How to Increase School Enrollment, Participation and Completion

Review of the Evidence

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Conference Programme

Welcoming Address

Panel 1: What Have We Learned About Improving School Participation?

Panel 2: What Have We Learned About Enabling Learning?

Panel 3: Supportive Learning Through Technology

Panel 4: Teacher Characteristics, School Governance, and Incentives

Panel 5: Evidence Gaps: Secondary Education and Girls

Panel 6: Evidence Gaps: Early Childhood Education

Panel 7: From Evidence to Action: Next Step for Scaling Up Evidence

Concluding Remarks
A Critical Issue

• Between 1999 and 2006 enrollment rates in primary school increased
  – from 54 percent to 70 percent in sub-Saharan Africa
  – From 75 to 88 percent in East and South Asia

• Worldwide, the number of children of school age who were out of school fell from 103 million in 1999 to 73 million in 2006
A Critical Issue

• World Bank data show that in Sub-Saharan Africa
  – Net enrollment in primary school 75% in 2009
  – Primary completion rates were 67% in 2009
  – In 2004, only 60% of students were able to progress to secondary school
  – Net enrollment in secondary school 27% in 2008
  – Gross enrollment in tertiary institutions was 6% in 2008

• Despite the improvements, the data show the region is still lagging in terms of human capital investment
Canonical Economic Framework

- **Earnings (dollars)**
- **Cost Outlays (dollars)**
- **Age of Worker**

**Gross Benefits**
- **Forgone Earnings**
- **Tuition, Books**
- **Earnings Stream A**
- **Earnings Stream B**
Assumptions of Canonical Framework

• Parents/children know the returns to education (i.e. earnings stream A vs. B)
  – Growing evidence of informational constraints in various developing country settings

• Parents/children able to borrow to finance educational expenses
  – Large body of evidence that demonstrates the importance of credit constraints in developing country settings
Economic Framework

**Benefits**
- Labor market returns (wages, employment)
- Non-labor market returns (e.g. better marriage prospects)

**Costs**
- Direct costs of schooling (fees, transport costs, uniforms)
- Opportunity costs of schooling (forgone earnings)
Implications of the Framework

• Educational investments may rise with:
  – Improvements in labor market conditions
  – Improvements in school quality
  – Improvements in complementary human capital investments (e.g. health, early childhood investments)
  – Reductions in costs of schooling (fees, uniforms, distance to school)
  – Reductions in returns to child labor
  – Alleviations of credit constraints
  – Reductions in poverty
  – Reduction in information barriers (if returns to education are generally underestimated)
Implications of the Framework

• Other implications of the framework:
  – With many children and limited resources it may be rational for parents to invest in children with the highest (perceived) chance of success at the expense of the others
  – If returns to education (labor market and non-labor market) for boys > girls then parents may invest more in boys
Testing the Theoretical Implications

• Theoretical implications provide various policy prescriptions on increasing education investments (i.e. schooling enrollment, participation, completion)
• However the theory does not provide guidance on the efficacy of various policy options.
  – How cost-effective are various options?
• Only credible empirical evaluation can deliver this
  – Randomization methods are the most credible
Evaluation Methodology

• Suppose we are interested in knowing the causal effect of a program that provided students with school uniforms

• Ideally, we want to know what would happen to the school enrollment of a student (Abhijit) under this program compared to the enrollment of the same student (Abhijit) without the program at the same time.  
  – This is known as the counterfactual
Creating a counterfactual

- **Non-randomized studies:** argue that a certain excluded group mimics the counterfactual. The following strategies are examples of evaluation methods:
  - Simple Difference (or pre-post)
  - Multivariate Regression
  - Matching
  - Differences-in-Differences
  - Instrumental Variables
  - Regression Discontinuity

- **Randomized studies:** use random assignment of the program to create a control group which mimics the counterfactual
Testing the Theoretical Implications

- Improvements in labor market conditions
- Improvements in school quality
  - Improvements in complementary human capital investments (e.g. health, early childhood investments)
  - Reductions in costs of schooling (fees, uniforms, distance to school)
- Reductions in the returns to child labor
- Alleviations of credit constraints
- Reductions in poverty
- Reduction in information barriers (if returns to education are generally underestimated)
Testing the Theoretical Implications

