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## Financing the Child-Centred Sustainable Development Goals (SDGs) in Ethiopia

Policy Brief

Globally, the Sustainable Development Goals (SDGs) adopt a systems approach that depends critically on comprehensive and integrated economic and social policies. Ethiopia has achieved almost all its Millennium Development Goals (MDGs), and the nation now faces the challenge of reaching the objectives aligned with the SDGs. Ethiopia has prepared a medium-term plan – the Second Growth and Transformation Plan (GTP II), covering the period from 2015 to 2020 – which forms an integral part of the country’s post-2015 development agenda. Compared to its initial point at the beginning of the MDG challenge in 2000, the country today is more advantageously positioned to achieve even greater progress in its development objectives – drawing from good practices and lessons learned during the implementation of the MDGs. Ethiopia’s ongoing fiscal decentralization provides an opportunity to identify linkages between policy spending and SDG performance. This includes an analytic approach that captures inter-sectoral policy synergies, highlighting the role of systems in the achievement of the SDGs.

## Ethiopia’s SDG Baseline Status

Ethiopia’s **baseline status** at the beginning of the post-2015 development horizon varies across the different Sustainable Development Goals. Findings indicate that Ethiopia has made substantial achievements in reducing poverty rates, increasing school enrolment and providing contraceptive care. Yet assessments show that greater investments are required to achieve the SDGs, particularly in access to basic services, child nutrition, reduced child mortality, eradicating child labour, and eliminating gender inequalities – all of which explain high rates of multidimensional poverty. Additionally, low rates of access to improved water and sanitation sources, electricity and health care impede efforts to achieve goals such as reducing wasting, stunting and child mortality. Significant spatial disparities between urban and rural areas and across regions highlight the need for SDG investments to better reach excluded and marginalised groups.

## A Cross-Sectoral Approach to Costing the SDGs

This study develops and tests an **innovative costing methodology** that encompasses a range of analytical frameworks, from conventional single-sector models to more sophisticated multi-input approaches as well as a state-of-the-art methodology that measures interactions across policy sectors and captures integration effects. This advanced approach reflects an understanding that the achievement of the SDGs results from a public policy production process in which SDG indicators represent outputs and spending on critical policy sectors represent the inputs. This advanced methodology improves the costing approach in several ways. Foremost, it pre-empts two critical traps into which unit-cost approaches fall:

- (i) Over-estimating costs by ignoring interaction effects referred to as “policy synergies”;
- (ii) Under-estimating costs by ignoring non-linear relationships, especially the commonly observed situation in which additional resources achieve diminishing impacts once the “low hanging fruit” has been harvested.

The advanced methodology employed in this study overcomes both these limitations, and therefore can model not only total cost more accurately but also unlock the identification of synergy-producing interactions among policy sectors. Ethiopia’s available district-level fiscal data merged with child outcomes summarized from household-level data enables the estimation of these effects. The data supports the analysis of nine sectors relevant for child-centred analysis: (1) Education, (2) Health, (3) Agriculture and Rural Development, (4) Culture and Sports, (5) Water Resources, (6) Trade and Industry, (7) Organs of State, (8) Justice and Security, and (9) General Services.

The innovative approach to modelling the cost of SDG leads to four main findings. First, **conventional unit-cost models—which are the most common approaches employed today—do not successfully predict SDG outcomes**. The estimates for most of the SDG indicators show that unit-cost approaches fail to explain the variability of district-level outcomes in Ethiopia. The unit-cost models yield poor statistical results, indicating they are unreliable for the purposes of a costing exercise. Out of 13 modelled SDG indicators, 11 fail to significantly explain the data.

