

Big Idealists who disagree with them. As such, there is nothing directly confrontational about *Poor Economics*. They are peeling the onion, not hacking it to pieces."

—*Philanthropy Action*

"Banerjee and Duflo assemble a fascinating assortment of interventions from across the globe in their book and they use the sharply differing perspectives of Sachs, who leads the 'supply wallahs' (this school believes in providing more schools, teachers, etc., to beat the education problem) and of Easterly, who is a 'demand wallah' (no point in providing education needlessly) as a backdrop to make their own points on how to avoid the poverty trap. They offer five key lessons. First: the poor lack critical pieces of information and thus do not make right decisions; second: the poor bear responsibility for too many aspects of their lives; third: markets are missing for the poor; four: governments start policies without understanding the reality within which these are supposed to succeed; and five: negative expectations of what people can do can be self-fulfilling prophecies. Modest suggestions? Yes, but this is part of the charm of the book. It is engaging and informative—which is more than can be said for many books of this genre."

—*Business World (India)*

"Esther Duflo won the John Bates Clark medal last year for her work on development economics, so I was excited to read her new book with Abhijit Banerjee *Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty*. It's a good book. It doesn't really contain a radical rethinking of the way to fight global poverty, but it does try to cut past lame debates over whether or not foreign aid "works" to instead attempt to find ways to actually assess which programs are working, which aren't, and how to improve those that don't."

—*Matthew Yglesias*

"This is a welcome shift in methodology as it implicitly concedes the need to combine social science with hard economics."

—*Indian Express*

"The persuasiveness of *Poor Economics* lies in its authors' intellectual approach. . . . Moreover, it is well organized throughout and nicely written. . . . *Poor Economics* is well worth reading in full."

—*Development Policy*

"[Banerjee and Duflo] draw upon the latest literature in the domain, write simply and succinctly on complex issues, display a level of honesty and humility rare among economists, and take the help of many highly illustrative examples to help us understand poverty from many different angles. The overall message is unambiguous. This is a complex problem, the causes and symptoms of which vary highly between individual cases. The solutions? Well, they are rightly silent on that—at best there is a murmur or two. Poverty is not a single problem so the solutions are too case-specific for a single solution. . . . This should be standard reading and essential material in all aid organizations and more so in the National Advisory Council, Planning Commission, Prime Minister's Office, and the various ministries—all those who don't spend time understanding poverty in close vicinity."

—*Financial Express (India)*

# Poor Economics

## A Radical Rethinking of the Way to Fight Global Poverty

ABHIJIT V. BANERJEE

AND ESTHER DUFLO



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## A Billion Hungry People?

For many of us in the West, poverty is almost synonymous with hunger. Other than major natural catastrophes such as the Boxing Day tsunami in 2004 or the Haiti earthquake in 2010, no single event affecting the world's poor has captured the public imagination and prompted collective generosity as much as the Ethiopian famine of the early 1980s and the resulting "We Are the World" concert in March 1985. More recently, the announcement by the UN Food and Agriculture Organization (FAO) in June 2009 that more than a billion people are suffering from hunger<sup>1</sup> grabbed the headlines, in a way that the World Bank's estimates of the number of people living under a dollar a day never did.

This association of poverty and hunger is institutionalized in the UN's first Millennium Development Goal (MDG), which is "to reduce poverty and hunger." Indeed, poverty lines in many countries were originally set to capture the notion of poverty based on hunger—the budget needed to buy a certain number of calories, plus some other indispensable purchases (such as housing). A "poor" person was essentially defined as someone without enough to eat.

It is no surprise, therefore, that a large part of governments' effort to help the poor is posited on the idea that the poor desperately need

food, and that quantity is what matters. Food subsidies are ubiquitous in the Middle East: Egypt spent \$3.8 billion in food subsidies in 2008–2009 (2 percent of the GDP).<sup>2</sup> Indonesia has the *Rakshin* Program, which distributes subsidized rice. Many states in India have a similar program. In Orissa, for example, the poor are entitled to 55 pounds of rice a month at about 1 rupee per pound, less than 20 percent of the market price. Currently, the Indian parliament is debating instituting a Right to Food Act, which would allow people to sue the government if they are starving.

The delivery of food aid on a massive scale is a logistical nightmare. In India, it is estimated that more than one-half of the wheat and over one-third of the rice get “lost” along the way, including a good fraction that gets eaten by rats.<sup>3</sup> If governments insist on such policy despite the waste, it is not only because hunger and poverty are assumed to go hand in hand: The inability of the poor to feed themselves properly is also one of the most frequently cited root causes of a poverty trap. The intuition is powerful: The poor cannot afford to eat enough; this makes them less productive and keeps them poor.