• Use various indicators or measures of educational investment
  – Enrollment
  – Participation (or daily attendance rates)
  – Completion (years of school completed)
Increasing Education Investments

• Focus on the following interventions for increasing investments in education where we have credible evidence from randomized studies
  – Addressing health barriers (deworming)
  – Lowering costs/subsidizing schooling
  – Establishing new schools
  – Conditional cash transfers (CCTs)
  – Providing information about education

• Wide variation in their effectiveness, and also their cost-effectiveness
  – Different strategies may affect various combinations of attendance, enrolment and completion
Health as a Barrier to Education

• Infectious diseases can hinder education access

• Hookworm, roundworm, whipworm, and schistosomiasis affect two billion people worldwide (WHO, 2005) and are particularly concentrated among school aged children.

• Intestinal worms can make children tired, malnourished, and anemic, keeping them from attending school
  – Deworming drugs cost only a few cents per pill and can be delivered inexpensively through schools
Health as a Barrier to Education

• Treating Kenyan children for worms caused a 7 percentage point increase in school attendance
  – Even kids who were not directly treated benefitted from the lower rates of infection in the community
  – Programme is extremely cost-effective, buying around 14 additional years of education per $100 spent

• Limited (but growing) evidence on the importance of non-infectious diseases as impediments to schooling
  – Eyeglasses
  – Micronutrients
Lowering Costs/Subsidizing Schooling

- Programmes that reduce schooling costs are generally effective, and are fairly cost-effective.

- Ancillary costs of education (e.g. school uniforms) continue to impede education access in Kenya:
  - In 2003, school uniforms cost about 480Kshs (approximately 2% of per capita GDP),

- In Kenya, a program that provided free uniforms to students increased their attendance by 6.4 percentage points, buying 0.71 additional years of education per $100.

- Another Kenyan study showed that providing scholarships to cover school fees significantly increased attendance, causing 0.27 additional years of education per $100 spent.
Establishing New Schools

• Growing evidence that distance reduces demand for services

• In Afghanistan, building of “village-based schools” reduced distance children had to travel from almost three miles to less than a quarter mile
  – A 42 percentage point increase in enrolment
  – Can’t know exactly what would happen in an area with more convenient schools or higher baseline enrolment

• Increase in convenience was particularly effective at improving girls’ enrolment
  – Led to a 50 percentage point jump in girls’ enrolment
Conditional Cash Transfers

• Cash transfer programs that are targeted to the poor improve their consumption and well-being.
• From the theory outlined earlier we can view this as policy that addresses poverty and/or credit constraints.
• Moreover, if child labor is a consequence of poverty then CCTs will also help address the prevalence of child labor.
• Making cash transfers conditional on schooling improves attendance.
• But as a purely educational intervention, CCTs are very expensive, because of the high costs of targeting activities, and the transfers.
Conditional Cash Transfers

• In Malawi, researchers varied the size of cash transfers to see whether people would change behavior as much for smaller amounts of money
  – Found no difference in impact between giving the average transfer ($10/month), and the smallest transfer ($5/month)
• Also tested the efficacy of unconditional cash transfers-grants with no strings attached
  – Unconditional transfers had a smaller effect than conditional transfers, but they were most effective for the poorest students
Conditional Cash Transfers

- Evidence from Colombia suggests that simple design changes to CCTs (that do not affect overall benefit levels) can have large impacts on educational attainment
  – Conditioning payments on graduation rather than enrollment
  – Helping families circumvent the difficulties of saving money by shifting some of the benefits to coincide with the timing of school fees
Information on Returns to Education

• Families can be unaware of how much more children could earn with more schooling
  – 8th graders in Dominican Republic underestimated the earnings difference between primary and secondary school graduates by 75 percent.
  – Parents in Madagascar tend to believe that returns to primary education are low, and returns to higher education higher

• Programs that provided parents (Madagascar) or children (Dominican Republic) with information on the returns to education were very effective at boosting enrollment
  – Both programs were very cost-effective.
  – Madagascar program ➔ 20 additional years of education for every $100 spent
Cost-Effectiveness