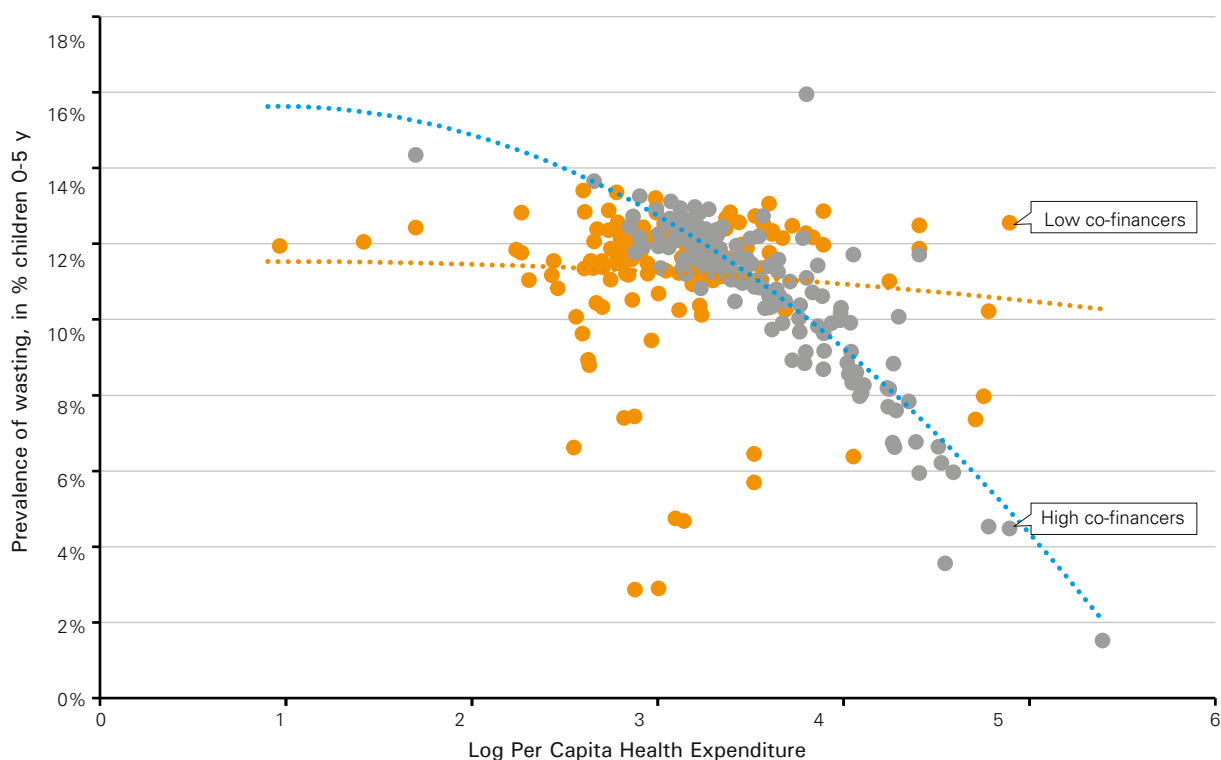
Second, **formal statistical testing rejects the applicability of a unit-cost approach.** The conventional unit-cost approach requires satisfaction of strong assumptions undergirding the adopted restricted linear model: total cost must equal the number of beneficiaries' times a constant cost-to-deliver. The formal hypothesis testing in this paper rejects the power of the unit-cost approach in explaining district-level outcomes in Ethiopia. Formal statistical tests of all the modelled SDGs reject the strict applicability of the unit cost model.

Third, **models that can measure the complex relationships between fiscal strategies and SDG outcomes (the advanced methodology at the heart of this study) provide substantially greater explanatory power and significance.** These advanced inter-sectoral models go further than unit-cost approaches by interacting spending across sectors to measure the impact of cross-sectoral synergies. These models demonstrate significantly greater explanatory power than the unit-cost models and are also more statistically significant and robust than the single-sector approach. Urban-rural disaggregated models for select indicators are also shown to be more robust than unit-cost models.

Fourth, **formal hypothesis testing documents the powerful impact of cross-sectoral synergies in explaining SDG outcomes at district level, with the interactions demonstrating complex pathways to achieving the SDGs.** Statistical tests that measure the additional explanatory power of the advanced methodology's innovations (the synergy terms) demonstrate the essential role of the model's features that measure synergy. For 12 out of 13 SDG indicators, hypothesis testing confirms that cross-sectoral synergy terms have a significant impact on the outcome indicator. The inclusion of these interaction terms better explains the variability in SDG outcomes and they are necessary to more accurately cost the achievement of SDGs in the long-term.

