

Cost-effective Health Interventions for Improved Education and Employment:
An Integrated Approach to Development

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Abstract

Development often consists of experts attempting to improve education or employment in obvious ways such as building schools or creating jobs. This paper argues that simple and strategically timed health interventions often result in similar beneficial education and employment outcomes and exhibit larger returns on investment. The paper specifically examines the effectiveness of interventions that help eliminate iodine deficiency, intestinal worms, and iron-deficiency anemia and discusses the benefits of an integrated approach to economic development. After analyzing certain obstacles to the success of simple health interventions, the paper finally recommends that more resources be dedicated to interventions with positive, long-term consequences (even though such interventions may not be directly observable) and that more longitudinal research be conducted to further understand the nuanced outcomes.

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Context

This paper argues that while entrepreneurs, donors, and policy makers in development often perceive health, education, and employment issues in developing nations as distinct and separate, most issues are in reality linked to one another. Such flawed perception is a significant problem in development, and more integrative solutions must be researched and implemented to create more efficient change. Much aid and many interventions are focused on intuitive solutions, such as building schools to enhance education or providing jobs to increase employment, approaches that tend to be costly and face significant obstacles. However, many other cost-effective and strategically timed health solutions often result in similar outcomes.

The paper draws upon principles from the fields of child developmental psychology and behavioral economics to contribute to theories of development economics. In particular, the concept of a “sensitive period” in child development is analyzed to understand the long-term education and employment effects of early health problems or health deficiencies. According to child development theorists from the late 20th to the early 21st century, a sensitive period is “a time that is optimal for certain capacities to emerge and in which the individual is especially responsive to environmental influences.”¹ In other words, during a particular period of time, children are extremely sensitive to their environments, and while development may occur later, it is more difficult to induce. This paper explores the idea of childhood as a sensitive period, and thus, a nutritional deficiency in a sensitive period may result in significant negative long-term consequences that impact the child’s education and employment outcomes.

Additionally, two contemporary and influential books in behavior economics, Poor Economics by Banerjee and Duflo and Half the Sky by Kristof and WuDunn, are analyzed and substantially referenced for their relevant contributions to economic development. In recent years, these books have been instrumental to political and popular thought regarding development, and this paper provides a response to a few critical arguments. The paper builds on some key evidence presented in both books that helps depict the effectiveness of childhood health interventions on long-term education and employment success.

By considering the perspectives that experts from various fields (child developmental psychology, behavioral economics, development economics) could contribute, this paper argues that integrative analytical frameworks can enhance the likelihood of intervention effectiveness. In other words, instead of creating separate solutions for the sectors of health, education, and employment, change makers should consider a broader framework, where the direct outcomes of an intervention lead to several positive *indirect* effects. This paper suggests that the most cost-effective solutions that deliver some of the largest returns on investment consider the interconnectedness of development problems. In particular, three health issues, iodine deficiency, worms, and anemia, with varying sensitive periods, are explored to better understand the long-term impacts on education and employment. After discussing the cost-effectiveness and large social returns on investments of three health interventions, the paper analyzes the obstacles in implementation, in the efforts to increase awareness of simple, effective interventions among entrepreneurs and donors in development.

Iodine Deficiency

¹ Laura E. Berk, Child Development, (Boston: Pearson, 2013) 24.

Health Impacts of Iodine Deficiency

Iodine is one of the essential nutrients that is not produced in the body naturally and is critical to consume in the diet. Not doing so results in an inability to produce the thyroid hormone and leads to the enlargement of the thyroid goiter in the neck, causing difficulty with swallowing and breathing. Most critically, a lack of iodine during pregnancy can cause serious problems for the future development of the infant.²

As the American Thyroid Association describes, “Children of mothers with severe iodine deficiency during pregnancy can have mental retardation and problems with growth, hearing, and speech... Congenital hypothyroidism due to pregnancy is the most common preventable cause of mental retardation in the world. Even mild iodine deficiency during pregnancy... may be associated with low intelligence in children.”³ Key to note is the long-term impact from the lack of a single prenatal nutrient. Most often such issues in mental retardation are irreversible or at least very difficult to reverse after early childhood. However, developmental issues are easily preventable if the nutrient is taken during the sensitive period of time.⁴ According to Kristof and WuDunn, “fetuses need iodine in the first trimester to develop proper brains.”⁵ In other words, early nurture with iodine can impact what may be considered as the child’s future intelligence, cognitive ability, etc.⁶

Since the 1920s, the United States has almost entirely eliminated iodine deficiency issues by iodizing salt in the country.⁷ “Fortifying table salt with iodine virtually eradicates infantile hypothyroidism, a condition of stunted growth and cognitive impairment, caused by prenatal iodine deficiency—a common cause of mental retardation in many parts of the developing world.”⁸ Globally, the American Thyroid Association estimates that 40% of the world’s population is still susceptible to iodine deficiency.⁹

Iodine Deficiency’s Impacts on Education and Employment Outcomes

² Iodine Deficiency. 4 June 2012. American Thyroid Association. 29 June 2014 <<http://www.thyroid.org/iodine-deficiency/>>.

