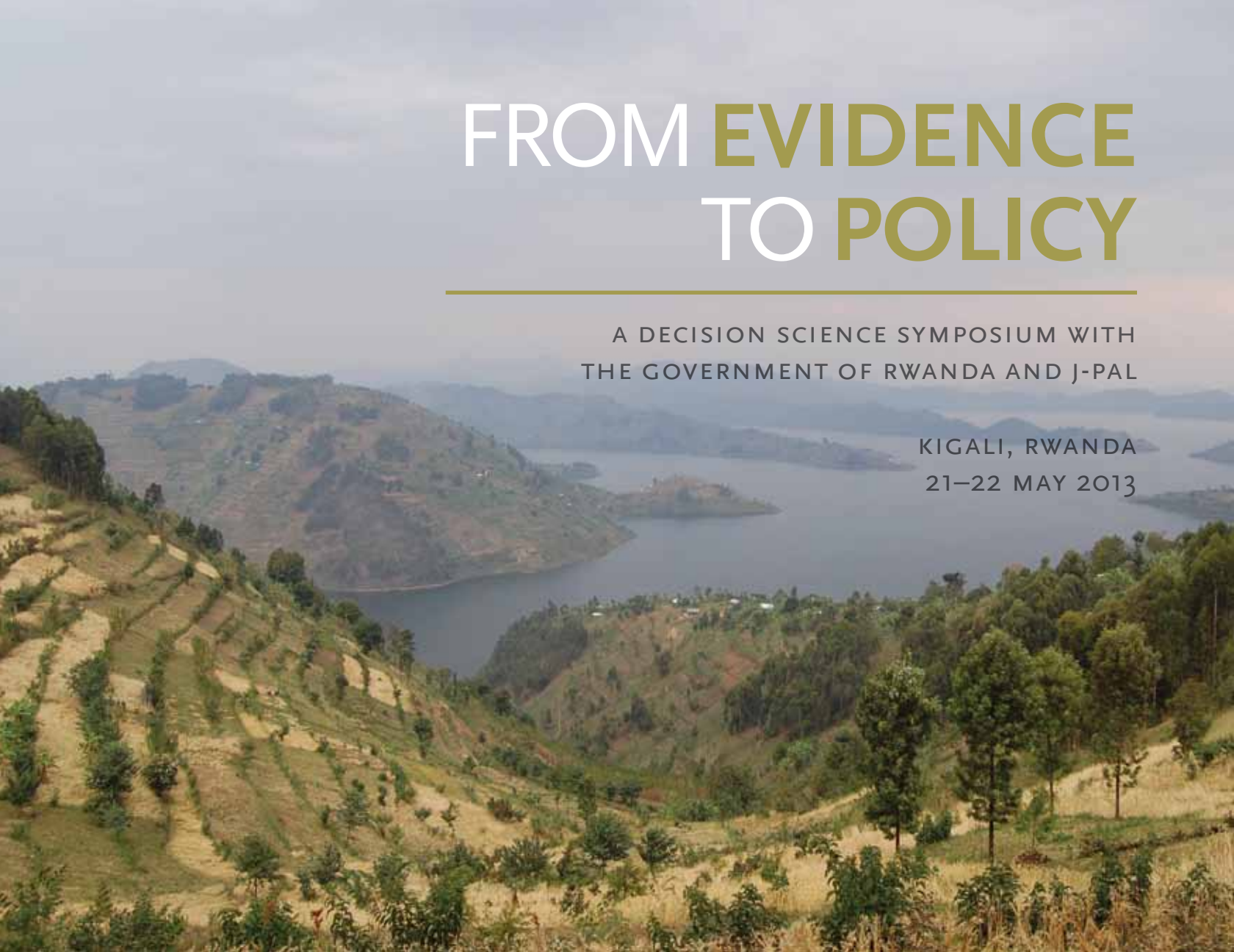

FROM EVIDENCE TO POLICY

A DECISION SCIENCE SYMPOSIUM WITH
THE GOVERNMENT OF RWANDA AND J-PAL

KIGALI, RWANDA
21–22 MAY 2013

CONTENTS

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DAY ONE

9:00 – 9:15	**Conference Inauguration** The Honourable Amb. Claver Gatete, Minister of Finance and Economic Planning
9:15 – 9:45	**Overview of the Decision Science Approach** What is innovative about evidence from randomised controlled trials (RCTs) which scientifically measure which programs work best to reduce poverty? What are the different models for building evidence from RCTs into policy?
	What Does the Evidence Say? Synthesising Recent Evidence from Agriculture, Education, and Health for the Rwandan Context The panel discussions will emphasise a cross-sectorial approach to poverty reduction, combining lessons from agriculture, education, and health (including school health) that are most relevant for Rwanda, including evidence from relevant randomised evaluations.
9:45 – 10:45	**Panel 1: Using Schools to Transform the Economy—School Health and Quality of Education**
11:00 – 12:00	**Panel 2: Take-Up of Technology in Rural Areas—Improving Agricultural Productivity**

LOCATION: SERENA HOTEL
HOST: MINISTRY OF FINANCE AND ECONOMIC PLANNING

14:00 – 16:00	**Institutionalising the Use of RCT Evidence in Policy** J-PAL staff will provide tutorials on how to use RCTs and institutionalise evidence in policymaking. Policy analysts and other staff will participate in interactive, hands-on case studies of how programs proven to be effective have been scaled up in different contexts around the world, and receive practical guidance on how to find relevant, high-quality research by sector.

HOST: OFFICE OF THE PRIME MINISTER

AGENDA

DAY TWO

The second day of the symposium will be hosted in three parallel locations, by the Ministries of Agriculture and Animal Resources, Education, and Health, with the following sessions:

Overview of Strategic Vision for the Ministry

The Ministry will provide an overview of their strategic vision for the coming year, identifying which of the policies discussed during the previous day's panels are the top priorities for implementation in Rwanda

From Evidence to Policy Design: Technical Discussions between Policymakers and J-PAL

The ministries will have the opportunity to host round-table discussions between relevant sector experts and J-PAL academics and staff. The goal is to identify the top 2–3 policies based on evidence presented in the previous day that will be most relevant for Rwandan policy and align with the strategic vision of the government.

Structure: The J-PAL affiliated researchers will provide a short overview of programs that have been proven to work, including the details of why they worked in specific contexts. This will provide a basis for the roundtable discussions among participants on how the proven policies can be adapted to Rwanda's needs, including practical implementation logistics.

Objective: The meeting participants will produce a tangible roadmap for building the discussed evidence into specific policies.

J-PAL Affiliates:

Agriculture: Dr. Tavneet Suri, Maurice F. Strong Career Development Professor and Associate Professor of Applied Economics, MIT
Education: Dr. Rachel Glennerster, Executive Director, J-PAL Global
Health: Dr. Paul Gertler, Li Ka Shing Professor, Haas School of Business, UC Berkeley, and Director of Graduate Program in Health Management.