Figure 1: Additional Years of Education per $100 Spent
Conclusion

• While the region has made significant strides in increasing educational attainment much work still needs to be done
• Evidence from randomized studies can provide the most credible evidence on what works
• Important caveat:
  – Results mostly drawn from “small-scale” programs
  – Large scale programs may generate additional effects or responses (e.g. a supply of education response)
• Despite the growing rigorous evidence, there are many gaps in our knowledge
  – Much of the evidence focuses on primary schooling. More research is needed in secondary and tertiary schooling
  – Critical need for further randomized studies that seek innovative and cost-effective ways to boost enrollment, participation and completion
  – An important way forward may be investigating the efficacy of small design changes in various programs.
Increasing Participation: Kenya’s National School-Based Deworming Programme

Mrs. Leah Rotich  
Director, Basic Education  
Ministry of Education

Dr. Stewart Kabaka  
Programme Manager, School Health  
Ministry of Public Health and Sanitation
Primary Education in Kenya

- Adoption of Free Primary Education in 2003
- Dramatically increased school enrolment
  - 5.9 million in 2003 to over 9 million in 2012

But...

Absenteism remains a problem

Net attendance ratio of 72% for boys, 75% for girls
Improving participation

• Need to address the causes of absenteeism
• Why are children missing school?
• Need for cost-effective solutions that can be implemented at scale
School-Based Deworming: A Solution

• Research in Kenya showed that School-Based Deworming reduced absenteeism by 25%
• This equates to an average 28 extra days schooling per year child treated.
• Additional benefits to health, cognition and future earnings.
School-based deworming: Building on existing infrastructure

- Schools are the best place to efficiently reach large numbers of children – especially since the introduction of FPE.
- There are more schools than health clinics and more teachers than health personnel.
- Administering deworming tablets can be done by teachers.
- School-based deworming is cost-effective because it uses existing infrastructure.
2009: first roll-out of National School-Based Deworming Programme in Kenya
Achievements: 2009

• Roll-out in 2009 successfully reached all 45 targeted districts
• Over **1,000** district and division personnel trained (MoE, MoPHS, KEMRI)
• Over **16,000** teachers trained

**Over 3.6 million** children in over 8,200 schools were dewormed!

The cost of the programme was only USD $0.36 per child treated
2009-2011: Transitional period
2012 and beyond

- IPA’s Deworm the World Initiative led the effort to find new resources for Kenya’s School Based Deworming Programme
- Identified a donor willing to support a five year programme
- Programme set to launch in the next month
Kenya’s National School-Based Deworming Programme

• The program targets

5 million children
every year for the next 5 years

• 4 Provinces
• 66 Districts
• Over 11,000 schools
Background: The National School Health Policy and Guidelines

• Signed and launched in May 2009
• Policy developed by Ministry of Education, Ministry of Public Health and Sanitation, various partners and stakeholders.
• The policy provides:
  – A legal framework
  – Clear cut leadership for ownership and sustainability
  – A guide to program implementation
National School Health Policy

School-based mass deworming adopted as an effective preventative and treatment measure; policy instructs that:

“Treatment shall be administered to all school-age children, including those out of school, based on the prevalence and intensity of worms and bilharzias in the area.”

- GoK Nat’l School Health Policy, p. 32
Why School Based Deworming?

- Children have the worst infection because:
  - Often barefoot
  - Less hand washing
  - Often latrines not available
  - Often swimming and playing
- Children with worms are less likely to attend schools or to concentrate when they are there.

Graph Showing Intensity of Infection by Age

- Eggs per gram faeces
- Age (years)

- Hookworm
- Trichuris
- Ascaris
The School-Based Deworming Cascade

DMOH, DEO, Education Officers, District Clinical Officer, Public Health Officer, Nutritionist, etc.

Master Trainers

District #1
District #2
District #3
District #X

Division A
Division B
Division C
Division D

Division Public Health Officer
Area Education Officers
TAC Tutors, Nurses
Etc.

Head Teachers, Teachers
Parents
Students
Community
Deworming day: record-keeping
Deworming day – washing hands
Deworming!
Internal Monitoring

National Database

Province

District

Division

Schools

MoPHS Data MoE

MoPHS Data MoE

MoPHS Data MoE

MoPHS Data MoE
The National School-Based Deworming Programme: Improving the Health and Education of Kenya’s Children
KWA AFYA NA ELIMU BORA
TUANGAMIZE MINYOO