³ Iodine Deficiency. 4 June 2012. American Thyroid Association. 29 June 2014 <<http://www.thyroid.org/iodine-deficiency/>>.

⁴ Laura E. Berk, *Child Development*, (Boston: Pearson, 2013) 24.

⁵ Kristof, Nicholas D., and Sheryl WuDunn. *Half the Sky*. (New York: Vintage, 2009) 172.

⁶ Mineral Deficiencies in New Zealand: Iodine. Julianne’s Paleo & Zone Nutrition. 29 June 2014 <<http://paleozonenutrition.com/2013/10/01/mineral-deficiencies-in-new-zealand-iodine/>>.

⁷ Iodine Deficiency. 4 June 2012. American Thyroid Association. 29 June 2014 <<http://www.thyroid.org/iodine-deficiency/>>.

⁸ Laura E. Berk, *Child Development*, (Boston: Pearson, 2013) 104.

⁹ Iodine Deficiency. 4 June 2012. American Thyroid Association. 29 June 2014 <<http://www.thyroid.org/iodine-deficiency/>>.

Across the world, several studies have shown that iodine deficiency can lead to impaired cognitive performance, and interventions where iodine is provided lead to enhanced performance of individuals. One landmark study in Tanzania in 1986 demonstrated how children born to mothers who received iodine during pregnancy completed one-third to one-half years of more schooling than their siblings who were not exposed to their mothers' iodine capsules.¹⁰ One-third to one-half years may not seem to be a significant difference, but most children in these areas attend school for only 4-5 years, meaning the single iodine intervention was associated with a 6.2% to 11% increase in schooling. Based on the researchers' estimates, "if every mother were to take iodine capsules, there would be a 7.5 percent increase in the total educational attainment of children in Central and Southern Africa. This, in turn, could affect the child's productivity throughout his or her life."¹¹ Researchers from another study in Ecuador estimate that iodine deficiency typically shaves ten to fifteen points off a child's IQ, and still other studies have found strong positive influences of salt iodization on school participation, particularly female school participation, as female fetuses are even more likely to be impacted by iodine deficiency than male fetuses are.¹²

Such key pieces of similar evidence across multiple studies suggest that iodine conditions in utero have long-term impacts on a child's future outcomes. From the literature, two critical pieces of information are noted: providing iodine supplements during an appropriate sensitive period can significantly increase the child's educational attainment, and the reduced likelihood in cognitive impairments and/or the extra amount of educational attainment due to iodine sufficiency can lead to beneficial productivity and employment outcomes.

Cost-effectiveness of Iodine Deficiency Interventions

According to Kristof and WuDunn, one study estimates that "just \$19 million would pay for the salt iodization in poor countries that need it. This would yield economic benefits that another study found were nine times the cost."¹³ Compared to building entire schools where teachers or students may not be present or attempting to increase employment by creating jobs, promoting iodine intake is relatively cheap (even by developing world standards) and increases the likelihood of success in both sectors of education and employment.

Intestinal Worms

Health Impacts of Worms

Intestinal worms kill approximately 130,000 people per year and on a much larger scale significantly impact physical outcomes and daily lifestyles, especially for children.¹⁴ Worms

¹⁰ Banerjee, Abhijit V., and Esther Duflo. *Poor Economics*. (New York: Public Affairs, 2012) 32.

¹¹ Banerjee, Abhijit V., and Esther Duflo. *Poor Economics*. (New York: Public Affairs, 2012) 32.

¹² Kristof, Nicholas D., and Sheryl WuDunn. *Half the Sky*. (New York: Vintage, 2009) 172.

¹³ Kristof, Nicholas D., and Sheryl WuDunn. *Half the Sky*. (New York: Vintage, 2009) 172.