WELCOME

Republic of Rwanda
Ministry of Finance and
Economic Planning

Dear Symposium Participants,

It is my pleasure to welcome you to the Decision Science Symposium hosted by the Government of Rwanda. Rwanda has long been committed to following an evidence-based approach to policymaking and welcomes the opportunity to make improvements in social programmes based on scientific evidence.

There is tremendous potential for us to learn from rigorous impact evaluations that have been conducted not only in Rwanda but also other East African countries and around the world. In our mission to become a knowledge-based middle-income economy by 2020, we need to embrace openness for new ideas with proven impact and enthusiasm for innovation and change. In Rwanda, we have made significant strides towards poverty reduction, declines in infant and maternal mortality rates, and increased primary school enrolment. But many challenges remain, and we should be constantly looking for ways to improve the effectiveness of our policies.

It is in this context that I am pleased to welcome affiliates of the Massachusetts Institute of Technology (MIT)'s Abdul Latif Jameel Poverty Action Lab (J-PAL) to this event. J-PAL affiliates have been pioneers in the use of randomised evaluations to scientifically test specific social programmes in more than fifty countries around the world, and J-PAL has experience helping countries scale up proven programmes. They will be able to share what has worked (and what has not) in other contexts, and we welcome the chance to discuss with them how to incorporate relevant lessons into Rwanda's policy going forward. We trust that this will be the beginning of an ongoing collaboration between the Government of Rwanda and J-PAL.

Sincerely,

Amb. Claver GATETE
Minister

ABOUT THE **SYMPOSIUM**

The Ministry of Finance and Economic Planning of Rwanda is pleased to host this Decision Science Symposium with members of the Abdul Latif Jameel Poverty Action Lab (J-PAL) from the Massachusetts Institute of Technology (MIT) and the University of Cape Town (UCT).

The Government of Rwanda is committed to evidence-based policymaking. This symposium is an opportunity for senior Rwandan officials to collaborate with renowned international scholars on current developmental priorities. Our objective is to have recent results from randomised evaluations inform Rwanda's policymaking process. The event will be structured to allow for in-depth conversations around the specific implementation of potential policies.

The aim of this symposium is to consider how to maximise the effectiveness of policies and programmes in Rwanda by drawing on lessons from hundreds of randomised trials already conducted in many developing countries, including Rwanda. The focus will be on agriculture, education, and health (including school health), which are sectors where J-PAL's quantity of rigorous evidence is greatest.

This symposium is intended to be the beginning of an ongoing conversation and collaboration between the Government of Rwanda and J-PAL. J-PAL has resources to provide some follow-up visits by J-PAL staff to continue the conversation on the most promising ideas for using evidence that emerge from this symposium.

ABOUT J-PAL

The Abdul Latif Jameel Poverty Action Lab (J-PAL) was established in 2003 as a research centre in the Economics Department at the Massachusetts Institute of Technology. Since then, it has grown into a global network of over seventy researchers who are united by their use of randomised evaluations to answer critical policy questions in the fight against poverty.

J-PAL'S REGIONAL OFFICE IN AFRICA AT THE UNIVERSITY OF CAPE TOWN, SOUTH AFRICA

J-PAL's mission is to reduce poverty by ensuring that policy is based on rigorous evidence. We do this through three main activities:

CONDUCTING RIGOROUS IMPACT EVALUATIONS

J-PAL researchers conduct randomised evaluations to test and improve the effectiveness of programmes and policies aimed at reducing poverty. Our work spans several programme areas: agriculture, education, environment, finance, health, governance, and youth and labour markets.

POLICY OUTREACH

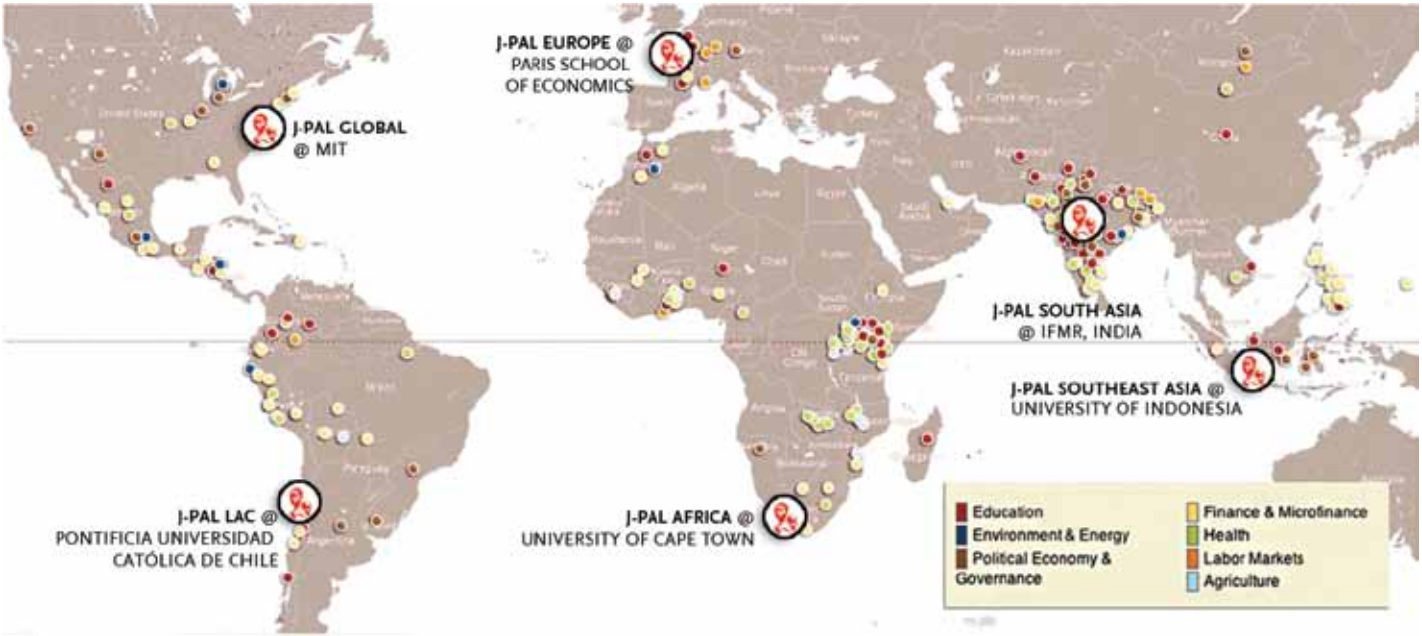
J-PAL's Policy Group analyses and disseminates research results and builds partnerships with policymakers to ensure policy is driven by evidence and effective programmes are scaled up.

CAPACITY BUILDING

J-PAL equips practitioners with the expertise to carry out their own rigorous evaluations through training courses, evidence workshops, and joint research projects.

In addition to our global office at MIT (Cambridge, Massachusetts, US), J-PAL has regional centres in **AFRICA**, **EUROPE**, **LATIN AMERICA AND CARIBBEAN**, **SOUTH ASIA**, and **SOUTHEAST ASIA**. J-PAL's regional offices coordinate evaluations of development programmes and actively work in capacity building and policy outreach.