Pak Solhin, who lives in a small village in the province of West Java, Indonesia, once explained to us exactly how such a poverty trap worked.

His parents used to have a bit of land, but they also had thirteen children and had to build so many houses for each of them and their families that there was no land left for cultivation. Pak Solhin had been working as a casual agricultural worker, which paid up to 10,000 rupiah per day (\$2 USD PPP) for work in the fields. However, a recent hike in fertilizer and fuel prices had forced farmers to economize. According to Pak Solhin, the local farmers decided not to cut wages but to stop hiring workers instead. Pak Solhin became unemployed most of the time. In the two months before we met him in 2008, he had not found a single day of agricultural labor. Younger people in this situation could normally find work as construction workers. But, as he explained, he was too weak for the most physical work, too inexperienced for more skilled labor, and at forty, too old to be an apprentice: No one would hire him.

As a result, Pak Solhin’s family—he and his wife, and their three children—were forced to take some drastic steps to survive. His wife left for Jakarta, approximately 80 miles away, where, through a friend, she found a job as a maid. But she did not earn enough to feed the children. The oldest son, a good student, dropped out of school at twelve and started as an apprentice on a construction site. The two younger children were sent to live with their grandparents. Pak Solhin himself survived on about 9 pounds of subsidized rice he got every week from the government and on fish that he caught from the edge of a lake (he could not swim). His brother fed him once in a while. In the week before we last spoke with him, he had had two meals a day for four days, and just one for the other three.

Pak Solhin appeared to be out of options, and he clearly attributed his problem to food (or, more precisely, the lack of it). It was his opinion that the landowning peasants had decided to fire their workers instead of cutting wages because they thought that with the recent rapid increases in food prices, a cut in wages would push workers into starvation, which would make them useless in the field. This is how Pak Solhin explained to himself the fact that he was unemployed. Although he was evidently willing to work, lack of food made him weak and listless, and depression was sapping his will to do something to solve his problem.

The idea of a nutrition-based poverty trap, which Pak Solhin explained to us, is very old. Its first formal statement in economics dates from 1958.<sup>4</sup>

The idea is simple. The human body needs a certain number of calories just to survive. So when someone is very poor, all the food he or she can afford is barely enough to allow for going through the motions of living and perhaps earning the meager income that the individual originally used to buy that food. This is the situation Pak Solhin saw himself in when we met him. The food he got was barely enough for him to have the strength to catch some fish from the bank.

As people get richer, they can buy more food. Once the basic metabolic needs of the body are taken care of, all that extra food goes into building strength, allowing people to produce much more than they need to eat merely to stay alive.

This simple biological mechanism creates an S-shaped relationship between income today and income tomorrow, very much as in Figure 1 in the previous chapter: The very poor earn less than they need to be able to do significant work, but those who have enough to eat can do serious agricultural work. This creates a poverty trap: The poor get poorer, and the rich get richer and eat even better, and get stronger and even richer, and the gap keeps increasing.

Although Pak Solhin's logical explanation of how someone might get trapped in starvation was impeccable, there was something vaguely troubling about his narrative. We met him not in war-infested Sudan or in a flooded area of Bangladesh, but in a village in prosperous Java, where, even after the increase in food prices in 2007–2008, there was clearly plenty of food available, and a basic meal did not cost much. He was clearly not eating enough when we met him, but he was eating enough to survive; why would it not pay someone to offer him the extra bit of nutrition that would make him productive in return for a full day's work? More generally, although a hunger-based poverty trap is certainly a logical possibility, how relevant is it in practice, for most poor people today?

#### ARE THERE REALLY A BILLION HUNGRY PEOPLE?

One hidden assumption in our description of the poverty trap is that the poor eat as much as they can. And indeed, it would be the obvious implication of an S-shaped curve based on a basic physiological mechanism: If there was any chance that by eating a bit more, the poor could start doing meaningful work and get out of the poverty trap zone, then they should eat as much as possible.

Yet, this is not what we see. Most people living with less than 99 cents a day do not seem to act as if they are starving. If they were, surely they would put every available penny into buying more calories. But they do not. In our eighteen-country data set on the lives of the poor, food represents from 45 to 77 percent of consumption among the rural extremely poor, and 52 to 74 percent among their urban counterparts.<sup>2</sup>

It is not because all the rest is spent on other necessities: In Udaipur, for example, we find that the typical poor household could spend up to 30 percent more on food than it actually does if it completely cut expenditures on alcohol, tobacco, and festivals. The poor seem to have many choices, and they don't elect to spend as much as they can on food.

