853 (-1.87)***	-3.7637 (-2.50)*	-3.9425 (-2.85)*
Lagged Schooling	0.0563 (2.14)**	0.06559 (1.83)***	0.0257 (0.83)	0.0479 (1.62)
Aid	0.6733 (2.35)**	0.5425 (2.01)**		
Aid Squared	-0.0233 (-2.52)**	-0.0208 (-2.53)**	-0.0122 (-2.14)**	-0.0099 (-2.05)**
CDF-like x Aid	0.4349 (3.07)*	2.3977 (2.09)**	0.6642 (2.45)**	2.5074 (2.21)**
CDF-like Squared x Aid		-2.5534 (-1.82)***		-2.6366 (-1.87)***
CPIA x Aid				
CPIA Squared x Aid				
ICRG x Aid				
ICRG Squared x Aid				
Constant	12.9729	10.7095	23.0471	21.5417
F – Test				
# of observations	212	212	212	212
# of Countries	66	66	66	66
Wu- Hausman Endogeneity F-Test [P-value]				
Durbin-Wu- Hausman χ^2 -Test [P-value]				
Pagan-Hall: General Heteroskedasticity χ^2 - Test [P-value]	62.510 [0.9988]	32.507 [1.0000]	36.924 [0.9953]	35.586 [1.0000]
Pagan-Hall Test with assumed normality Heteroskedasticity χ^2 - [P-value]	84.247 [0.8709]	54.337 [0.9921]	45.283 [0.9453]	53.988 [0.9965]
Sargan Over identification χ^2 - Test [P-value]				
Hansen J χ^2 Test [P-value]	7.069 [0.5292]	5.270 [0.5097]	10.457 [0.1067]	10.761 [0.1494]
Hausman Tests [P-value]				

Figure 4: Aid–Growth Relationship under Different Levels of CDF-like Development Strategies



Notes:

Based on regression 4' of Table 8.b, where all variables other than growth and Aid/GNP ratio are held at their respective sample medians.

The simulations suggest that there are very high payoffs to be gained by providing aid to countries pursuing CDF-like development strategies. For example, moving from a lower quartile value of the CDF-like index (about 28) to the median of 57, the growth-maximizing aid increases from about 7.5% to 14.5% of GNP while optimal growth per capita would increase from below 2 to close to 4%. And for those countries in the upper quartile of the index of CDF-like (at 80), both growth optimizing aid and attainable growth rate rise to 21.5 and close to 7%, respectively.

6. Conclusions and Policy Implications

It is important to note at the outset that the above empirical analysis cannot *explicitly* address the fundamental question occupying the development community since the launching of the CDF initiative in 1999—that is whether a CDF approach promotes better policies and institutions, much less the even more demanding question of whether it makes positive and robust marginal contributions to ultimate development goals. Until more experience with the CDF approach is gained and adequate historical data are developed, these questions can only be addressed *indirectly* through analyzing CDF-like development experiences, which is precisely what this paper does. While this analysis cannot permit evaluation of the CDF as an explicit initiative, it should however, provide useful lessons for better design and implementation of donors-assisted CDF development strategy. A summary of the main conclusion follows.

First, CDF-like development strategies, as well as institutions, are endogenous to “deep” country-specific characteristics, such as initial level of economic and political development and extent of social fractionalization. Second, however, these country characteristics appear to influence institutions through the processes associated with CDF-like development strategies. Third, sustaining CDF-like development strategy is more challenging in fractionalized societies with weak institutions for promoting inter-social groups cooperation, especially when faced with external shocks. This finding has two important implications for the design of future CDF. More attention should be given to flexible and counter cyclical assistance programs to help aid-recipient and other middle-income countries smooth the impact of external shocks. At a deeper level, the new World Bank/IMF Poverty Reduction Strategy Papers and other lending programs should provide more time and space for a genuine national bargaining process to evolve and mature, especially in fractionalized societies. Fourth, CDF-like development strategy produces superior development outcomes. The results of estimation of growth, poverty reduction and human development indicators seem to suggest that CDF-like development strategy has had robust positive marginal contributions to these pivotal development indicators. Fifth, CDF-like development strategy increases aid-effectiveness, where simulations based on analysis of growth suggest that there are very high payoffs to be gained by providing aid to countries pursuing CD-like development strategies.

Finally, perhaps the overarching conclusion of this paper’s analysis is that the international development community should aim at developing instruments for directly supporting CDF-like political and social processes; and should not be content with just promoting intermediate outcomes, such as institutions of development policy.