J-PAL PROJECTS AROUND THE WORLD



J-PAL affiliated professors have more than 380 completed and ongoing randomised evaluations of anti-poverty programmes worldwide, including 126 evaluations in Africa.

WHY RANDOMISE?

It is not always obvious which policy will have the largest impact on intended beneficiaries. For example, what is the best way to increase school attendance: providing free school uniforms, treating ailments that keep students away from the classroom, supplying textbooks, or something else? Do user fees help get health products and services to those who need them the most, or do they simply undercut demand for essential services and leave the needs of the poor unmet? What is the most cost-effective way of increasing adoption of beneficial agricultural technologies?

To design good policy, we need to know how well a policy is working and whether it is a good value for the money. Random assignment offers a simple way to generate these insights. In randomised evaluations, individuals are selected to receive a programme based on a lottery. Those individuals who are not selected form a comparison group. Because the selection process is random, the two groups are similar in every respect, except that one group receives the programme, while the other does not.

Therefore, if after the programme is implemented, the group that received the programme has different outcomes (e.g., is more or less healthy, or has higher or lower test scores), we know that this difference was caused by the programme. This clear attribution of which effects were caused by the programme provides insights about its effectiveness.

Randomised evaluations are particularly appropriate when programmes are oversubscribed, scheduled to be rolled out in a gradual fashion, or are initially tested with pilot programmes. In those cases, randomisation is one of the fairest ways of determining participation, while simultaneously allowing for rigorous measurement of the effect.

Randomised evaluations of development programmes are a relatively recent innovation, largely pioneered by J-PAL and its affiliates, and the potential for introducing an element of randomisation into the process of evaluation continues to gain recognition. When properly designed, randomised evaluations can provide insight not only into whether a programme works, but also why it works, allowing for potential scale-up of successful innovations to other areas.

ENTREPRENEURS IN TIGRAY, ETHIOPIA PARTICIPATE IN A LOTTERY AS PART OF AN EVALUATION OF CREDIT SERVICES FOR THE ULTRA POOR.

AGRICULTURE

EXAMINING COFFEE BEANS IN RWANDA.

For the 85 percent of Rwandan households who live in rural areas and depend either directly or indirectly on agriculture, improvements in agricultural practices and inputs have the potential to improve lives through higher yields, better prices, lower risk, and improved nutrition. But take-up of improved technologies, such as rainwater harvesting tanks, fertiliser, improved seeds, and composting, is often low. A number of different programmes to increase adoption of improved technologies have been rigorously evaluated by J-PAL affiliates and shown to be effective in promoting take-up: innovative credit offerings, commitment devices to help farmers save, and leveraging peer networks to disseminate new information.

POLICY LESSONS FROM RANDOMISED EVALUATIONS IN AGRICULTURE

- Water tanks supplied on specialised credit through SACCOs may be a particularly beneficial policy for farmers who have recently become cattle owners through the One Cow Per Poor Family Programme.
- Rwanda's fertiliser price subsides for "priority crops" have helped address affordability, and investment in fertiliser has increased. Evidence suggests that timing fertiliser purchase decisions with harvest income could also increase adoption.
- Tested in numerous different contexts, commitment savings devices have proven to be a highly effective way to help individuals save more and adopt agricultural technologies.
- Rwanda's countryside spans many different agricultural zones. To determine appropriate fertiliser recommendations for local conditions, MINAGRI is currently undertaking studies across the country

HOW CAN AGRICULTURAL TECHNOLOGIES BE OFFERED THROUGH INNOVATIVE CREDIT PROGRAMMES FOR MORE FINANCIALLY SUSTAINABLE PROGRAMMES?

EVALUATION: Innovative financing to increase adoption of rainwater harvesting tanks

Recent evidence from a randomised evaluation in Kenya has demonstrated that water tanks, when offered with an innovative credit contract, can be a sustainable way to improve household livelihood and protect cattle health. In Rwanda, this is particularly relevant for the many small-holder farmers who have become cattle owners through the One Cow Per Poor Family Programme and have a need for a larger and more reliable water supply on hand.

The programme in Kenya offered dairy farmers the chance to purchase rainwater-harvesting tanks on credit obtained through SACCOs. Unlike traditional input financing schemes, however, the programme included a new credit innovation, where the water tank itself served as collateral for the loan. This lending structure proved not only more popular with the farmers than the typical group-liability lending model, but also resulted in a zero default rate (repayments were deducted from monthly sales to the dairy cooperative).

RESULTS

The beneficial impacts of the water tank programme were manifold: with increased access to water, cow health improved, as did school enrolment for girls. Enrolment in the area was already high, at 95 percent, comparable to Rwanda at 96 percent; thus water tanks helped address the "last mile" problem by targeting out-of-school girls who otherwise would have spent time collecting water rather than attending school.

Water tanks supplied on specialised credit through SACCOs may be a particularly relevant policy for Rwanda, as many farmers already use SACCO services and are members of cooperatives. Households also already have the corrugated roofs necessary for the rainwater harvesting. Furthermore, water tanks may have additional beneficial uses for farming households: First, by providing a regular source of water to sprinkle on compost heaps, which Rwanda has identified as key activity to improve agricultural productivity. Second, water tanks could also help maintain kitchen gardens recommended by the Ministry of Health to fight malnutrition.

Research by Joost De Laat, William Jack, Michael Kremer, and Tavneet Suri

A KENYAN FAMILY PARTICIPATING IN AN EVALUATION OF USING CREDIT TO FINANCE AGRICULTURAL TECHNOLOGIES SUCH AS WATER TANKS.

For further reading:
http://www.povertyactionlab.org/evaluation/encouraging-adoption-rainwater-harvesting-tanks-through-collateralized-loans-kenya

WHY DO FARMERS OFTEN NOT PURCHASE FERTILISER EVEN THOUGH IT CAN BOOST PRODUCTIVITY AND PROFITS?

Small-holder farmers often face high income volatility, which means that the times when they have cash in hand from the harvest often fail to coincide with the times when they need to purchase farming inputs. Problems with saving money, in addition to the universal human tendencies of impatience or procrastination, can keep farmers from investing in technologies such as improved seeds or fertiliser. At harvest time, when farmers have available cash, they may have other expenses to attend to, and purchasing inputs does not represent their highest priority. Later in the season, when it is time to purchase inputs for the next season, farmers may find that they do not have enough money left to invest in improved technologies.

Evidence from recent experiments suggests that policies that help farmers commit to save or prepay for inputs can increase investment in technology.

EVALUATION: Helping farmers commit to save for agricultural inputs

In Malawi, researchers investigated whether offering tobacco farmers commitment savings accounts could increase investment in agricultural inputs and improve their well-being. Farmers, organised in clubs of 10–15 members, were provided with information about the benefits of using formal saving accounts, and were offered the chance to open saving accounts into which their harvests' proceeds would be directly deposited. A subset of these farmers were also given the option to specify an amount of money to be frozen until a specified date, thus creating a "commitment device" to save money for a predefined goal that they were keen to achieve in the future.

