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India, Education

**Solving Food Insecurity in India Through Education**

From the bustling slums of Mumbai to the tribal regions of Jharkhand, educational disparity, food insecurity, and malnutrition are pervasive issues for the youth of India. Despite rapid economic growth and technological advancements, India has the largest population of malnourished children in the world: 36% of children suffer from malnutrition, a condition closely related to hunger, which leads to stunted growth and nutrient deficiencies (Sahu et al.). Moreover, an alarming sixty million children between the ages of five and eleven lack access to formal education (Roser). With these issues in mind, the solution for obtaining food security is through education. Education acts as the driving force for eliminating poverty by providing students with the knowledge and skills needed to secure better jobs, increase incomes, and lift themselves and their families out of poverty.

India has a diverse population distribution ranging from cities to remote villages. Approximately a third of its inhabitants live in urban areas and the remaining inhabit rural areas (United Nations). With a total land area of 2,973,190 square kilometers, the population density of India in 2024 is at 438.58 people per square kilometer, and this number has increased by 0.92% in the past year (United Nations). As the agricultural sector is an important part of India’s economy with over 54% of the country's land classified as arable, a simple solution could be eliminating food scarcity through subsistence farming (Chaturvedi). Despite the abundance of arable land, more than a hundred million rural households own no land at all with a small percentage of wealthy farmers controlling the majority of agricultural land (“Agrarian Land”). Those who do own land often practice unsustainable agricultural practices such as an excessive use of chemical fertilizers and pesticides, monocropping, overgrazing and deforestation (Srivastava). With profit in mind, landowners prioritize cash crops over food crops which limits access to nutritious food for local communities. As India continues to undergo rapid urbanization, the disparity in land ownership and irresponsible farming practices will only worsen food shortages.

India also has a long history of famines, with over 25 devastating events occurring during the colonial era. These famines killed well over 10 million people ​​from 1870 to 1943, with all but one of the catastrophic incidents linked to droughts and improper British policy (Mishra et al.). For instance, Mishra estimates that The Great Bengal Famine of 1943 led to three million deaths because of wartime shortages and British involvement in the requisitioning of rice. Research suggests that exposure to severe nutritional deprivation during these periods of famine has had lasting effects on the genetic composition of Indians, which makes the current population more susceptible to metabolic diseases (Thomas and Vasan). These conditions worsen pre-existing health inequities and continue a cycle of poverty and malnutrition through generations. It’s also important to consider how existing socio-cultural factors such as the caste system relate to education. For example, certain caste groups often face discrimination and limited access to educational opportunities, which further exacerbates disparities in jobs. Therefore, efforts to reform the educational system must also address caste-based inequities.

In order to understand the challenges faced by children in India, we need to first understand the employment status and educational background of parents. Parents who are employed in stable jobs with higher levels of education are often better prepared to support their children's education and guarantee nutritious meals. However, families facing unemployment or working in low-wage labor find it impossible to meet basic needs, leading to children providing for their families. Various laws have attempted to address child labor in India. In 1986, the Indian government created the Child Labor Act, which prohibits the employment of children below the age of 14 in certain dangerous industries and regulates working conditions. Despite these legal measures, children in India are still vulnerable to the worst forms of child labor, including commercial sexual exploitation and employment in hazardous occupations (Spognardi). The extent of child labor varies by region as well. In the economically disparate states of Rajasthan and Uttar Pradesh, a large family structure is necessary for earning a livable wage. With the average pre-pandemic household containing 5.22 to 5.26 people, children need to work to provide a wage for their families, resulting in less time for education (“Average Household Size - Global Data Lab”). Hence, there are severe economic pressures faced by millions of households, due in large part to the failure of government intervention in addressing the root of the problem - poverty - and ensuring education for all.

Child labor further contributes to India's already low literacy rate. According to the latest available census data from 2011, India’s literacy rate was 74.04% with a large gender disparity. Specifically, men had a literacy rate of 82.14% with women lagging behind at 65.46%. (“India 2020: Reference Annual Book”). This gender disparity restricts women's ability to participate in higher-wage labor, thereby reinforcing oppressive gender roles. Without adequate literacy skills, individuals struggle to pursue higher education or secure well-paying jobs, further worsening cycles of poverty and inequality, therefore increasing food insecurity.

