

Will formula based funding and decentralized management improve school level resources?

Nisha Arunatilake and Priyanka Jayawardena
Institute of Policy Studies, Sri Lanka

Background and motivation

- Formula based funding and decentralized management
 - Renewed interest (esp. amongst developed countries) in 1990s
 - For their potential for improving resource availability in schools.
- However, the success depends on
 - availability of information for implementation and monitoring these schemes,
 - availability of basic resources,
 - strength of school-support systems,
 - Internal, external monitoring (the ability of the central government to motivate local level players to achieve identified education goals)
 - (the level and depth of decentralization),
- Study is on EQI scheme which proposes to improve Education Quality Inputs (EQI) in schools through
 - Formula based funding, and
 - Decentralized management of funds
 - Data – school census

(De Grauwe, 2005; Ross and Levačić, 1999)

Background - School System In Sri Lanka

- General Education Aimed at children 5 -18 years
- Education is provided through more than 10,000 schools spread throughout the country
- Around 93% of these are government schools, where tuition and facilities are provided free of charge
- Since 1987 Education has been a devolved subject
- Present administration structure consists of five levels:
 - Central Ministry of Education,
 - Provincial Ministries of Education,
 - Zonal offices,
 - Divisional offices
 - Schools

EQI scheme

- Education Quality Inputs (EQI) scheme started in Sri Lanka in 2000
(EQI: all materials, equipment, instruments and services used to add value to the teaching learning process)
- Objective of EQI
 - to improve resources for teaching learning process in schools
- **Main Features:**
- Fixed % of the total government budget on education are allocated for EQI
Recurrent (2%) and Capital (20%)
- Funds allocated according to a formula
- The schools were given the authority to manage the funds

Functioning of the EQI scheme

- Every school has a separate bank account for EQI
- Allocated funds are credited at the beginning of each year in the A/C
- Funds are assigned to schools according to a Norm Based Unit Cost Resource Allocation Mechanism (NBUCRAM), which is based on:
 - quality input norms (by educationists),
 - Size of the school (with corrections for economies of scale),
 - Grades available in the school,
 - School needs
- Schools are given authority to identify and purchase EQI goods,
 - but according to guidelines by the central MOE on:
 - Selecting suppliers, calling for quotations, how much to buy (depending storage capacity), ensuring quality

Formula

- **Step 1:**
- Provincial level officials decide how to allocated funds across grade cycles
 - e.g., 2005 Central Province allocation of funds:
 - Primary – 15%; Jr. Sec – 35%; Sr. Sec – 30%; Collegiate-15%
- **Step 2:**
- Based on these, weights are assigned to different schools
 - e.g., schools with only primary grades get a weight of 0.15
 - schools with both primary and jr sec grades get a weight of 0.50 (0.15+ 0.35)
- **Step 3:**
- Provincial officials decide how to distribute funds across different school types
 - Funds are allocated for desired student populations for each school and school type (this results in smaller schools getting more funds)

How is allocation of funds different under EQI?

- Previous method: Need-based allocation of funds – issues
 - Effectiveness depend on the ability of school managers (principal) to identify needs
 - May lead to historical budgeting
 - Identification of needs according to guidelines (lack of flexibility)
 - Budget limitations leads to prioritizing
 - More influential/ enterprising school head receive more funds
 - ... these lead to inequitable distribution of funds
- Under EQI, similar schools are treated equally
- Student characteristics, school cycles and school site differences are taken into account when allocating funds
 - Rural schools, small schools and disadvantaged schools are given more per-student funds

Distribution of EQI funds

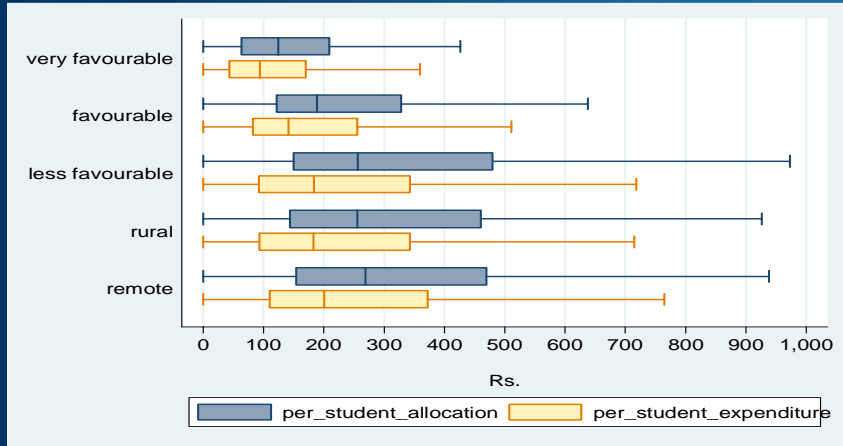
Distribution of EQI funds

- According to school census data in 2004,
 - Schools received Rs. 579 million (USD 5.72 million)
 - Of which 81% were used by schools
 - The rest (Rs. 121.8 million or USD 1.2 million) was unspent