RESULTS

Commitment savings accounts proved highly successful at increasing input investment and improving outcomes for farmers. Farmers offered commitment accounts cultivated 0.42 more acres of land and used 26 percent more inputs, leading to a 22 percent increase in the value of crop output compared to farmers not offered the savings accounts.

And these findings do not stand alone: Tested in numerous different contexts, commitment savings devices have proven to be a highly effective way to help individuals save more and adopt agricultural technologies. Rwanda is currently evaluating a restricted savings scheme, designed to help farmers save harvest income for the purchase of inputs.

Research by Lasse Brune, Xavier Giné, Jessica Goldberg, and Dean Yang

A PEANUT FARMER IN MALAWI.

For further reading:
http://www.povertyactionlab.org/evaluation/reducing-barriers-savings-rural-malawi

WHY DO FARMERS OFTEN NOT PURCHASE FERTILISER EVEN THOUGH IT CAN BOOST PRODUCTIVITY AND PROFITS?

EVALUATION: Nudging farmers to use fertiliser

In western Kenya, researchers designed an intervention to test whether providing mechanisms to save harvest income for future purchases could increase fertiliser usage. In the programme, called the Savings and Fertiliser Initiative (SAFI), a field officer made in-person visits to maize farmers immediately after harvest (when they tend to have cash on hand) and offered them the opportunity to purchase a voucher for fertiliser. Farmers were charged full price but were offered free delivery on a date of their choice. This small incentive was intended to reduce the inconvenience of buying fertiliser, and thus potentially also reduce procrastination.

RESULTS

Offering farmers the ability to commit to purchase fertiliser in advance through person-to-person sales visits increased fertiliser adoption by 11–14 percentage points in the first season and 16–18 percentage points in the second season, relative to the comparison group. Moreover, the early commitment option was equally effective at increasing fertiliser use as a 50 percent discount, offered at the time when fertiliser needed to be applied. These results suggest that a small "nudge" at the time when farmers have cash available cash can increase fertiliser adoption.

PROFITABILITY VERSUS YIELDS

When used correctly, inorganic fertilisers can be very profitable for farmers, even in the absence of any other changes in farming practices. But the quantity used will drive the profit gain: Another evaluation in the same area of Kenya showed that a quantity of fertiliser smaller than the official ministry recommendation led to the highest profit gain. This finding highlights the importance of adapting official fertiliser recommendations to local conditions such that farmer profits are maximised, rather than harvest yields.

Research by Esther Duflo, Michael Kremer, and Jonathan Robinson

A MAN WITH HIS MAIZE CROP IN WESTERN KENYA.

For further reading:
http://www.povertyactionlab.org/evaluation/nudging-farmers-use-fertilizer-experimental-evidence-kenya

HOW CAN SMALL INCENTIVES HELP IMPROVE INFORMATION SHARING BETWEEN PEER FARMERS?

Extension services are a key aspect of Rwanda's strategy to improve agricultural productivity, but traditional extension services can be costly. One strategy that was found to be successful in Malawi is incentivising peer farmers to increase their neighbor's adoption of improved agricultural practices. Numerous other models for providing extension services are currently being piloted by J-PAL, including using SMS or videos to share information on improved agricultural practices.

EVALUATION: Incentivising social networks to disseminate technology

In Malawi, researchers evaluated three alternative methods for disseminating information about improved farming techniques, such as pit planting and composting. Groups of farmers were trained either by extension officers (EOs) working though their existing channels; lead farmers, identified by the community and initially trained by EOs; or peer farmers, who were average farmers in their villages and initially trained by EOs. Across all three of these dissemination methods (EOs, lead farmers, and peer farmers), the trained farmers received incentives based on the rate at which farmers in their area knew about and adopted new farming techniques. Thus, they had a direct incentive to both share information and encourage their peers to try new techniques.

RESULTS

In the evaluation in Malawi, adoption of improved farming techniques was highest among farmers trained by peer farmers, who were most similar to their neighbors in terms of agricultural input use and land size. Importantly, however, this intervention was only successful at increasing technology adoption in villages where the trained farmers received an incentive when their peers adopted the new techniques. These and other results suggest that effectiveness of different extension services may vary, and care should be taken to ensure extension services are designed appropriately for the context.

Research by Ariel BenYishay and Mushfiq Mobarak

FARMERS IN MALAWI PARTICIPATING IN AN EVALUATION OF HOW PEER NETWORKS INFLUENCE TECHNOLOGY ADOPTION.

For further reading:
http://www.povertyactionlab.org/evaluation/promoting-sustainable-farming-practices-malawi

EDUCATION

SCHOOLCHILDREN IN RWANDA.

In recent years, Rwanda's education sector has made great progress in expanding school access: With primary school net enrolment reaching 96 percent, Rwanda is well on the way to achieving universal primary school enrolment. Improvements have also been made in narrowing the gap in access to primary education between poor and rich, and between urban and rural locations.

But improvements in school enrolment are only the first step to improving learning outcomes. Many schoolchildren in Rwanda, as in numerous other countries, have not mastered the basic reading and numeracy skills needed to keep up with the learning in the classroom. For example, an Early Grade Reading Assessment (EGRA) found that even after three full years of instruction, 13 percent of students in P4 could not read a single word of a P2–P3-level text, and another 13 percent were reading less than 15 words per minute. Low mastery of basic skills becomes especially problematic by late primary school, when the curriculum shifts from teaching children how to read to relying on reading skills to learn the more advanced curriculum. Children lacking basic skills may make up a large portion of a class, but it is difficult for a teacher, faced with large classes and many different ability levels, to help these children master basic skills while still teaching the official curriculum for that grade level. Some of the most successful education programmes tested by randomised evaluations have addressed learning gaps by gearing instruction toward students' actual ability levels, rather than the expectations of a rigid curriculum.

POLICY LESSONS FROM RANDOMISED EVALUATIONS IN EDUCATION

- Too many children are in school but not learning. Providing instruction that matches children's ability levels is a proven reform that is inexpensive and scalable.
- Separating children in a classroom by ability level can improve learning outcomes for all students. Rwanda's double shift programme could be an opportunity for a "tracking" scheme to be implemented.
- Where parents or students underestimate the benefits of additional education, providing detailed information on the financial returns to education can increase student time in school.
- Interventions that reduce the costs or provide rewards for schoolchildren can improve students' daily attendance.

HOW CAN WE HELP CHILDREN WHO HAVE FALLEN BEHIND TO CATCH UP?

EVALUATION: Targeted tutoring to teach basic skills in India

J-PAL affiliates have evaluated several remedial education interventions designed to accelerate children's learning within the existing education system. In the first intervention, a tutor, usually a young woman recruited from the local community, was hired at a fraction of the cost of government teachers to pull out struggling primary school children for half the day for targeted instruction in basic reading and arithmetic. Since the initial evaluation, the programme has been adapted to suit different contexts and re-evaluated. These different models include training local volunteers to hold after-school reading camps and summer camps that focus on basic skills.