**Overall, the advanced methodology adopted for this study best explains the achievement of SDG outcomes.** Most of the explanatory power results from components of the model reflecting policy synergies across sectors. Figure I illustrates the example of health investments aimed at reducing the prevalence of wasting, where districts spending on both education and agriculture ("high co-financers") are more efficient and better able to reduce wasting in children with health expenditures compared to those districts who do not co-invest adequately in these complementary policy sectors ("low co-financers"). This evidence supports the recommendation of this report to adopt a systems approach to development – strengthening sectoral synergies and comprehensive programmes which have impacts beyond their own sector (e.g. health programmes which foster education outcomes). In contrast, silo approaches demonstrate rapidly diminishing marginal returns which do not harvest much more than the proverbial "low-hanging fruit." Practically, this means that attaining development is increasingly about moving away from within-ministry planning to integrated developmental planning. High-level political will fostering cooperation and coordination drive these vital opportunities to achieve inclusive social development and equitable economic growth, districts that effectively integrate investments across sectors (health, education and agriculture in the example above) can more effectively achieve complex outcomes (improved nutrition in the above example). The study's findings support the hypothesis that comprehensive and integrated investments across key social sectors better enable a systems approach that has a greater likelihood of successfully achieving the SDGs.

Figure I. Health expenditure on prevalence of wasting, by high and low co-financing districts



Source: Author's empirical estimates

## Fiscal Space Analysis

The results of a fiscal space assessment show that while development partner cooperation provides a vital and increasing contribution supporting inclusive social development, Ethiopia's strengthening equitable economic growth will continue to drive the financing of the nation's efforts to achieve the SDGs. Over the next decade, Official Development Assistance (ODA) as a share of Gross Domestic Product (GDP) is expected to fall substantially. Debt sustainability analyses show that Ethiopia is currently at high risk of debt distress; the country's capacity to use borrowing to finance part of its future expenditure is dependent on instituting reforms to use and manage debt efficiently, to increase own-resource mobilization and to diversify exports to reduce exposure risk. Ethiopia's impressive economic growth will continue to drive increases in government revenue. These growth trends, however, will not be sufficient to fully finance the required investment in the SDGs. Economic growth, however, will facilitate the strengthened government capacity to mobilize improved domestic revenue streams, particularly from national taxation and sub-national income sources.

## Resourcing the Child-Centred SDGs for Ethiopia

Using district-level expenditure data, this study's macro model forecasts public expenditures until 2030 through three scenarios. Scenario 1 models a fixed growth ("business-as-usual") approach, while Scenarios 2 and 3 adopt alternative dynamic optimization methodologies. The first scenario models existing expenditure patterns that grow in line with projected rates of economic growth.

Scenario 2 reflects a "learning-by-doing" optimization approach, taking advantage of the diverse experiences across districts and identifying a "best practice" combination of fiscal expenditures. Scenario 3 employs a "smart-search" optimization algorithm to fine tune fiscal synergies, improving progress intensively and extensively while improving efficiency. The analysis further tests these three scenarios with a rural-urban disaggregated model, factoring in residence-specific relationships.



The macro model shows that **single-sector solutions are unlikely** to achieve adequate results with any feasible set of resource allocations. The complexity of SDG inter-relationships and the challenges of diminishing marginal returns to socioeconomic investments require cross-sectoral approaches at decentralized levels which the National Planning Commission (NPC) and the Ministry of Finance and Economic Cooperation (MoFEC), with support from relevant partners, are best-placed to manage. The evidence demonstrates the powerful returns to comprehensive and integrated approaches.