This is evident from looking at how poor people spend any extra money that they happen upon. Although they clearly have some unavoidable expenses (they need clothes, medicines, and so forth) to take care of first, if their livelihoods depended on getting extra calories, one would imagine that when a little bit more spendable money is available, it would all go into food. The food budget should go up proportionally faster than total spending (since both go up by the same amount, and food is only a part of the total budget, it increases by a bigger proportion). However, this does not seem to be the case. In the Indian state of Maharashtra, in 1983 (much before India's recent successes—a majority of households then lived on 99 cents per person per day or less), even for the very poorest group, a 1 percent increase in overall expenditure translated into about a 0.67 percent increase in the total food expenditure.<sup>6</sup> Remarkably, the relationship was not very different for the poorest individuals in the sample (who earned about 50 cents per day per person) and the richest (who earned around \$3 per day per person). The Maharashtra case is pretty typical of the relationship between income and food expenditures the world over: Even among the very poor, food expenditures increase much less than one for one with the budget.

Equally remarkable, even the money that people spend on food is not spent to maximize the intake of calories or micronutrients. When very poor people get a chance to spend a little bit more on food, they don't put everything into getting more calories. Instead, they buy better-tasting, *more expensive* calories. For the poorest group in Maharashtra in 1983, out of every additional rupee spent on food when income rose, about half went into purchasing more calories, but the rest went into more expensive calories. In terms of calories per rupee, the millets (*jwar* and *bajra*) were clearly the best buy. Yet only about two-thirds of

the total spending on grains was on these grains, while another 30 percent was spent on rice and wheat, which cost on average about twice as much per calorie. In addition, the poor spent almost 5 percent of their total budget on sugar, which is both more expensive than grains as a source of calories and bereft of other nutritional value.

Robert Jensen and Nolan Miller found a particularly striking example of the “flight to quality” in food consumption.<sup>7</sup> In two regions of China, they offered randomly selected poor households a large subsidy on the price of the basic staple (wheat noodles in one region, rice in the other). We usually expect that when the price of something goes down, people buy more of it. The opposite happened. Households that received subsidies for rice or wheat consumed *less* of those two items and ate more shrimp and meat, even though their staples now cost less. Remarkably, overall, the caloric intake of those who received the subsidy did not increase (and may even have decreased), despite the fact that their purchasing power had increased. Neither did the nutritional content improve in any other sense. The likely explanation is that because the staple formed such a large part of the household budget, the subsidies had made them richer. If the consumption of the staple is associated with being poor (say, because it is cheap but not particularly tasty), feeling richer might actually have made them consume *less* of it. Once again, this suggests that at least among these very poor urban households, getting more calories was not a priority: Getting better-tasting ones was.<sup>8</sup>

What is happening to nutrition in India today is another puzzle. The standard media story about it is about the rapid rise of obesity and diabetes as the urban upper-middle classes get richer. However, Angus Deaton and Jean Dreze have shown that the real story of nutrition in India over the last quarter century is not that Indians are becoming fatter: It is that *they are in fact eating less and less*.<sup>9</sup> Despite rapid economic growth, there has been a sustained decline in per capita calorie consumption; moreover, the consumption of all other nutrients except fat also appears to have declined among all groups, even the poorest. Today, more than three-fourths of the population live in households whose per capita calorie consumption is less than 2,100 calories in urban areas and 2,400 in rural areas—numbers that are often cited as

“minimum requirements” in India for individuals engaged in manual labor. It is still the case that richer people eat more than poorer people. But at all levels of income, the share of the budget devoted to food has declined. Moreover, the composition of the food basket has changed, so that the same amount of money is now spent on more expensive edibles.

The change is not driven by declining incomes; by all accounts, real incomes are increasing. Yet, though Indians are richer, they eat so much less at each level of income that they eat less on average today than they used to. Nor is it because of rising food prices—between the early 1980s and 2005, food prices declined relative to the prices of other things, both in rural and urban India. Although food prices have increased again since 2005, the decline in calorie consumption happened precisely when the price of food was going down.

So the poor, even those whom the Food and Agriculture Organization would classify as hungry on the basis of what they eat, do not seem to want to eat much more even when they can. Indeed, they seem to be eating less. What could be going on?

The natural place to start to unravel the mystery is to assume that the poor must know what they are doing. After all, they are the ones who eat and work. If they could indeed be tremendously more productive, and earn much more by eating more, then they probably would when they had the chance. So could it be that eating more doesn’t actually make us particularly more productive, and as a result, there is no nutrition-based poverty trap?

One reason the poverty trap might not exist is that most people have enough to eat.