RESULTS

All of these interventions significantly improved test scores, particularly for the weakest students who were the primary target of the programme. Children made large and significant learning gains in in a short timeframe. For example, after only 3 months of after-school reading classes, 60 percent of non-readers learned to read letters, and a quarter of the children who could only read letters learned to read stories. Among education programmes that have been rigorously evaluated, this flexible, low-cost model of remedial education is one of the most cost-effective programmes.

Research by Abhijit Banerjee, Rukmini Banerji, Shawn Cole, Esther Duflo, Rachel Glennerster, Stuti Khemani, Leigh Linden, and Michael Walton

STUDENTS IN INDIA RECEIVE REMEDIAL TUTORING FROM A COMMUNITY VOLUNTEER.

For further reading:
http://www.povertyactionlab.org/scale-ups/remedial-education

HOW CAN WE HELP CHILDREN WHO HAVE FALLEN BEHIND TO CATCH UP?

EVALUATION: Tracking students by learning levels in Kenya

In Western Kenya, 121 primary schools that previously had only one first-grade class were provided funding to hire an extra contract teacher. The schools were randomly divided, with half assigning students to classes by initial test scores ("tracking") and the other half assigning students to classes at random.

RESULTS: Tracking improved learning for both high- and low-performing students

After 18 months, students on both sides of the learning spectrum did better in the tracking schools. Average test scores increased by 0.19 standard deviations in the upper-level classes and 0.16 standard deviations in the lower-level classes, compared to similar students in the schools with random division of classes. This suggests that the low-performing students benefitted more from having instruction at a more appropriate level than they did from having high-performing peers in the classroom.

Research by Esther Duflo, Pascaline Dupas, and Michael Kremer

SCALE UP: Teacher Community Assistant Initiative in Ghana

Based on the success of remedial education in India and the use of contract teachers to teach differentiated classes in Kenya, the Ghana Education Service is piloting the Teacher Community Assistant Initiative (TCAI), a programme to train teachers and teacher community assistants (TCAs) to teach to the learning level of their pupils. Preliminary results suggest that TCAs providing remedial instruction to the lowest performing pupils can improve basic literacy skills after just a few months. The TCAI positions give opportunities to unemployed youth, who are trained to provide the tutoring.

STUDENTS IN GHANA RECEIVE REMEDIAL TUTORING FROM TEACHER COMMUNITY ASSISTANTS.

For further reading:
http://www.povertyactionlab.org/evaluation/peer-effects-pupil-teacher-ratios-and-teacher-incentives-kenya

CAN WE CHANGE FAMILY PERCEPTIONS OF SCHOOLING AND EARNINGS TO INCREASE EDUCATION?

The Ministry of Education has identified low completion and high dropout and repetition rates as a key challenge in basic education. In Rwanda, as in many other countries, many families may not be convinced that the benefits of getting an additional few years of education outweigh the pressure for children to support family livelihoods. J-PAL evaluations have shown that, in cases where these misperceptions exist, providing parents and/or students with specific information on financial returns to education can increase time spent in school, and is a highly cost-effective intervention.

EVALUATIONS: Information on the financial returns to education

Two evaluations have investigated whether low perceived returns to education were related to schooling attainment, and whether providing families with information on the actual returns to education would change their schooling decisions. In Madagascar, parents were provided with information on earnings by level of education through inexpensive community meetings at the schools with teachers. In the Dominican Republic, a similar programme provided eighth-grade boys with information on the average wages earned by people with different levels of education.

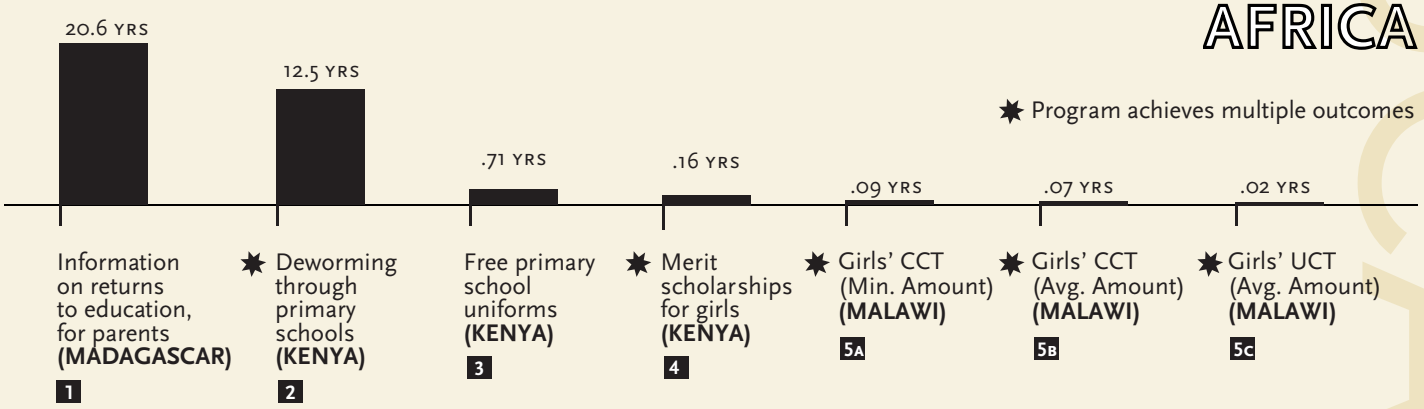
RESULTS: Providing information was cheap and effective

Both programmes showed that explaining the average income gained as a result of additional years of education significantly increased time spent in school. In Madagascar, test scores also improved. Cost-effectiveness analysis has shown that this relatively inexpensive one-time intervention is a very cost-effective way of increasing students' time in school, in areas where misperceptions about the benefits of schooling exist.

Research by Robert Jensen

For further reading:
http://www.povertyactionlab.org/evaluation/impact-information-returns-education-demand-schooling-dominican-republic

COST-EFFECTIVENESS: ADDITIONAL YEARS OF STUDENT PARTICIPATION PER $100



CAN REDUCING THE COSTS OF SCHOOLING OR PROVIDING REWARDS FOR SCHOOL-GOERS IMPROVE STUDENTS' DAILY ATTENDANCE?

With no school fees for the first 12 years of education, Rwanda has seen a large increase in school enrolment. However, even when schooling itself is provided free of charge, many students still drop out of school or fail to attend classes when they are enrolled. Low and irregular attendance exists in many other contexts as well, and J-PAL has rigorously tested numerous strategies to reach these out-of-school children.

Even when primary education is provided for free, families may face other costs to send their children to school, such as purchasing uniforms and basic supplies, or the cost of losing the children's support of family livelihoods. In Rwanda, efforts have been made to address cost as a barrier for schooling through initiatives that include providing a budget to assist poor families with costs of schooling, and the First Lady's Best Performing Girls rewarding campaign. The effectiveness of programmes that reduce the cost of schooling and motivate students to achieve has been demonstrated by several J-PAL evaluations.

EVALUATION: Free school uniforms

Two evaluations in Kenya have measured the impact of reducing the cost of schooling by targeting the provision of free school uniforms to girls and primary school students.