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Appendix: Indicators of CDF-like Principles

The construction of the following CDF-like principles is described below:

- CDF-like long-term holistic principle (LH): measured by the degree of dispersion in the CPIA ratings across three broad sectors: Economic Management, Structural Policies and Policies for Social Inclusion/Equity
- CDF-like ownership principle (OW): measured by participation and contestability components of Polity IV
- CDF-like country-led partnership principle (PA): measured by quality of aid
- CDF-like results orientation principle (RO): measured by the CPIA sub-indicator of poverty tracking capacity

1. CDF-like Long-Term Holistic (LTH):

The CDF-like Long-Term holistic is given by the degree of dispersion in the CPIA ratings across three broad sectors: Economic Management, Structural Policies and Policies for Social Inclusion/Equity; and is given by the coefficient of variation (CV):

$$CV_k = \frac{\sqrt{\sum_1^n \left(X_i - \frac{\sum X_i}{n} \right)^2}}{(n-1) \frac{\sum X_i}{n}}, \quad i=1,2,3$$

where X_i is the rating for the CPIA component i . Then the CV_k for country k is transformed into a CDF-like long-term holistic index (LTH_k), using the following formula:

$$LTH_k = \frac{Max(CV) - CV_k}{Max(CV) - Min(CV)} \times 100\%$$

, where $\max(CV)$ and $\min(CV)$ is taken for the entire sample across countries. Note that this index falls between 0 and 100. A greater degree of dispersion would suggest less coherence in the country's long-term, holistic development framework.

2. CDF-like Country ownership and participation

We have taken the contribution of Political Participation variable from the PARREG and PARCOMP components of the Polity IV Democracy-Autocracy Index.

According to Polity IV codebook the indicators are defined in the following way:

Regulation of participation(PAREG): Participation is regulated to the extent that there are binding rules on when, whether, and how political preferences are expressed. One-party states and Western democracies both regulate participation but they do so in different ways, the former by channeling participation through a single party structure, with sharp

limits on diversity of opinion; the latter by allowing relatively stable and enduring groups to compete non-violently for political influence. The polar opposite is unregulated participation, in which there are no enduring national political organizations and no effective regime controls on political activity. In such situations political competition is fluid and often characterized by recurring coercion among shifting coalitions of partisan groups (Marshall and Jagers, page 22-23). A five category scale is used to code this variable which ranges from (i) unregulated (Score =0), (ii) Multiple Identity (Score=0), (iii) Sectarian(score=-1), (iv) Restricted (score=-2) and (v)Regulated (score =0).

The Competitiveness of Participation (PARCOMP): This refers to the extent to which alternative preferences for policy and leadership can be pursued in the political arena. Political Competition implies a significant degree of civil interaction. This competitiveness is coded on a five category scale (i) Repressed (score=-2), (ii) Suppressed (score=-1), (iii) Factional (score=1), (iv) Transitional (score=2), (v) Competitive (score=3)

The CDF-like ownership and participation index (OWP) is a simple average:

$OWP = PAREG + PARCOMP$, where it is scaled to be between 0 and 100, using the following transformation:

$$\frac{OWP - \min(OWP)}{\text{Max}(OWP) - \text{Min}(OWP)} \times 100\%$$

3. CDF-like Country led Partnership (PA):

This is calculated as a weighted average of “excessive” technical assistance and aid fragmentation. Aid fragmentation is defined in this paper as the ratio of concentration of donors in the recipient country to how aid is distributed across different sectors in the economy of the country. A high ratio suggests either high donor concentration, and hence less difficulty in achieving coordination among donors; low sectoral concentration of aid, which means that aid is more evenly distributed across sectors and hence the aid regime is likely to promote holistic development; or both.

(a) *Donor Fragmentation (HHI_D)*: measured by a Herfindahl-Hirschman Index, which is a simple, yet sophisticated way of measuring donor fragmentation/concentration. The index is calculated by squaring the share of each donor’s share as percentage of bilateral aid and then summing those squares obtains the Herfindahl-Hirschman Index. The Herfindahl-Hirschman Index helps differentiate between one country in which four donors contribute equal amounts of bilateral aid and another where one donor contributes a 70 percent share and three others, 10 percent each. The former, which is more fragmented, would have a lower Herfindahl-Hirschman Index.

(b) *Sectoral Concentration of Aid (HHI_S)*: is the Herfindahl-Hirschman Index on sectoral allocation of foreign assistance, which measures the concentration of ODA across five major sectors: social infrastructure and services; economic infrastructure; production sectors; multi-sector and commodity aid; and general program assistance.