Study Objectives

- The study specifically examines:
 - 1) As intended, do rural schools, small schools and disadvantaged schools benefit from this scheme?
(descriptive)
 - 2) **IS EQI fund allocation equitable?**
(method: benefit-cost analysis)
 - 3) **What factors affect the utilization rate of EQI funds?**
(method: partial equilibrium analysis)

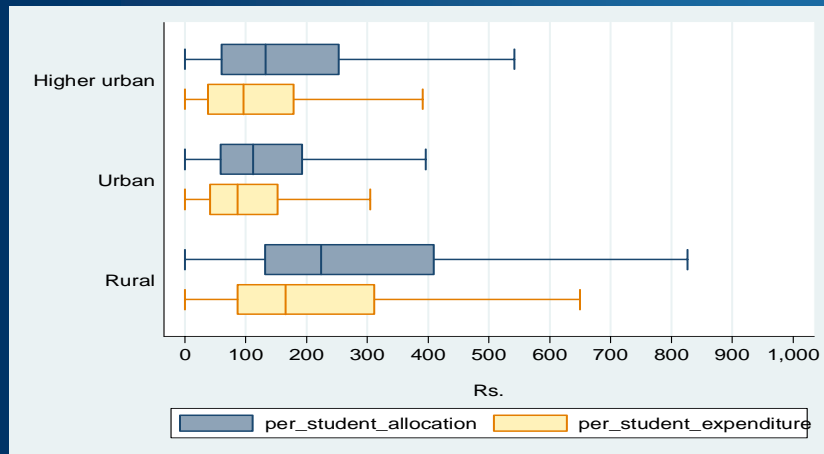
Per Student EQI Allocation and Expenditure - by Type of School



Larger amounts of per student funds for - disadvantaged schools

Source: Own calculations, using school census data

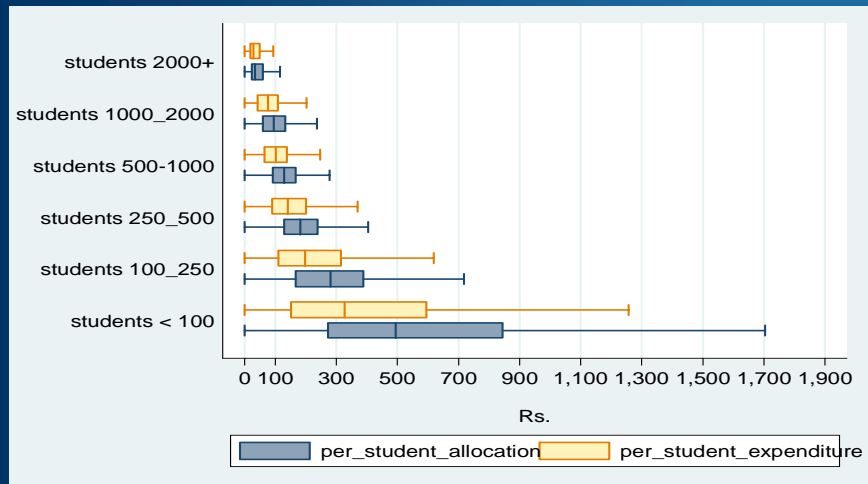
Per Student EQI Allocation and Expenditure by Location of School