RESULTS: Attendance increased, while dropouts and teenage childbearing were reduced

Free uniforms targeted at the poorest students reduced school absenteeism by 44 percent for the average student and by 62 percent for students who did not previously own a uniform. The programme also raised test scores for recipients by 0.25 standard deviations [1]. Because reducing the cost of education helped students stay in school longer, teenage childbearing among girls fell by almost 10 percent, and girls were 12 percent less likely to be married [2].

Research by Esther Duflo, Pascaline Dupas, David Evans, Mũthoni Ngatia, Michael Kremer, and Samuel Sinei

A BOY ATTENDING PRIMARY SCHOOL IN WESTERN KENYA.

For further reading:

[1] http://www.povertyactionlab.org/evaluation/impact-distributing-school-uniforms-childrens-education-kenya

[2] http://www.povertyactionlab.org/evaluation/preventing-hiv-and-teen-pregnancy-kenya-roles-teacher-training-and-education-subsidies

CAN REDUCING THE COSTS OF SCHOOLING OR PROVIDING REWARDS FOR SCHOOL-GOERS IMPROVE STUDENTS' DAILY ATTENDANCE?

EVALUATION: Merit-based scholarships for girls

In Kenya, researchers evaluated a programme that was similar to the First Lady's Best Performing Girls Programme. It offered merit-based scholarships to sixth grade girls who scored in the top 15 percent on tests administered by the Kenyan government. Winning girls received a grant to cover school fees paid to her school, a grant for school supplies paid to her family, and public recognition at a school awards assembly held for students, parents, teachers and local government officials.

RESULTS: Improvements in test scores and attendance for all students

In addition to reducing costs for families, providing scholarships for high performing girls improved both student and teacher motivation, improving learning. Merit-based scholarships increased student attendance, and improved test scores by 0.19 standard deviations for girls enrolled in schools eligible for the scholarship. The effect of the scholarship on the motivation of children was not limited to those likely to win the scholarship. Teachers worked harder and boys also saw some benefit from the programme.

Research by Michael Kremer, Edward Miguel, and Rebecca Thornton

GIRLS ATTENDING CLASS IN KENYA.

For further reading:
http://www.povertyactionlab.org/evaluation/incentives-learn-merit-based-girls-scholarship-program-kenya

CAN REDUCING THE COSTS OF SCHOOLING OR PROVIDING REWARDS FOR SCHOOL-GOERS IMPROVE STUDENTS' DAILY ATTENDANCE?

EVALUATION: Providing free school meals in preschools

In Kenya, researchers evaluated the provision of a free school breakfast in informal preschools, which consisted of a cup of porridge made from protein-rich flour, sugar, corn oil, and water.

RESULTS: Free meals can improve child attendance at school

Child attendance was 30 percent higher in preschools that received the free breakfast, both among children who were previously enrolled and children who enrolled in school because of the programme. Learning outcomes also improved, but only in schools where the teachers were relatively experienced. This improvement appears to be due to increased time spent in school, rather than improved cognition from better nutrition.

Research by Michael Kremer and Christel Vermeersch

CHILDREN ENJOYING A MID-DAY MEAL IN A KENYAN SCHOOL.

For further reading:
http://www.povertyactionlab.org/evaluation/school-meals-educational-achievement-and-school-finance-kenya

FIELDS IN RWANDA.

HEALTH

Rwanda has emerged as a regional leader in pioneering innovative health interventions and has experienced significant improvements in the health of its population. Substantial progress has been made towards meeting several of the MDGs in health, including reducing child mortality and combating AIDS. In many cases, Rwanda is already implementing many of the programmes J-PAL's research has found to be effective in other contexts.

The following pages highlight cases where impact evaluations from the economics field can complement public health and medical evidence, for example in cases where small changes in behaviour, incentives, or practical implementation details can help existing programmes achieve health gains more cost-effectively. Findings from rigorous randomised evaluations confirm the effectiveness of many of the programmes and policies Rwanda is already undertaking.

POLICY LESSONS FROM RANDOMISED EVALUATIONS IN HEALTH

- Health products that are aimed at preventive behaviour or that reduce transmission of disease in a community are priorities for free distribution.
- Interventions designed to minimise effort for the user are more likely to sustain high take-up. The chlorine dispenser system offers one approach to reducing waterborne diseases that is proven to be cost-effective and scalable.
- Small incentives can help address "last mile problems" in healthcare delivery and can increase the cost-effectiveness of existing programmes.
- Providing teenagers with detailed information about HIV prevalence rates by age group and gender can significantly reduce the incidence of cross generational sex.
- Using schools to improve child health can be a highly cost-effective way to improve education.

LESSONS FOR PRICING HEALTHCARE: WHEN SHOULD HEALTHCARE BE PROVIDED FOR FREE?

Across a range of products and services, charging even very small user fees has been found to sharply limit access to preventive healthcare, particularly for the poorest populations. Rwanda has already made great strides towards increasing access to preventive care and provides many interventions—including bednets, antenatal care, immunisation, and family planning—free to the population.

Multiple evaluations have demonstrated the finding that free provision of healthcare increases use. However, limited budgets mean that governments cannot (and perhaps should not) provide everything for free. Evidence suggests certain types of goods and services should be prioritised for free distribution:

I. WHEN THE BENEFITS EXTEND BEYOND THE IMMEDIATE USER

Many investments in health have additional benefits to the community associated with widespread individual use: Immunisations, deworming treatment, and bednet use can all reduce disease transmission in a community. In cases where the benefits to the community are large, distributing for free can lead to a larger social benefit than charging. Therefore, products that reduce the transmission of disease are good candidates for free distribution.

II. WHEN PRODUCTS AND SERVICES ARE AIMED AT PREVENTIVE BEHAVIOUR

Many cost-effective health products are widely available, yet individuals choose not to purchase them. Pricing policies that help people make up-front investments in prevention, or help them persist in long-term health investments, may have especially large payoffs.

III. WHEN THE PRODUCT IS VERY COST-EFFECTIVE

Some health products are very cheap relative to their benefits. In this case, even if some of the product goes to people who do not use it, mass free distribution can still be highly cost-effective.

A WOMAN RECEIVES A BEDNET AT A CLINIC IN KENYA.

For further reading:
http://www.povertyactionlab.org/publication/the-price-is-wrong

HOW CAN CONVENIENCE AFFECT THE TAKE-UP OF PREVENTIVE HEALTH PRODUCTS?

Evidence shows that even free products may not be adopted if they require additional time or effort on the part of the user. For example, in Kenya, the majority of households added chlorine to their water when it was delivered free to their doorstep, but far fewer used chlorine when they had to travel to redeem coupons for the same product. These and other results suggest that interventions which maximise convenience for users may be more successful at sustaining high take-up over time. Strategies for increasing convenience include minimising necessary travel time on the part of the user or incorporating the health behaviour into everyday activities, such as collecting water or fortifying commonly-eaten foods.