**Scenario 1**, the baseline scenario, assumes a constant government-spending-to-GDP ratio (“business-as-usual”) for measurable and relevant social and economic expense categories, ranging from ETB 9 (current prices) per capita on culture and sports to ETB 147 per capita on education using 2011 as the base year. Assuming a constant growth rate, by 2030 these expenditures range from ETB 26 to 384 per capita. This scenario leads to modest improvements in nearly all CC-SDG indicators, but does not come close to achieving SDG-defined targets. This is reflected in the low proportion of districts that achieve each of the child-centred SDG targets. All poverty indicators improve – but multidimensional poverty remains high with average rates exceeding 60 per cent, while average monetary poverty rates exceed 20 per cent. Nutritional indicators improve, but under-5 mortality worsens. Access to services increases, but improvements are highly variable. For example, primary school enrolment increases from 69.4 per cent to 86.3 per cent, but for secondary school the increase is only from 20 per cent to 21.2 per cent. Following a business-as-usual path does lead to some promising results but does not demonstrate potential to achieve the SDGs.

In **Scenario 2**, the adoption of the best district fiscal model (decentralized learning-by-doing optimization) achieves dramatically better results. In this scenario, the best district is selected, and all other districts adopt its sectoral per capita expenditure mix. Under these conditions, all districts manage to achieve 10 out of the 13 targets. However, it does so at a significant increase in sub-national government expenditure, increasing from 6.7 per cent to 23.9 per cent of GDP. This scenario better achieves SDG performance but with a substantial commitment of fiscal resources.

**Scenario 3** uses a “smart-search” methodology to further optimize the learning-by-doing optimum. It adopts Scenario 2 as a starting point and revises fiscal expenditures sequentially with incremental adjustments that satisfy three simultaneous criteria: (1) the adjustment lowers fiscal expenditure; (2) the adjustment does not sacrifice any SDG outcome previously achieved; and (3) the adjustment improves at least one additional SDG outcome. Together, these three criteria aim to lower cost while progressively improving progress towards additional SDG outcomes, thereby increasing efficiency. The three criteria achieve one of many possible solutions with a result that depends on the initial pattern of fiscal expenditure and the subsequent sequencing of fiscal expenditure adjustments. Assuring the best possible set of outcomes will require a more complex analysis, but the results demonstrate that the smart-search optimization procedure can both improve the achievement of SDG outcomes and lower the required costs, thus improving value-for-money. In total, this scenario enables the achievement of 11 of the 13 modelled SDGs indicators (extensive progress) and improves the success of many of the indicators achieved in Scenario 2 (intensive progress), while lowering the total required government expenditure necessary to achieve this progress (improved efficiency).

**Table 1: Scenario cost comparison, by type of expenditure**

	Scenario 1	Scenario 2	Scenario 3
Per cent of Gross Domestic Product (GDP)	6.7%	23.9%	22.8%
Total Expenditure (in US\$ current) <sup>1</sup>	8,56 billion	30,71 billion	29,20 billion
per capita (in US\$ current)	67	241	229
Total Expenditure (in ETB current)	327.4 billion	1.175 trillion	1,117 trillion
per capita (in ETB current)	2,109	7,572	7,199

<sup>1</sup> With an exchange rate of 0.03653, December 2017

These findings reveal that leveraging sectoral synergies at decentralized levels can enhance SDG performance at a lower cost compared to the second scenario – at 22.8 per cent of GDP, or US\$230 per capita, per annum. This model only reflects the impact of increased government expenditure and improved fiscal synergies. History demonstrates that improved technologies for social outcomes achievement also provide an important source of progress and will likely reduce the required costs. This model does not reflect such effects and, as a result, likely overestimates the total costs. In short, the evidence demonstrates the powerful returns to comprehensive and integrated approaches **at a decentralized level** which generate developmental synergies, multiply impacts and improve value-for-money.

## Policy Recommendations

The analysis of three forecasted scenarios lead to a set of four policy recommendations. First, achievement of the SDGs will **require Ethiopia to increase its fiscal commitments**. Although this commitment implies a costing that is three times the size of the government’s current commitment, this is affordable given the decade-plus time horizon. Namely, the strong growth trajectory of Ethiopia’s economy will trigger a virtuous cycle which will strengthen government capacity to commit and implement the SDGs. This positive relationship between national income and the size of government is driven by an increased demand for public spending as the economy grows and increases the supply of tax revenue.