¹⁴ Kristof, Nicholas D., and Sheryl WuDunn. *Half the Sky*. (New York: Vintage, 2009) 171.

come in various forms and can live within the human body for years, causing abdominal pain, nausea, diarrhea, tiredness, weight loss, rashes, and other painful symptoms.¹⁵ As experts in development describe, “illness reduces appetite and limits the body’s ability to absorb foods, especially in children with intestinal infections. In developing countries, widespread diarrhea, resulting from unsafe water and contaminated foods, leads to growth stunting” and several other negative consequences in education and employment.¹⁶ In other words, worms create significant forms of daily discomfort and unhealthiness.

Intestinal Worms’ Impacts on Education and Employment Outcomes

Intestinal worms are particularly harmful to children because of the increased likelihood of diarrhea. “Studies carried out in the slums and shantytowns of Brazil and Peru reveal that the more persistent diarrhea is in early childhood, the shorter children are in height and the lower they score on mental tests during the school years.”¹⁷ Banerjee and Duflo support this statement writing, “Repeated bouts of diarrhea during childhood permanently impair both physical and cognitive development.”¹⁸ One study in the American South saw that after deworming, students were far more alert and studious, and another landmark study in Kenya found that school absenteeism decreased by one quarter once students were dewormed.¹⁹ Deworming, a simple health intervention, shows significant impacts on education if provided in a sensitive period of rapid development like childhood.

Intestinal worms negatively impact a child’s education in very obvious ways, but because of the impacts on physical and intellectual growth, worms can also affect future employment outcomes. Not only are those who are less educated less likely to find work, but those with worms are often less capable of attaining the performance level of their peers without intestinal worms. The more long-term effect of deworming was studied in Kenya, and the study found that “being dewormed for two years instead of one (and hence being better nourished for two years instead of one) would lead to a lifetime income gain of \$3269 USD PPP.²⁰ In a developing country like Kenya, this increase represents a phenomenal increase in terms of social return on the investment of deworming, which in Kenya costs \$1.36 USD PPP per year.²¹ Gains from employment are significant if children are dewormed.

Cost-effectiveness of Deworming Interventions

¹⁵ Intestinal Parasites. University of Maryland Medical Center. 29 June 2014 <<http://umm.edu/health/medical/altmed/condition/intestinal-parasites>>.

¹⁶ Laura E. Berk, *Child Development*, (Boston: Pearson, 2013) 201.

¹⁷ Laura E. Berk, *Child Development*, (Boston: Pearson, 2013) 201.

¹⁸ Banerjee, Abhijit V., and Esther Duflo. *Poor Economics*. (New York: Public Affairs, 2012) 46.

¹⁹ Kristof, Nicholas D., and Sheryl WuDunn. *Half the Sky*. (New York: Vintage, 2009) 171.

²⁰ Banerjee, Abhijit V., and Esther Duflo. *Poor Economics*. (New York: Public Affairs, 2012) 39.

²¹ Banerjee, Abhijit V., and Esther Duflo. *Poor Economics*. (New York: Public Affairs, 2012) 39.

Like iodization, deworming is advantageous because of its low cost. Whereas the average American may spend \$50 to deworm a dog, deworming in Africa can cost as little as 50 cents.²² Nonetheless in the landmark study in Kenya, “when International Child Support, the NGO that was running the deworming program, asked the parents in some schools to pay a few cents for deworming their children, almost all of them refused, which deprived their children of hundreds of dollars of extra earning over their lifetime.”²³ This issue of why interventions are not implemented is explored more in *Discussion*. Nonetheless, the social returns (higher future income) on the investment (deworming for few cents) are once again evidenced as substantial.

Iron-Deficiency Anemia

Health Impacts of Iron-Deficiency Anemia

Iron-deficiency anemia, the most common type of anemia, is caused by decreased or faulty red blood cells, which circulate oxygen throughout the body.²⁴ Since iron helps make red blood cells, lack of iron is detrimental to this critical function of the body.

Iron is usually consumed through one’s diet. Symptoms are mild for much of the time, but include tiredness, headaches, and problems concentrating or thinking.²⁵ As the anemia worsens, shortness of breath, brittle nails, and light-headedness also occur.²⁶ During pregnancy or breastfeeding, iron-deficiency is common and often almost expected, as the woman’s body needs more iron than normal.²⁷ However, for many pregnant women, iron-deficiency anemia can be life threatening.²⁸

²² Kristof, Nicholas D., and Sheryl WuDunn. *Half the Sky*. (New York: Vintage, 2009) 171.

²³ Banerjee, Abhijit V., and Esther Duflo. *Poor Economics*. (New York: Public Affairs, 2012) 33.