EVALUATION: Chlorine dispensers to increase access to safe water

In Kenya, researchers tested an innovative point-of-collection chlorine dispenser system, designed to incorporate lessons on maximising convenience to sustain high take-up from previous water treatment evaluations. The chlorine dispenser system provides rural populations with easy access to a free supply of chlorine located at local water sources, and was complemented by encouragement from community-elected promoters.

RESULTS: Convenient access to free chlorine significantly increased household use

Chlorine dispensers, in combination with the paid promoters, increased take-up by 53 percentage points, and take-up was sustained 30 months into the programme, even after payments to promoters had ended. At scale, the cost of the chlorine dispenser system could be as low as $0.50 per person per year, much cheaper than home delivery (or retail sale) of individual chlorine bottles.

The chlorine dispenser system has now been scaled up to reach nearly half a million individuals in Kenya, Haiti, and elsewhere.

Research by Michael Kremer, Edward Miguel, Sendhil Mullainathan, Clair Null, and Alix Zwane

A WOMAN CHLORINATES HER WATER FROM A DISPENSER AT A COMMUNITY SPRING IN KENYA.

For further reading:
http://www.povertyactionlab.org/scale-ups/chlorine-dispensers-safe-water

HOW CAN SMALL INCENTIVES LEAD TO LARGE GAINS IN HEALTHCARE DELIVERY AND THE USE OF PREVENTIVE HEALTH PRODUCTS?

Multiple evaluations of health programmes have demonstrated that offering individuals even very small incentives can be enough to increase health-seeking behaviour. Incentives can also be an effective way to improve the supply of healthcare—a great example of this being Rwanda's performance-based financing scheme, which has increased both the utilisation and quality of health services.

EVALUATION: Incentives for immunisations

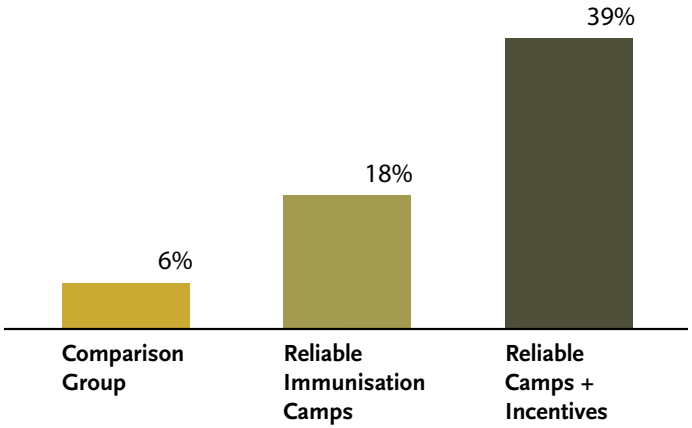
Researchers evaluated a programme in rural India to increase the reliability of immunisation services by holding well-publicised immunisation camps in villages. A second model of the programme used the same immunisation camp infrastructure, and parents were additionally offered a small incentive (1kg of lentils) each time their child received an immunisation.

RESULTS: Small incentives made the camps twice as cost-effective

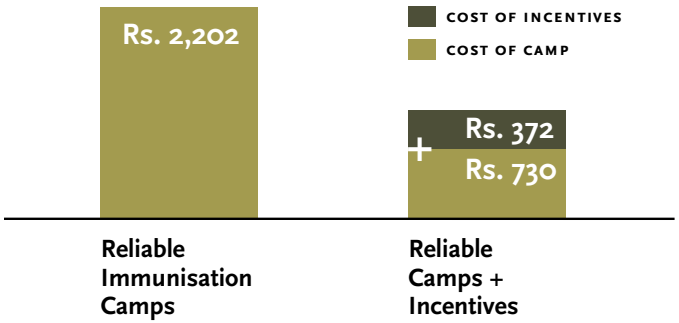
Small incentives for parents, coupled with reliable services at convenient mobile clinics, increased full immunisation rates six-fold: from 6 to 39 percent. This approach was twice as cost-effective as improving service reliability without incentives.

Research by Abhijit Banerjee, Esther Duflo, Rachel Glennerster, and Dhruva Kothari

FULL IMMUNISATION RATES BY TREATMENT GROUP



COST PER FULLY IMMUNISED CHILD



A WOMAN RECEIVES A PACKAGE OF LENTILS AT AN IMMUNISATION CAMP IN INDIA.

For further reading:
http://www.povertyactionlab.org/evaluation/improving-immunization-rates-through-regular-camps-and-incentives-india

HOW CAN SMALL INCENTIVES LEAD TO LARGE GAINS IN HEALTHCARE DELIVERY AND THE USE OF PREVENTIVE HEALTH PRODUCTS?

EVALUATION: Performance-based payments for healthcare providers in Rwanda

Researchers partnered with the Ministry of Health to evaluate the impact of the Rwandan Pay for Performance (P4P) scheme on use and quality of child and maternal care services in health facilities. Under the P4P scheme, healthcare providers received financial incentives for improvements in utilisation and quality of specific care indicators. Payments were based on 14 maternal and child healthcare output indicators, which included both reasons for a visit, such as prenatal care or delivery, as well as services provided during a visit, such as a tetanus vaccination.

RESULTS: Use and quality of several crucial maternal and child health services increased

Overall, the P4P scheme in Rwanda seemed to have the greatest effect on those services for which the facilities received larger financial incentives and those over which the provider had greater control. For example, for facilities enrolled in the P4P scheme, the number of births attended to by a professional increased by 23 percent. The P4P scheme had the least effect on the services that depended on patients' behaviour, such as the number of women completing four prenatal care visits.

Research by Paulin Basinga, Agnes Binagwaho, Paul Gertler, Agnes Soucat, Jennifer Sturdy, and Christel Vermeersch

For further reading:

http://www.povertyactionlab.org/evaluation/effect-performance-based-payment-health-care-providers-use-and-quality-child-and-maternal

de Walque, Damien, Paul J. Gertler, Sergio Bautista-Arredondo, Ada Kwan, Christel Vermeersch, Jean de Dieu Bizimana, Agnes Binagwaho, Jeanine Condo. "Using Provider Performance Incentives to Increase HIV Testing and Counseling Services in Rwanda." World Bank Policy Research Paper 6364. February, 2013.

Gertler, Paul and Christel Vermeersch. "Using Performance Incentives to Improve Medical Care Productivity and Health Outcomes." February, 2013.

A HEALTH WORKER WEIGHS AN INFANT AT A NUTRITION CENTER IN RWANDA.

CAN GIRLS BE TAUGHT TO AVOID SUGAR DADDIES?

In Rwanda, as in most African countries, older men are more likely to have HIV than adolescent boys. This means that sexual relationships with older partners, or "sugar daddies," are particularly dangerous for adolescent girls. Rwanda has already identified cross generational sex as a major risk factor in the spread of HIV/AIDS, and the previous "Sinigurisha" informational campaign about sugar daddies could be informed by evidence from a programme tested and proven effective in Kenya.