(c) “*Excessive*” technical assistance: is calculated by taking the deviation of the share of technical assistance in total aid a country receives (T) from the “optimal” technical assistance for that country (T*). That is, excessive technical assistance is given by:

$\frac{T}{T^*}$, where T* for country i is derived from the following expression:

$$I_{it} = \alpha_0 + \alpha_1 T_{it-1} + \alpha_2 T_{t-1} \times I_{it-2} - \alpha_3 T_{it-1}^2 \times I_{it-2} + \beta_0 X_0,$$

where α 's are the coefficients, T is actual technical assistance and I is the measure of institutional capacity in country i and is given by the ICRG variable taken from the International Country Risk database. X is the initial conditions. The underlying assumption in the above specification is that technical assistance improves institutional capacity (the positive coefficient of T), though its effect is subject to diminishing returns (the negative coefficient of T^2). Moreover, the specification suggests that countries with poor initial institutions stand to gain more by receiving technical assistance (the negative coefficient of the TxI term).

The optimum level of technical assistance (T^*), which maximizes institutional capacity

$$T_{it}^* = \frac{\alpha_1 + \alpha_2 I_{it-2}}{2\alpha_3 I_{it-2}}.$$

(I) is, therefore, given by

The optimal level of technical assistance varies with a country's level of institutions. The regression estimate of the above equation provides the values of the parameters that define the above expression (see Elbadawi and Randa, 2003 for further details).

To calculate the quality of aid variable, PA: we proceed in two steps:

First, we construct the following intermediate (negative) index of aid quality (PA^c), which takes higher values for lower quality of aid:

$$PA^c = \gamma_1 \left(1 + \left(1 - \frac{HHI_D}{HHI_S}\right)^{1+A+D}\right) + \gamma_2 \left(1 + \frac{T^*}{T}\right)^{1+A+D}$$

Where HHI_D is the concentration of donors in the recipient country, HHI_S is the sectoral concentration of aid in a recipient country, γ 's are weights derived using the principal components ($\gamma_1 = 0.6913$, $\gamma_2 = 0.3087$). And A and D denote aid dependence and debt overhang, respectively. The latter two concepts are defined below.

- *Aid dependency (A)*: which is measured as follows:

$$Aid\ Dependency = \frac{n_0 \times 0 + n_1 \times 1 + n_2 \times 2 + n_3 \times 3 + n_4 \times 4 + n_5 \times 5}{\sum n_i}$$

where n_0 is the number of times (during the period) aid to GNP is either 0

or any value less than 1%;

n_1 = is the number of times (during the period) aid to GNP is either 1% or any value less than 2;

n_2 = is the number of times (during the period) aid to GNP is either 2% or any value less than 5;

n_3 = is the number of times (during the period) aid to GNP is either 5% or any value less than 10;

n_4 = is the number of times (during the period) aid to GNP is either 10% or any value less than 15;

n_5 = is the number of times (during the period) aid to GNP is either 15% or more.

- *Debt overhang (D)*: is measured as an index that captures the extent of indebtedness in an economy. That is

$$DO = \beta_1 \frac{\text{External Debt}}{\text{GNP}} + \beta_2 \frac{\text{TDS}}{\text{Exports}} + \beta_3 \frac{\text{TDS}}{\text{Govt Revenue}}$$

where β 's are the weights derived from the principal components:

$\beta_1 = 0.4556, \beta_2 = 0.2860, \beta_3 = 0.2584$. DO stands for debt overhang, GNP is gross national product, TDS represents Total Debt Service, Exports is the exports of goods and services and External Debt is the total external debt.

Second, the ultimate (positive) quality of aid index PA (where higher values indicate better quality of aid) is obtained as a transformation of PA^c according to the following transformation:

$$PA_{it} = \frac{\text{Max}(PA_{it}^c) - PA_{it}^c}{\text{Max}(PA_{it}^c) - \text{Min}(PA_{it}^c)} \times 100$$

4. CDF-like Results orientation

The indicator for results orientation is the rating given to question 15 of the Country Policy and Institutional Assessment (CPIA) that asks for an assessment of poverty monitoring and analysis. This means that one of the four CDF-like principles that make up the overall CDF-like index is a component of the CPIA. This, however, should not pose a serious problem for subsequent regressions where both CDF-like and CPIA indexes are included, since this sub-index is only one of 20 components of CPIA; it accounts only for nine of the weight (see below the expression for the overall CDF-like index). Finally, all regression results remain unchanged when using an overall CDF-

like index without including the CPIA component.

5. Overall CDF-Like

The overall *CDF-like* score is a weighted average of the four principles, where the weights are derived by principle component analysis (PCA) of the scores of the four CDF principles. The weights from PCA are as follows:

$$CDFlike_k = 0.0116LTH_k + 0.7898OWP_k + 0.0666PA_k + 0.1320RO_k$$

where LTH stands for long-term holistic, OWP for ownership, PA for partnership and RO for results orientation.

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