Larger amounts of per student funds for - rural schools

Source: Own calculations, using school census data

Per Student EQI Allocation and Expenditure by Size of School



Larger amounts of per student funds for - smaller schools

Source: Own calculations, using school census data

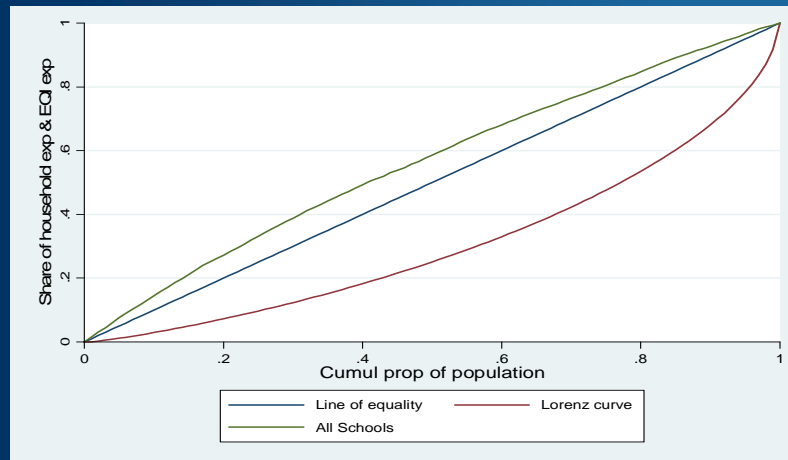
Allocative efficiency of EQI funds

- This indicates that overall funds are distributed according to the goal of
 - uplifting disadvantaged schools
 - taking into account economies of scale (i.e., the fact that smaller schools need more per student administrative funds).
- But, the formula used to allocate funds is not easily understood
 - which makes analyzing the allocative effectiveness of EQI funds difficult
- New Issue: Allocated funds are not fully utilized

IS EQI fund allocation more equitable, from the individual perspective?

Distribution of EQI Expenditure – All Schools

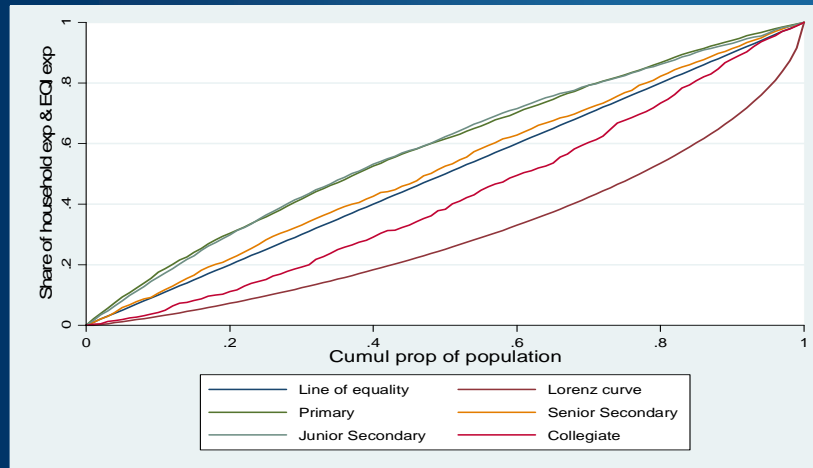
At the national level, EQI expenditure for all school cycles is progressive



Source: Own calculations, using school census data

Distribution of EQI Expenditure by Education Cycle

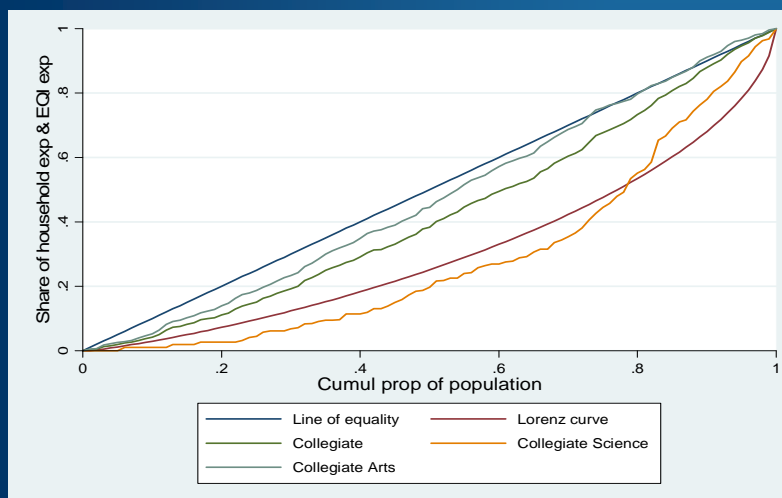
Progressive for primary and junior secondary school cycles and equitable for senior secondary school cycle



Source: Own calculations, using school census data

EQI Expenditure at the Collegiate Level by Education Stream

Collegiate school cycle, by arts and science streams : expenditure on the science stream is regressive