EVALUATION: Providing students with HIV/AIDS risk information by age group

Researchers evaluated a "relative risk information campaign" in primary schools in Kenya. Students in grade 8 were shown a 10-minute educational video on sugar daddies, followed by an open discussion about cross generational sex. During the discussion, students were given detailed information about local HIV prevalence rates, disaggregated by gender and age group (e.g., teen boys had a rate of less than 1 percent, while men aged 25 to 29 had a rate of more than 12 percent). While most students knew how HIV was spread, they were not aware of how much risk rose with age.

RESULTS: Unsafe cross generational sex and teenage childbearing were significantly reduced

Girls responded to this information, and significantly reduced engagement in unprotected sexual relationships with older men. Teenage childbearing with older men fell by 61 percent, with no offsetting increase in childbearing with same-age partners. This reduction in sex with older men is particularly important, as eliminating cross generational sex is one of the most effective ways to prevent the spread of the disease.

Research by Pascaline Dupas

GIRLS IN KENYA OFTEN ENGAGE IN RELATIONSHIPS WITH OLDER "SUGAR DADDIES," WHO ARE SIGNIFICANTLY MORE LIKELY TO BE INFECTED WITH HIV/AIDS THAN YOUNGER BOYS.

For further reading:
http://www.povertyactionlab.org/evaluation/hivaids-prevention-through-relative-risk-information-teenage-girls-kenya

HOW CAN SCHOOLS IMPROVE HEALTH, AND HEALTH IMPROVE SCHOOLING?

Chronic conditions such as malnutrition or intestinal parasites can contribute to low attendance and difficulty concentrating while in class. Addressing health barriers that keep children out of school can be one of the most cost-effective ways to increase school attendance. These programmes also have significant long-term effects on children's health, nutrition, and productivity. Rwanda has already recognised the benefits of treating chronic conditions such as worms through schools with school-based deworming campaigns. Maintaining these programmes twice yearly could have important impacts on productivity.

EVALUATION: School-based deworming in western Kenya

Following a baseline prevalence survey, schools in Western Kenya with worm prevalence over 50 percent were mass treated with deworming drugs every six months. A key feature of this programme was its implementation through schools, where it was simple and straightforward to reach all the children on the same day and teachers were trained to give deworming pills.

RESULTS: Children were healthier and attended school more often at a minimal cost

Deworming reduced serious worm infections by half amongst children in schools that were treated. As a result, school absenteeism fell by 25 percent, and the program could cost as little as 50 cents per child per year if scaled up. Because treating all children in a school at once reduces the disease transmission in that area, nearby children who were not dewormed also benefited and attended school more. Children too young for school also benefited: Toddlers living near the schools where older children were dewormed also saw large cognitive and developmental improvements. The benefits of deworming are long-lasting. A decade later when they were in their early twenties, children who received deworming treatment were healthier, worked more hours, and earned significantly more as young adults.

Research by Edward Miguel and Michael Kremer

A BOY RECEIVES A DEWORMING PILL THROUGH A SCHOOL-BASED DEWORMING DRIVE IN KENYA.

For further reading:
http://www.povertyactionlab.org/evaluation/primary-school-deworming-kenya

HOW CAN SCHOOLS IMPROVE HEALTH, AND HEALTH IMPROVE SCHOOLING?

EVALUATION: Nutritional supplementation through preschools

Like other developing nations in the region, iron and vitamin A deficiency affect many children in Uttar Pradesh, India. This programme delivered a package consisting of iron and vitamin A supplementation and deworming drugs to 2–6 year-old children through an existing preschool network during "health camps" conducted three times a year in each preschool. Preschool teachers were instructed to administer daily iron doses for three school days following each health camp. Children were also administered vitamin A supplements, which in addition to other health benefits, promotes the absorption of iron.

RESULTS: Children showed large gains in weight and school attendance

Children in treatment schools experienced large gains in weight: roughly 0.5 kg on average during the first five months of the programme. Preschool participation also increased sharply by 5.8 percentage points, reducing absenteeism by roughly one-fifth. Improvements in weight and school participation were most pronounced for girls and children in low socioeconomic status areas. At an average cost of US$1.70 per child per year, the programme was highly cost-effective.

POLICY LESSONS: Using schools to deliver healthcare can be highly cost-effective

One of the factors that made deworming in Kenya and iron supplements in India so cost-effective was their ability to piggyback on existing infrastructure in primary and pre-schools. Priority should be given to implementing programmes where existing school or government infrastructure can be used for delivery.

Research by Gustavo Bobonis, Edward Miguel, and Charu Puri Sharma

For further reading:
http://www.povertyactionlab.org/evaluation/balwadi-deworming-india

CHILDREN IN ANDHRA PRADESH, INDIA, EATING THEIR MID-DAY SCHOOL MEAL.

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PAUL GERTLER is the Li Ka Shing Distinguished Professor of Economics at the Haas School of Business and Professor of Health Services at the University of California, Berkeley. Gertler's research explores health, childhood development, and microfinance in developing countries. He has also conducted field research on conditional cash transfers in Mexico, aging in Bangladesh, contraception and fertility in Indonesia, and the effect of performance-based payment of healthcare providers on use and quality of child and maternal care services in Rwanda, in partnership with the Government of Rwanda.

RACHEL GLENNERSTER is the Executive Director of the Abdul Latif Jameel Poverty Action Lab (J-PAL). Her research includes randomized evaluations of community driven development; the adoption of new agricultural technologies; improving the accountability of politicians in Sierra Leone; empowerment of adolescent girls in Bangladesh; the behavioural economics of complying with tuberculosis medication in Pakistan; and health, governance, education, and microfinance programs in India. She serves as Scientific Director for J-PAL Africa, Co-Chair of J-PAL's Agriculture Program, and is a board member of the Agricultural Technology Adoption Initiative (ATAI). Between 2007 and 2010 she served on the UK Department for International Development's (DFID) Independent Advisory Committee on Development Impact.

TAVNEET SURI is an Assistant Professor at the MIT Sloan School of Management in the Applied Economics Group. Tavneet completed her undergraduate studies in Economics at Trinity College, University of Cambridge in 1999, received her MA in International and Development Economics at Yale University in 2001, and her PhD in Economics at Yale University in 2006. Tavneet's research centers on applied microeconomic issues in sub-Saharan Africa. In particular, she works on technology adoption (agricultural, water, cell phones), risk sharing and consumption smoothing, the role of measurement error in poverty dynamics, and the role of infrastructure in the development of markets. Her research currently spans Kenya, Ghana, Sierra Leone, and Rwanda, including an evaluation to increase adoption of agricultural technology for coffee farmers in Rwanda.

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EMMANUEL BAKIRDJIAN is a Research Manager at J-PAL Africa. He is currently working on three different randomised evaluations focused on the South African labour market and on youth unemployment. His job also involves supporting J-PAL capacity-building activities across the continent, particularly in francophone countries. For the past two years, he has worked for IPA, J-PAL's partner organisation, on a coffee agronomy training program evaluation in Rwanda. He also supported an IPA project in Sierra Leone experimenting with the introduction and adoption of an improved rice variety (NERICA) among poor farmers. Emmanuel holds an MSc in Development Economics from CERDI (Centre for Studies and Research on International Development), Clermont-Ferrand, France.

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