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**2015-05-14**
http://hdl.handle.net/10539/17741

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UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

**MEd RESEARCH REPORT**

# "ADAPTATION OF THE MARGINAL BUDGETING FOR BOTTLENECKS MODEL FOR PLANNING, COSTING AND BUDGETING IN THE EDUCATION SECTOR"

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- In cooperation with the United Nations Children's Fund -

A research report submitted to the Wits School of Education, Faculty of Humanities, University of the Witwatersrand in partial fulfillment of the requirements for the degree of Master of Education by combination of coursework and research

Johannesburg, 2013

Abstract

Already in its Education Strategy, adopted by the Executive Board in 2007, UNICEF fully obligates to the international commitment to universal education and defines its contribution to national efforts to fulfil children's right to education. In September 2010, UNICEF further published a special report on a study showing that an equity-focused approach to child survival and development is the most practical and cost-effective way of meeting the health MDGs for children. For the modelling process of the research a simulation was run employing the Marginal Budgeting for Bottlenecks (MBB) model, jointly developed by the World Bank and UNICEF. This model has been widely used in international public health research to design and test development strategies.

In its consistency with the human-right based approach, the MBB model addresses bottlenecks in the capacity of duty-bearers to fulfil human-rights as well as barriers of the capacity of right-holders to claim their rights. Using the MBB model, policymakers and researchers can simulate varying configurations of service delivery modes to expand access of coverage and measures to encourage usage. For each strategy, the model generates the predicted impact on intervention coverage and outcomes, overall cost and cost-effectiveness.

UNICEF's global refocus on equity and the most disadvantaged children makes it necessary to introduce improved planning and monitoring instruments. In this context, the MBB model is used as a budgeting and simulation tool for UNICEF interventions in health and nutrition. UNICEF aims to use harmonized tools across different sectors to reduce transaction costs and to improve comparison and sharing of lessons learned between the different sectors. However, it is also important to adapt and develop instruments based on the diverse needs of different sectors to ensure best results.

Therefore, the main purpose of this research is to find an answer to following question:

*Can, and if so, how can the Marginal Budgeting for Bottlenecks model, developed for the health sector, be adapted for planning, costing and budgeting allocations in the education sector?*

An adapted Marginal Budgeting for Bottleneck model for education could be applied for a comprehensive sector analysis, comparing intervention alternatives and setting policy goals and strategies. It could further be used to monitor the implementation of major sector reforms with regard to the comparison of potential versus actual impact of interventions on learning achievements.

Applying two production functions, the MBB model applies the basic principle of Cost-Effectiveness Analysis, comparing the costs of education interventions with the corresponding expected impact on increased service coverage. However, detailed inputs, outputs, outcomes and impacts and the corresponding correlations would need to be defined for an Service Production Function (input-output) and an Education Production Function (output-outcome/impact).

Further, a selection of globally proved remedial actions to overcome sector bottlenecks need to be specified. Education interventions largely depend on the country context and different countries and regions apply different remedial actions. Since the relationship of input and impact is not as linear as the illness-treatment relationship in health, international research and comparison of effective interventions would need to be conducted.

The MBB model is applying service coverage determinants of both, supply and demand side. Therefore the approach could be a helpful instrument in the context of the Human Rights-based Approach as used within programming of the United Nations and UNICEF. However, applying further analysis on humanitarian aspects of programming always depends on the availability of disaggregated information.

Based on the outline of the Service Coverage Concept and the Marginal Budgeting for Bottlenecks model and the conceptual adaptation of the MBB model for its use in education, following suggestions can be made for the Service Delivery Modes and Service Coverage Determinants:

| Five Service Delivery Modes | Ten Sub-Packages |
|---|---|
| **1. Pre-School Education** | 1.1 Public Early Childhood Education |
| | 1.2 Private Early Childhood Education |
| **2. Formal Basic Education** | 2.1 Public Formal Basic Education |
| | 2.2 Private Basic Education |
| **3. Non-Formal Basic Education** | 3.1 Public Non-Formal Basic Education |
| | 3.2 Private Non-Formal Basic Education |
| **4. (Lower) Secondary Education** | 4.1 Public Secondary Education |
| | 4.2 Private Secondary Education |
| **5. Adult Literacy, Continuing Education** | 5.1 Youth and Adult Literacy Interventions |
| | 5.2 Continuing Education |

| | Six Service Coverage Determinants | Indicator |
|---|---|---|
| Supply side | **1. Availability of essential commodities** | Pupil-Classroom Ratio by grade |
| | | Pupil-Textbook Ratio |
| | **2. Availability of human resources** | Pupil-Teacher Ratio (or Pupil-qualified Teacher Ratio) by grade |
| | **3. Geographic and financial accessibility** | School-Distance |
| | | School-Costs by grade |
| Demand side | **4. Initial Utilization** | Net-Enrolment Ratio (or Gross-Enrolment Ratio) by grade |
| | **5. Continuous Utilization** | Survival Rate by grade |
| | **6. Effective Utilization** | Graduation Ratio |
| | | Graduation Test Scores |

Overall, an MBB model in education could have added value for education planning, budgeting and impact simulation. However, it has to be considered that applying the model requires extensive data input for all six Service Coverage Determinants for each of the five Service Deliver Modes. Although, the MBB model could be adjusted to only cover a certain sub-sector within Quality Education for All.