At least in terms of food availability, today we live in a world that is capable of feeding every person that lives on the planet. On the occasion of the World Food Summit in 1996, the FAO estimated that world food production in that year was enough to provide at least 2,700 calories per person per day.<sup>10</sup> This is the result of centuries of innovation in food supply, thanks no doubt to great innovations in agricultural science, but attributable also to more mundane factors such as the adoption of the potato into the diet after the Spanish discovered it in Peru in the sixteenth century and imported it to Europe. One study

finds that potatoes may have been responsible for 12 percent of the global increase in population between 1700 and 1900.<sup>11</sup>

Starvation exists in today's world, but only as a result of the way the food gets shared among us. There is no absolute scarcity. It is true that if I eat a lot more than I need or, more plausibly, turn more of the corn into biofuels so that I can heat my pool, then there will be less for everybody else.<sup>12</sup> But, despite this, it seems that most people, even most very poor people, earn enough money to be able to afford an adequate diet, simply because calories tend to be quite cheap, except in extreme situations. Using price data from the Philippines, we calculated the cost of the cheapest diet sufficient to give 2,400 calories, including 10 percent calories from protein and 15 percent calories from fat. It would cost only 21 cents at PPP, very affordable even for someone living on 99 cents a day. The catch is, it would involve eating only bananas and eggs. . . . But it seems that so long as people are prepared to eat bananas and eggs when they need to, we should find very few people stuck on the left part of the S-shaped curve, where they cannot earn enough to be functional.

This is consistent with evidence from Indian surveys in which people were asked whether they had enough to eat (i.e., whether "everyone in the household got two square meals a day" or whether everyone eats "enough food every day"). The percentage of people who consider that they do not have enough food has dropped dramatically over time: from 17 percent in 1983 to 2 percent in 2004. So, perhaps people eat less because they are less hungry.

And perhaps they are really less hungry, despite eating fewer calories. It could be that because of improvements in water and sanitation, they are leaking fewer calories in bouts of diarrhea and other ailments. Or maybe they are less hungry because of the decline of heavy physical work—with the availability of drinking water in the village, women do not need to carry heavy loads for long distances; improvements in transportation have reduced the need to travel on foot; in even the poorest village, flour is now milled by the village miller using a motorized mill, instead of women grinding it by hand. Using the average calorie requirements calculated by the Indian Council of Medical Research for people engaged in heavy, moderate, or light activity, Deaton

and Dreze note that the decline in calorie consumption over the last quarter century could be entirely explained by a modest decrease in the number of people engaged in physically heavy work for a large part of the day.

If most people are at the point where they are not starving, it is possible that the productivity gains from consuming more calories are relatively modest for them. It would then be understandable if people chose to do something else with their money, or move away from eggs and bananas toward a more exciting diet. Many years ago, John Strauss was looking for a clear case to demonstrate the role of calories in productivity. He settled on self-employed farmers in Sierra Leone, because they really have to work hard.<sup>13</sup> He found that the productivity of a worker on a farm increased at most by 4 percent when his calorie intake increased by 10 percent. Thus, even if people doubled their food consumption, their income would only increase by 40 percent. Furthermore, the shape of the relationship between calories and productivity was not an S-shape, but an inverted L-shape, as in Figure 2 in the previous chapter: The largest gains are obtained at low levels of food consumption. There is no steep jump in income once people start eating enough. This suggests that the very poor benefit more from eating extra calories than the less poor. This is precisely the type of situation where we would not see a poverty trap. So it is not because they don't eat enough that most people stay poor.

This is not to say that the logic of the hunger-based poverty trap is flawed. The idea that better nutrition would propel someone on the path to prosperity was almost surely very important at some point in history, and it may still be important in some circumstances today. The Nobel Prize Laureate and economic historian Robert Fogel calculated that in Europe during the Renaissance and the Middle Ages, food production did not provide enough calories to sustain a full working population. This could explain why there were large numbers of beggars—they were literally incapable of any work.<sup>14</sup> The pressure of just getting enough food to survive seems to have driven some people to take rather extreme steps: There was an epidemic of "witch" killing in Europe during the "little ice age" (from the mid-sixteenth century to 1800), when crop failures were common and fish was less abundant.

Witches were most likely to be single women, particularly widows. The logic of the S-shape suggests that when resources are tight, it makes “economic sense” to sacrifice some people, so that the rest have enough food to be able to work and earn enough to survive.<sup>15</sup>

Evidence that poor families might occasionally be forced to make such horrific choices is not hard to find even in more recent times. During droughts in India in the 1960s, little girls in landless households were much more likely to die than boys, but boys’ and girls’ death rates were not very different when there was normal rainfall.<sup>16</sup> Reminiscent of the witch hunt of the little ice age, Tanzania experiences a rash of “witch” killings whenever there is a drought—a convenient way to get rid of an unproductive mouth to feed at times where resources are very tight.<sup>17</sup> Families, it seems, suddenly discover that an older woman living with them (usually a grandmother) is a witch, after which she gets chased away or killed by others in the village.