These challenges merit a solution that effectively addresses India’s widespread educational disparity and food insecurity. Existing solutions include nonprofits like eVidyaloka, a digital platform that aims to reform education for students in underserved government schools by providing access to experienced teachers (Kumar). Another educational initiative, Asha for Education, focuses on recruiting volunteer teachers. With over two hundred projects spread across India, Asha for Education effectively attempts to reduce educational gaps from pre-primary schooling to professional education (“Our Projects | Asha for Education”). Although these nonprofit organizations can guide students into creating a better, more fulfilling life long-term, they lack an immediate incentive to attract participation from both the youth and their parents.

A viable, more immediate solution to address the educational and economic disparity is through vocational training. Since 2005, Pratham has offered a “learn now, pay later” model to allow young adults to pursue new career paths in healthcare, construction, and hospitality (Lakshman). After finishing a standard course, Pratham graduates can expect to earn a salary of $75-200 a month, which is nearly double their standard monthly income (“Vocational Training”). Pratham shares the story of Rajat Bagde, an ambitious 23-year-old who started his own car wash subscription service. As a successful entrepreneur, Bagde hired two full-time employees to fulfill the at-home car washing market in Nagpur, India. This opportunity has allowed Bagde to lift his family out of poverty and inspire thousands of others to do the same. Since its inception, the Pratham team has formally trained 100,000 young adults and funded more than 1,500 entrepreneurial ventures similar to Bagde’s, thereby creating countless jobs and fueling sustainable economic development (“Vocational Training”). Similarly, the replication of a Grameen Bank Micro Loan system can empower hundreds of thousands, if not millions, of women in India like it has in Bangladesh (Khandker).

Ultimately, the most long-term way to solve the major challenge of food insecurity is by creating an incentive to go to school, which targets the root of the problem and lifts populations out of poverty while also providing additional instant relief benefits. The Akshaya Patra Foundation does exactly this. The foundation supports education through its Mid-Day Meal Program which provides nutritious lunches to more than two million students daily, averaging 700 calories and 20 grams of protein per meal (“Mid-Day Meal”). Operating in more than 22,000 schools, the Akshaya Patra Foundation has created a tremendous impact in addressing malnutrition in impoverished communities (Sankar). Madhu Pandit Dasa, the founder of the Akshaya Patra Foundation, shares his vision: “No child in India shall be deprived of education because of hunger,” (“Mid-Day Meal”). Dasa encourages students to enjoy multiple servings and to bring some food home for their families. A donation of just $20 can feed a child for a whole school year, which reduces the economic burden for communities all across India (Ran, S.R. Sandhya). Attending school is an easy choice when a child knows that they won’t be hungry.

Determined to be a part of this solution, I devoted more than 200 hours to volunteering at Vidhya Seva (“Knowledge Service”) School in the summers of 2022, 2023, and 2024 to make a lasting impact on the lives of more than 200 children by teaching students Math and English in an underserved impoverished community in Rajasthan. This Akshaya Patra partner association provides mid-day meals, thereby attracting many hungry children with the promise of obtaining a day’s worth of food. In addition to gaining literacy in both reading and mathematics, those who attend are encouraged to go to college and pursue higher education. At Vidhya Seva, I worked with children in grades 3 through 9 as a teacher for younger students and Guest Lecturer for older students.

One standout moment was delivering a guest lecture to 9th grade students on sustainable farming, where I gave a live demonstration on building a small-scale drip irrigation system. Using simple materials like recycled plastic bottles, bottle caps, and Q-tips, I showed the students how to create an efficient irrigation system for their school garden. Seeing the sparkle in the eyes of eager students who’d initially arrived looking downtrodden, was extremely moving. In my effort to connect their education with their everyday

lives and prospective future livelihoods, I felt gratified seeing that I had successfully ignited students’ passion for learning along with their optimism and sense of aspiration, thereby providing tools to lift themselves and their families out of poverty.

After witnessing the engagement of students during the lesson, I recognized the need to reform the current Indian education system to focus more on skill-based learning rather than rote memorization. By adapting education to the specific needs of different regions, students can gain practical knowledge that directly benefits their communities. For example, in Rajasthan, where many students come from farming families and water scarcity is a significant challenge, the curriculum should include lessons on sustainable agriculture practices that minimize water usage and optimize India's natural geographic conditions.