Source: Own calculations, using school census data

Distribution of EQI Expenditure

- EQI expenditure is distributed equitably for the most part, except at the collegiate level.
- The lower progressivity at higher school cycles are partly due to lower enrolments
- Particularly, in the science stream

**What affects utilization rate
of EQI funds?**

Factors affecting utilization rate of EOI funds

- **Dependent var**

- $UR_i = \text{tot_exp school } i / \text{tot_alloc school } I$

- **Independent var**

- T_i - teacher characteristics;

- M_i - management capacity of the school;

- C_i - school community characteristics;

- u_{iz} is a random disturbance term

- S_i - school characteristics;

- P_i - principal's characteristics;

- Z - school administration zone;

- Estimated using ordered probit model (for which results are shown)
- Model was also estimated using tobit analysis which yielded similar results

$$UR_{iz} = \beta_1 T_i + \beta_2 S_i + \beta_3 M_i + \beta_4 P_i + \beta_5 C_i + \beta_6 Z + u_{iz}$$

Model estimated for – all schools, primary schools, secondary schools, collegiate schools



Institute of Policy Studies of Sri Lanka

Independent Variables

- **Teacher Characteristics**

- Excessive leave (% teachers taking more than 25 days of leave in the school)
 - Gender (% Male)
 - Salary (% receiving different salary scales (control for experience and qualifications))

- **School Characteristics**

- Grades (primary only, secondary only, etc.)
 - Student teacher ratio (in primary, math, English)
 - School size
 - School type (well facilitated, facilitated)
 - School supervision (supervised by school administration)

- **Principal's characteristics**

- Qualifications
 - Experience
 - Gender

- **EQI funds specific**

- Received funds on time
 - Inspected



Institute of Policy Studies of Sri Lanka

Results

- Teacher characteristics
 - Lower EQI utilization rates if:
 - Male (secondary)
 - Excessive leave (primary)
- School characteristics
 - Lower EQI utilization rates if:
 - high student-teacher ratios (primary and collegiate)
 - small schools (primary)
 - less facilitated (all & collegiate)
- Principal characteristics
 - Higher utilization rates if:
 - qualified principals (collegiate)
 - male principals (all & primary schools)
- State-administration
 - EQI utilization rates differ across Provinces and zones
 - Timely allocation of funds and inspections improve fund utilization rates
- Community characteristics
 - Location and community level characteristics influence EQI utilization rates (large effect)
 - EQI expenditures is lower in all provinces relative Western province

Conclusions ...

- This study examine the success of the EQI Scheme that envisage improving school performance through formula based funding and decentralized management of schools
- The study finds that:
 - EQI funds are allocated equitably
 - Similar schools are treated equally and
 - Smaller schools, rural schools and more disadvantaged schools receive and spend a higher per capita allocation per student
 - However, the funding formula can be made clearer
 - So that easier to assess whether funding goals are met.
 - Fund allocation is progressive (poorer get more funds)
 - Except at higher school cycles, especially in the science stream
- However, around 20 per cent of these funds are left unspent

Conclusions

- Equitable Allocation alone not sufficient to improve school performance
- Funds need to be properly utilized.
- Same factors that affected uneven distribution of funds under the other funding models results in uneven utilization of funds under formula based funding.
 - For example, ability of principals
- This shows that fundamental management resources are a necessary condition to improve resources at the school level, under any funding model.

Recommendations

- Improving school participation at higher grades will improve benefits of EQI
- To minimize under usage of funds
 - EQI procedure need to be reformed to help managers in small rural schools
 - The provincial and zonal level administrative divisions could play a large supportive role to schools
 - But, administrative capacity at these levels should be improved
- State level monitoring and support influences education management at the school level.

Thank You

nisha@ips.lk

www.ips.lk



Background

- Formal education is accessible to most
- But, problems of equity and quality
- Enrolments and achievements worse for
 - for poor
 - less developed provinces,
 - rural and small schools

By quintiles	Primary	Jr Sec	Sr Sec
Net Enrolment Rates			
Sri Lanka	96.5	88.2	53.6
Poorest	95.7	82.6	47.6
Richest	97.9	94.0	62.9
Grade Completion			
Sri Lanka	81.4	70.5	39.1
Poorest	73.4	61.2	22.6
Richest	87.4	75.4	60.6

Source: Own calculations using HIES 2006/07 data.