²⁴ Understanding Anemia. Anemia Causes, Types, Symptoms, Diet, and Treatment. 29 June 2014 <<http://www.webmd.com/a-to-z-guides/understanding-anemia-basics>>.

²⁵ Iron Deficiency Anemia: Medline Plus Medical Encyclopedia. U.S. National Library of Medicine. 29 June 2014 <<http://www.doctortipster.com/2208-iron-deficiency-anemia-definition-clinical-diagnosis-complications-evolution-and-treatment.html>>.

²⁶ Iron Deficiency Anemia: Medline Plus Medical Encyclopedia. U.S. National Library of Medicine. 29 June 2014 <<http://www.doctortipster.com/2208-iron-deficiency-anemia-definition-clinical-diagnosis-complications-evolution-and-treatment.html>>.

²⁷ Iron Deficiency Anemia: Medline Plus Medical Encyclopedia. U.S. National Library of Medicine. 29 June 2014 <<http://www.doctortipster.com/2208-iron-deficiency-anemia-definition-clinical-diagnosis-complications-evolution-and-treatment.html>>.

²⁸ Banerjee, Abhijit V., and Esther Duflo. *Poor Economics*. (New York: Public Affairs, 2012) 32.

Whether a stable or temporary cause of iron-deficiency, iron supplements are necessary for proper red blood cell functioning. Some iron-rich foods include chicken, dried lentils, fish, peanut butter, raisins, or spinach.²⁹

Iron-Deficiency Anemia's Impacts on Education and Employment Outcomes

In some parts of the world like Indonesia and many other Asian and African countries, iron-deficiency is a widespread problem and is especially prevalent in female populations. In Indonesia, 6% of men and 38% of women are anemic, and in India, 24% of men and 56% of women are anemic.³⁰

One source describes the impact that iron supplementation has on women and children: "Among women, iron supplementation improves physical and cognitive performance, work productivity, and well-being, and iron during pregnancy improves maternal, neonatal, infant, and even long-term child outcomes."³¹ The preventative nature of iron supplementation should be noted: iron supplementation in the prenatal period, though not so glamorous an intervention, can significantly impact future life outcomes for the child. As experts in child development describe, "Iron deficiency during childhood and adolescence impairs mental development and learning capacity," making it much more difficult to excel in education. Development of the brain structures involved in memory is particularly impaired by prenatal iron-deficiency, thereby hurting learning.³² Thus, a small intervention early on in a sensitive period can have a cascade of positive future educational effects.

Interestingly, iron supplementation also shows beneficial impacts outside of a sensitive period. In one experiment, researchers from The Work and Iron Status Evaluation (WISE) carefully chose random men and women for regular iron supplementation while others received a placebo. The experiment allowed causality to be determined (something rare in the field of development), and researchers found that those men who received the iron supplements worked much harder, such that their yearly gain in earnings was \$46 USD PPP, more than 6 times the small cost of \$7 for the iron supplementation.³³ In adults, iron deficiency reduces the ability to do physical labor.³⁴ Of course, without the general low aerobic capacity, weakness, and lethargy associated with iron-deficiency anemia, men are

²⁹ Iron Deficiency Anemia: Medline Plus Medical Encyclopedia. U.S. National Library of Medicine. 29 June 2014 <<http://www.doctortipster.com/2208-iron-deficiency-anemia-definition-clinical-diagnosis-complications-evolution-and-treatment.html>>.

³⁰ Banerjee, Abhijit V., and Esther Duflo. *Poor Economics*. (New York: Public Affairs, 2012) 32.

³¹ Pasricha, Sant-Rayn, et al. "Control of Iron Deficiency Anemia in Low- and Middle-income Countries." *Blood Journal* (2013). 14 July 2014 <<http://bloodjournal.hematologylibrary.org/content/early/2013/01/25/blood-2012-09-453522?sso-checked=1>>.

³² Laura E. Berk, *Child Development*, (Boston: Pearson, 2013) 105.

³³ Banerjee, Abhijit V., and Esther Duflo. *Poor Economics*. (New York: Public Affairs, 2012) 32-3.

³⁴ Iron. Harvest Plus. 29 June 2014 <<http://www.harvestplus.org/content/iron>>.

much more likely to have positive employment outcomes.³⁵ Causality is often difficult to determine in a field like development, but from this experiment, the direct impacts of iron supplementation on employment are observed.