Instead of cultivating water-intensive crops like rice, students must learn about the benefits of growing millets, often referred to as "nutria-cereals" due to their high nutritional value (Michaelraj and Shanmugam). These grains are rich in minerals such as iron, magnesium, and calcium, making them a healthier alternative to rice. Their ability to thrive in poor soil and under limited rainfall makes them an ideal crop for Rajasthan’s dry regions (Saleh et al.). Over time, this strategy would result in a more sustainable use of natural resources, reducing the strain on water supplies and increasing the productivity of arable land. Moreover, students who are educated in skills that directly benefit their families are more likely to stay and contribute locally, reversing the trend of rural depopulation and strengthening their regions both socially and economically (Yu et al.).

I took my commitment a step further this past summer by interning at Akshaya Patra’s centralized kitchen in Jaipur, where over 100,000 meals are prepared daily and delivered to more than 1,450 schools. I observed the entire process, from receiving bulk shipments of raw materials to the large-scale cooking methods and the final distribution of these nourishing meals to children.

Improved governmental support can significantly boost the impact of Akshaya Patra in addressing food insecurity as Akshaya Patra relies heavily on fundraising and sponsorships. The impact of government support is showcased in the success of Brazil's "Fome Zero" program. Fome Zero, translating to “Zero Hunger,” was created with the goal of reducing malnutrition in Brazil. Launched in 2003, Fome Zero recognized the importance of literacy and food security in eliminating poverty. This program offers incentives for children to attend school with “Bolsa Família,” which provides monthly stipends to families, contingent on requirements such as minimum attendance for students and regular health checkups, thereby improving both literacy and healthcare (Elver).

The success of Fome Zero’s reduction in malnutrition can be attributed to its School Feeding Program, which is similar to Akshaya Patra’s Mid-Day Meal program. Fome Zero demonstrates that Akshaya Patra’s goals can be accomplished. In Brazil, Fome Zero uplifted 20 million people out of poverty from 2003 to 2009, and its broader initiatives helped decrease the infant mortality rates from 27.36% in 2000 to 17.56% in 2008 (Simões). With government support, Fome Zero was able to transform Brazil into a nation where hunger is no longer a pervasive threat. This has reflected in society as Brazil has become the center for agricultural production in South America, with the nation acting as an international leader in the fight against hunger (Bhurasi). Looking ahead, I am confident that India will achieve similar success in combating hunger through increased government backing for organizations like Akshaya Patra.

To truly understand the impact and efficacy of the Mid-Day Meal program in India, we have to recognize the existence of the Flypaper Effect in government transfers. The Flypaper Effect, as demonstrated by Jacoby in his research on a similar program in the Philippines, suggests that when government funds are provided for specific purposes, the money tends to stick where it is allocated rather than being diverted elsewhere (Jacoby). The flypaper effect's existence in Mid-Day Meal transfers is also showcased in Bangladesh (Ahmed) and more recently in China (Chen et al.). In practice, conditional cash transfer programs like Mexico’s Prospera, formerly Progresa, or Fome Zero’s Bolsa Familia have shown promise in addressing poverty, but they do not guarantee that the funds will directly benefit the children for whom they are intended for (Gertler and Boyce). This means that the intended benefits, such as improved nutrition and educational outcomes for children, might not always materialize as parents could prioritize other expenses (Afridi).

Jacoby’s findings in the Philippines along with Fome Zero’s success in Brazil highlight the importance of targeted funding in achieving specific social outcomes (Jacoby). By applying this understanding to the Mid-Day Meal program in India, we can see that the government’s investment in the program is both effective and necessary in addressing hunger and education among underprivileged children. By increasing funding for the Mid-Day Meal program, the government would be ensuring that even more children have access to nutritious meals, which in turn would then help further boost educational outcomes and overall well-being. The success of this targeted approach justifies its expansion as Akshaya Patra plays a crucial role in improving the welfare and future prospects of India’s most vulnerable children.

Through my journey and research, I’ve come to see education and nutrition not as separate issues, but as two sides of the same coin—one that, when flipped, can either perpetuate the cycle of poverty or break it. I want to be part of the solution that tips the balance toward hope, where every child has the chance to learn, grow, and thrive.

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