Sustained National Deworming in Korea 1969-1995

Taejong Kim

Development Research and Learning Network and Impact Evaluation Lab, KDI School of Public Policy and Management

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Walter Cunningham’s face told everybody in the first grade he had hookworms. His absence of shoes told us how he got them. People caught hookworms going barefooted in barnyards and hog wallows.

*(To Kill a Mockingbird, Harper Lee)*
Roundworms (A. lumbricoides)

Estimated 0.8 to 1.2 billion people infected
Heavy infections concentrated in SSA, Latin America, and Asia

Source: http://en.wikipedia.org/wiki/Ascariasis
Life cycle of schistosomes

- About 210 million people infected
- About 700 million people live in areas where infection is common in SSA, Asia, and Latin America
- May cause liver and kidney failure and premature death
- Second greatest economic cost after malaria

Source: http://en.wikipedia.org/wiki/Schistosomiasis
Cost effectiveness

**Figure 4:** Cost-effectiveness at increasing time in school

- **20.7 yrs:** Information on returns to education, for parents (Madagascar)
- **13.9 yrs:** Deworming through primary schools (Kenya)
- **.71 yrs:** Free primary school uniforms (Kenya)
- **.27 yrs:** Merit scholarships for girls (Kenya)
- **.09 yrs:** Conditional cash transfer for girls’ attendance (Malawi)
- **.02 yrs:** Unconditional cash transfer for girls (Malawi)

Source: J-PAL Bulletin March 2012
Deworming in Copenhagen Consensus

Copenhagen Consensus 2004
Copenhagen Consensus 2004 was the very first Copenhagen Consensus project. The basic idea was to improve prioritization of the numerous problems the world faces, by gathering some of the world's greatest economists to a meeting where some of the biggest challenges in the world would be assessed.

Source:
http://www.copenhagenconsensus.com/copenhagen-consensus-2004
Sustained national deworming in Korea: trends in infection rates among children
Worm epidemiology and “breakpoint”

\[ x_t = \beta + (1 - \beta) x_{t-1}^2 \]
Reduction in worm infection and changes in high school graduation rates
Exposure to the national deworming campaign

“Full exposure” to the deworming campaign in childhood assuming 100% prevalence

Raised years of schooling by 0.6 years for men and by 1.3 years for women,

Increased the probability of high school graduation by 12.2% for men and by 26.2% for women, and

Increased adult wage by 2.3% for men, and by 18.7% for women.

Benefit is to be enjoyed by all generations, current and to come.

\[ Y_{ij} = \theta E_i \times \text{Exp}_j + X_{ij} \beta + \sigma_i + \phi_j + \kappa_t + \mu_{ijt} \]
### Exposure to deworming and educational attainment (regressions)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
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<tbody>
<tr>
<td>Completed Years of Schooling</td>
<td>0.9460</td>
<td>0.5685</td>
<td>1.3104</td>
<td>0.1956</td>
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<tr>
<td>Index of High School Graduation</td>
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Exposure ⨯ Infection Rate

<table>
<thead>
<tr>
<th>Exposure ⨯ Infection Rate</th>
<th>(0.1162)***</th>
<th>(0.1711)***</th>
<th>(0.1510)***</th>
<th>(0.0141)***</th>
<th>(0.0207)***</th>
<th>(0.0188)***</th>
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<tbody>
<tr>
<td>Female</td>
<td>-1.4221</td>
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<table>
<thead>
<tr>
<th>Female</th>
<th>(0.0082)***</th>
<th>(0.0010)***</th>
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<tr>
<td>R²</td>
<td>0.36</td>
<td>0.19</td>
<td>0.48</td>
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<td>No. of Obs</td>
<td>541,184</td>
<td>263,770</td>
<td>277,414</td>
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## Exposure to deworming and productivity (regressions)

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<tr>
<td>Dependent variable: log real wage</td>
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<td>All</td>
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<tr>
<td>Exposure × Infection Rate</td>
<td>0.0496</td>
<td>0.0230</td>
<td>0.1872</td>
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<tr>
<td></td>
<td>(0.0273)*</td>
<td>(0.0309)</td>
<td>(0.0449)**</td>
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<td>$R^2$</td>
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<td>No. of obs.</td>
<td>185,526</td>
<td>118,838</td>
<td>66,688</td>
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Under the management philosophy of "For the health of the people", Shin Poong Pharm Co., Ltd., specializes in manufacturing a variety of prescription drugs with sincere efforts put into producing every single tablet of life-saving drugs ranging from ingredients to finished products based on our own high-level manufacturing facilities and quality assurance systems.