Cost-effectiveness of Iron-Deficiency Anemia Interventions

As discussed in the previous section, iron supplementation, in terms of social return on investment, like iodine supplementation and deworming, pays itself off and turns a social profit very quickly.³⁶ While daily and intermittent iron supplements may be relatively more expensive than the other health interventions, there are many strategies to control iron-deficiency anemia, including purchasing food more *judiciously* such that staple foods and condiments include fortification.³⁷

Discussion

Health interventions at an early stage of development often result in outcomes much more difficult to induce at later ages. This idea of a sensitive period of development is critical to understanding the long-term impacts of simple, strategically timed health interventions.³⁸ As authors of *Poor Economics* describe, “A review study by some of the best experts on nutrition leaves little doubt that proper nutrition in childhood has far-reaching implications. They conclude: ‘Undernourished children are more likely to become short adults, to have lower educational achievement, and to give birth to smaller infants. Undernutrition is also associated with lower economic status in adulthood.’”³⁹ The effects of early environmental nurture on the long-term characteristics of the child are largely evidenced.

In the previous three sections, the paper discussed the beneficial impacts of fetal iodine-supplementation, deworming for children, and fetal iron-supplementation, all of which increase the likelihood of enhanced education and employment success for the individual. Some interventions like iron-supplementation were highly effective for adults as well, suggesting that some interventions are effective across several or all time periods of a lifespan rather than just a sensitive period. Nonetheless, solving health issues at an earlier age can lead to a cascade of positive effects (for example earlier education leading to higher academic achievement compared with peers and thus more time in school) that are difficult to induce at a later age.

³⁵ Banerjee, Abhijit V., and Esther Duflo. *Poor Economics*. (New York: Public Affairs, 2012) 32.

³⁶ Banerjee, Abhijit V., and Esther Duflo. *Poor Economics*. (New York: Public Affairs, 2012) 32.

³⁷ Pasricha, Sant-Rayn, et al. “Control of Iron Deficiency Anemia in Low- and Middle-income Countries.” *Blood Journal* (2013). 14 July 2014
<<http://bloodjournal.hematologylibrary.org/content/early/2013/01/25/blood-2012-09-453522?sso-checked=1>>.

³⁸ Laura E. Berk, *Child Development*, (Boston: Pearson, 2013) 24.

³⁹ Banerjee, Abhijit V., and Esther Duflo. *Poor Economics*. (New York: Public Affairs, 2012) 31-2.

Several health interventions, while not catch all solutions to better education and employment, certainly are extremely effective.⁴⁰ If they are effective, however, why are simple health interventions not being implemented? And if they are being implemented, why are they not working? The paper now considers three major obstacles to such interventions.

Obstacle #1: Lack of awareness among entrepreneurs and donors

As the authors of *Half the Sky* put it, interventions such as iodine supplementation are not “glamorous.”⁴¹ Donors to non-profits and social enterprises that support education or employment opportunities want to know, for good reason, that their funds are being spent effectively, and small health interventions with long-term and more indirect results are not intuitively supportive of education and employment. For example, donors or lay people who wish to contribute to the larger cause of “education” often understand the value of building a school. Constructing buildings is a directly observable event with clear “before and after” effects (children do not have a local school, then children have a local school). Within a short period of time, the effects of building a school in a microenvironment are perceivable, and entrepreneurs are rewarded.

On the other hand, fetal nutrient supplementation, which often results in the same end goal of more educational opportunities, results in effects that are long-term and much more difficult to observe. If a student does well in school several years after a nutritional intervention, the success may be attributed to the student’s hard work, school environment, or naturally bright nature, not necessarily to the iodine supplementation that the child’s mother took a decade ago during the child’s sensitive period of growth. To understand the effects of the prenatal supplementation, it is not enough to look at just the child and his environment like it is with building a school, but it is also necessary to compare the child to a similar counterpart in society whose mother did *not* receive the iodine supplementation. Even then, differences in IQ or educational attainment may be attributed to individual differences, and only when many randomized controlled trials of increased numbers, showing that sufficient nutrition during a sensitive period results in increased life-chances, are conducted are the effects of such interventions more perceivable. Such studies require long-term longitudinal data to be collected. Changes in health outcomes are not as photogenic as the construction of buildings, and thus, there may be a pro-building bias in development. Because of the unobservable nature of simple health interventions, entrepreneurs and donors often do not invest in such cost-effective measures.