Second, the findings highlight the **importance of multisectoral approaches and cross-sectoral synergies**. Evidence from a range of countries highlights the critical role that strong institutional and coordination frameworks have played in supporting the achievement of the Millennium Development Goals (MDGs). In most countries, ministries have separate budgets, communication channels and monitoring systems – a highly fragmented institutional situation. However, achieving successful developmental impact requires deep interlinkages in sectoral overlapping targets and programme effects, as the SDGs illustrate. This reality requires strong interagency coordination, contrary to the traditional “silo” approaches to development adopted by many countries in the past, which have been counterproductive and undermined the integrated planning approach necessary for achieving sustainable development. Yet, institutional coordination will require political will to foster cross-sectoral synergies: coordinating across ministries, and ensuring that a country’s existing development strategies, plans or roadmaps are fed into all line ministries’ mandates. Connecting mandates to the SDGs provides a useful tool in this light to steer from silos towards synergies.

Third, **budgeting practices and procedures need to be firmly rooted in Ethiopia’s development strategy**. Countries that have taken such an integrated approach to development financing, often referred to as “whole-of-government” or “**whole-of-finance**” approaches, have performed better than countries that have allowed public investments to be politicized and fragmented. By untying development finance from political influence and instead relying on principles such as “performance budgeting” – which ensure that performance, evaluation, and value-for-money are integral to the budget process – public agencies will face incentives to work across portfolio boundaries, formally and informally, to achieve shared goals and integrated government responses to development targets.

Finally, the **complete eradication of extreme poverty** (measured using the US\$1.90 PPP poverty line) and **child labour prove to be particularly challenging**. Increased expenditure

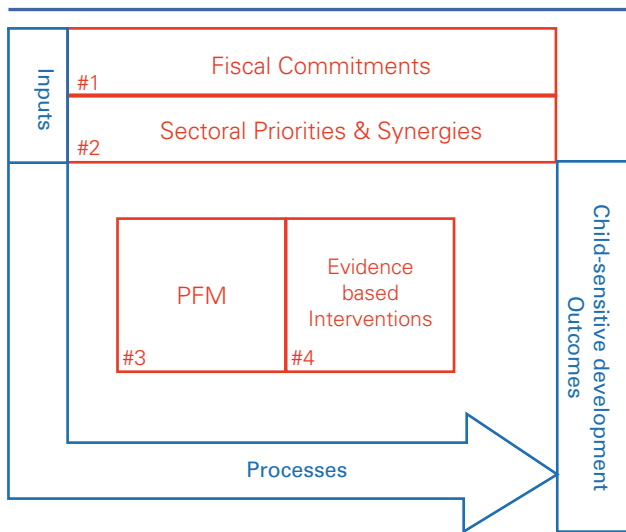


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and optimum cross-sectoral coordination may be insufficient for achieving these two goals. As a result, it will be important to continue to identify better policy approaches and more cost-effective interventions in addition to progressively increasing investments.

This policy brief and the study it summarizes aim to foster a discussion of the importance of comprehensive planning for the financing of sustainable development, particularly those areas which deliver children’s rights and simultaneously build the cognitive capital that drives Ethiopia’s future prosperity. By integrating a “whole-of-finance” approach into Ethiopia’s development strategies, costed sector plans which connect inputs to outcomes through a mix of evidence-based programmes and robust public financial management can translate sound policies into effective and developmental delivery as illustrated in Figure 2 below.

**Figure 2: Policy roadmap for child-centred SDGs in Ethiopia**



At a national and woreda level, the important message to convey is: “Take risks; failure in the face of ambitious initiative is acceptable: the chance of failure is the price paid for the opportunity to achieve outstanding success. A nation of ambitious and innovative risk-takers that learns from each other will provide the world with the lessons of SDG success.”







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