We are committed to realizing the spirit of Shin Poong "Diligence, Vertue and Vigor" with top-notch competitiveness based on in-house ingredient manufacturing technology obtained through rigorous R&D efforts and to further developing the company into the one that makes confidence from our customers and that contributes to improving the well-being of Korean people.

Shin Poong Pharm Co., Ltd., will exert its efforts to contribute to maintaining the health of people around the world by localizing domestic pharmaceutical products while fulfilling the corporate goal of developing cutting-edge technologies for public health for people to become the world-class Shin Poong.

http://www.shinpoong.co.kr/company.intro.asp
Generous help from the Japanese Overseas Technical Cooperation Agency (precursor to JICA) was essential for the kick-off

- Microscopes, centrifuges, refrigerators, and vans
- Medicine to be given to all school children who tested positive for three years,
- Training of inspectors

...thanks to the cooperation of our partner, KAPE, with its unsurpassed passion for self-help, integrity in its organization, and consistency in its strategy and implementation, and thanks also to the sincerity of experts and relevant agencies in the country for serious collaboration... set the standard for all technical cooperation projects to aspire to in the future.
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서문

본문은 봉쇄가 기생중 성향이 발현된 여방객이 의심하여 전국
폭력교육 아동 및 복교동학으로 학생을 대상으로 하여 1969년도 후계에 설치한 기생중 검사장과의

이번 검사는 보건사회부 및 문교부의 지시에 의한 검사시의 및 요법을 확보, 전국적인 조치를 가
진 본협회 본부 및 지부의 검사소로 하여 검사
를 전담하여 사례를 만령의 학교가 검사에 참여한
가능으로는 전 학교가 한 사람도 참여하지 검
지에 참여할 수 있는 범죄를 인용 לקבל

검사방법에 있어서도 봉쇄의 비밀 도달법을 시행
하고 기생중성의 심층향이 가정 검사를 새로운 두
층 도달법으로 통일, 기생중 감사를 전담하였다.

그러나 몇몇 소수지는 검사방법을 통일하기 못
한 곳도 있어 총각으로 생각하여 1970년도 부
타는 완전 통일된 검사방법에 의하여 외박한 기생
중 검사가 설치된 것이다.

본 통계에 있어서 정확을 기하고자 세심한 수개

를 경주하였으나 미리한 점에 의하여는 본사장에
관심을 가지신 분들의 지도를 받아 정책을 관리로
지하여 이 통계가 심의발견을 의하여 나와졌고

본 통계에서 나타난 국민학교 아동의 최중 감염
자에 대하여는 전원 무로 투옥을 설치하였으며
1970년도 부터는 복교동학 교육이 가지 무로

투옥을 설치하고자 한다.

본들로 학교 기생중 감시방법을 위하여 복음 망
벌로 지휘하 주간 문교부, 보건사회부, 과학기념관
없이 정식도 교육의뢰, 각 교육력, 각 교육교 관
계관 및 각시도 본관과 지체과 관계관 일본 O. T. C. A.

당족과 일본 기생중 예방회 여진분에게 같은 감사
를 드리며 이월에서 복사에 적정 염전한 검사
으로 여진분의 노고에 대하여 칭찬을 드리는 바이다.

1969년 1월 1일

법인 한국 기생 중 막연회의

회장 이중선
Deworming collaboration overseas by Korea,

Neither national nor sustained! Maybe good, but great?
What do we learn, why should we care

1. Public policy perspective: good public investment can be made great (sustained, national)
2. Governance perspective: why don’t governments do the obviously good things?
3. Public management perspective: government-civil society cooperation, dedication and nimbleness of CSO (KAPE with 150 people and lean budget)
4. Aid effectiveness
5. Spearhead human capital, private enterprise, and development (KAPE and Shinpoong Pharmaceuticals)
Using administration data for impact evaluation

- Estimating long-term impacts (Bleakley deworming in American South, Duflo school construction in Indonesia)
- Saemaul Undong (rural development initiative in Korea in the 70s)
  - Focus on the individual village; government support tied to community efforts; nation-wide assessment in the framework of time-bound blueprint; leadership training; promotion of female leaders
  - Impacts on technology adoption and productivity
  - Impacts on gender equality
- Challenges and perils
  - Have to use quasi-experimental methods unless extremely lucky
  - Quality of data often unreliable
While you are in Seoul…

- Namsan trails
- Dongdaemun Design Plaza (DDP)
- Guangjang Shijang (market)
- Chonggyechon
- …