Obstacle #2: Lack of investment from the poor

The first obstacle describes why simple health interventions often are not available. But even when such health interventions do exist and are affordable, the poor often do not take advantage of them. As one intervention in Kenya demonstrates, “when International Child Support, the NGO that was running the deworming program, asked the parents in some schools to pay a few cents for deworming their children, almost all of them refused, which

⁴⁰ Laura E. Berk, *Child Development*, (Boston: Pearson, 2013) 105.

⁴¹ Kristof, Nicholas D., and Sheryl WuDunn. *Half the Sky*. (New York: Vintage, 2009) 247.

deprived their children of hundreds of dollars of extra earning over their lifetime.”⁴² Similarly regarding iron-deficiency anemia, when poor families have the resources to take advantage of iron supplementations, they often do not.⁴³

What is the reason for this seemingly negligent behavior? The major problem could be a gap in knowledge. Just as the long-term benefits of simple health interventions may not be apparent to activists and donors, they also may not be perceived as valuable by poor parents for two reasons. As discussed in the previous section, health outcomes, which often have a gradual and delayed return on investments, are more difficult to observe than say, the construction of buildings or other events with clear “before and after” effects. Poor families are often uneducated, and the long-term impacts of proper nutrition in a sensitive period are difficult to understand and appreciate without some preliminary knowledge of biology. Secondly, even if such health changes are appreciated, the benefits of interventions like pre-natal nutrition may be so delayed and distant in a person’s lifetime, that from the perspective of poor parents, interventions do not merit the scarce resources of today. In other words, when resources are limited, there may be a preference among poor families to use resources on the present situation rather than on uncertain situations of the future. This phenomenon in many cases leads to a loss of children’s lifetime educational attainment and earnings.

Interestingly, these obstacles leading to the lack of investment from the poor supports another interconnected aspect of development. Just as better health positively impacts education (such as deworming increasing school attendance rates), better education positively impacts health (such as acquired health knowledge improving daily health practices), suggesting that a subtle upward positive feedback cycle out of poverty may exist.

Obstacle #3: Whose responsibility is it to pay for and deliver such interventions?

The uniqueness of the discussed health interventions is that unlike many other interventions in development, the poor can often afford, and actually profit from, iodine supplementation, deworming, and iron supplementation. As discussed in the sections regarding cost-effectiveness, returns on investment-- both social and monetary-- are huge, and the initial cost is often just a few cents. Nonetheless, nations may adopt various payment schemes or transition from policies in order to encourage the practice of taking such supplements.

The United States, for example, has practically eradicated the problem of iodine deficiency by mandating the iodization of salt.⁴⁴ Other countries, with higher corruption and less government stability, however, may at least initially invest in social enterprises and nonprofits that seek to bring nutrition to smaller communities whose needs are usually less addressed by the government. Many strategies and sustainable business models may exist to promote health interventions, and when implementing such interventions, more

⁴² Banerjee, Abhijit V., and Esther Duflo. *Poor Economics*. (New York: Public Affairs, 2012) 33.

⁴³ Banerjee, Abhijit V., and Esther Duflo. *Poor Economics*. (New York: Public Affairs, 2012) 33.

⁴⁴ Iodine Deficiency. 4 June 2012. American Thyroid Association. 29 June 2014
<<http://www.thyroid.org/iodine-deficiency/>>.

planning on how to fund such projects is necessary to scale the depth and breadth of social impact.

Final Conclusion and Recommendations

This paper specifically contributes to the field of economic development by attempting to increase awareness among entrepreneurs and donors on interventions that work. By highlighting the long-term impacts of simple, strategically timed health interventions evidenced in relevant sources, the paper seeks to increase conversation on the interconnectedness of health, education, and employment sectors in development and on the effectiveness of the work conducted by social enterprises and of the policy implemented by governments. While in economic development, many people focus on “scaling” an enterprise or the implementation of a policy, etc., this paper recommends that those in development focus on solutions that exhibit positive direct and indirect effects and thereby scale themselves. Although not as obviously glamorous as constructing buildings, entrepreneurs and policy makers should implement more simple and cost-effective interventions with long-term impacts to create more significant change. Additionally, more longitudinal research should be incentivized and conducted to more thoroughly understand causal claims and predict indirect effects of simple interventions.

This paper drew upon child developmental psychology and behavioral economics to substantiate and reform ideas in development economics, analyzed three particular health interventions with impacts on education and employment, and then discussed obstacles in implementation. Ultimately, the evidence suggests that often some of the most impactful solutions to developing world problems target not isolated sectors, but rather a broader framework that considers the interconnectedness of issues like health, education, and employment.

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