So it is not that the lack of food could not be a problem or isn’t a problem from time to time, but the world we live in today is for the most part too rich for hunger to be a big part of the story of the persistence of poverty. This is of course different during natural or man-made disasters, or in famines that kill and weaken millions. As Amartya Sen has shown, however, most recent famines have been caused not by lack of food availability but by institutional failures that led to poor distribution of the available food, or even hoarding and storage in the face of starvation elsewhere.<sup>18</sup>

Should we let it rest here, then? Can we assume that the poor, though they may be eating little, do eat as much as they need to?

#### ARE THE POOR REALLY EATING WELL, AND EATING ENOUGH?

It is hard to avoid the feeling that the story does not add up. Can it be true that the poorest individuals in India are cutting back on food because they don’t need the calories, given that they live in families that consume around 1,400 calories per capita per day to start with? After all, 1,200 calories is the famous semi-starvation diet, recommended for those who want rapid weight loss; 1,400 does not seem too far from

there. According to the Centers for Disease Control, the average American male consumed 2,475 calories per day in 2000.<sup>19</sup>

It is true that the poorest in India are also smaller, and if one is small enough, one doesn’t need as many calories. But doesn’t that just push the question back one level? Why are the poorest in India so small? Indeed, why are all South Asians so scrawny? The standard way to measure nourishment status is by the Body Mass Index (BMI), which is essentially a way to scale weight by height (i.e., adjusting for the fact that taller people are going to be heavier). The international cutoff for being malnourished is a BMI of 18.5, with 18.5 to 25 being the normal range, and people beyond 25 considered obese. By this measure, 33 percent of men and 36 percent of women in India were undernourished in 2004–2005, down from 49 percent for both in 1989. Among the eighty-three countries that have demographic and health survey data, only Eritrea has more undernourished adult women.<sup>20</sup> Indian women, along with Nepalese and Bangladeshi women, are also among the shortest in the world.<sup>21</sup>

Is this something to be concerned about? Could this be something purely genetic about South Asians, like dark eyes or black hair, but irrelevant for their success in the world? After all, even the children of South Asian immigrants in the United Kingdom or the United States are smaller than Caucasian or black children. It turns out, however, that two generations of living in the West without intermarriage with other communities is enough to make the grandchildren of South Asian immigrants more or less the same height as other ethnicities. So although genetic makeup is certainly important at the individual level, the genetic differences in height between populations are believed to be minimal. If the children of first-generation mothers are still small, it is partly because women who were themselves malnourished in childhood tend to have smaller children.

Therefore, if South Asians are small, it is probably because they, and their parents, did not get as much nourishment as their counterparts in other countries. And indeed, everything suggests that children are very badly nourished in India. The usual measure of how well a child has been fed through the childhood years is height, compared to the international average height for that age. By this measure, the numbers for

India from the National Family Health Survey (NFHS 3) are devastating. Roughly half the children under five are stunted, which means that they are far below the norm. One-fourth of them are severely stunted, representing extreme nutritional deprivation. The children are also extraordinarily underweight *given their height*: About one in five children under three is wasted, which means they fall below the international definition of severe malnourishment. What makes these facts more striking is that the stunting and wasting rates in sub-Saharan Africa, undoubtedly the poorest area of the world, are only about half those in India.

But once again, should we care? Is being small a problem, in and of itself? Well, there are the Olympic Games. India, a country with a billion inhabitants, has won an average of 0.92 medals per Olympics, over the course of twenty-two Olympic Games, putting it just below Trinidad and Tobago, at 0.93. To put these numbers in perspective, China has won 386 medals in eight games, at an average of 48.3, and there are seventy-nine countries that average better than India. Yet India has ten times as many people as all but six of those countries.

Of course India is poor, but not as poor as it used to be, and not nearly as poor as Cameroon, Ethiopia, Ghana, Haiti, Kenya, Mozambique, Nigeria, Tanzania, and Uganda, each of which, per head, has more than ten times India's medal count. Indeed, no country that has fewer medals per Olympics than India is even one-tenth of its size, with two notable exceptions—Pakistan and Bangladesh. Bangladesh, in particular, is the only country of over 100 million people that has never won an Olympic medal. The next largest such country is Nepal.

There is clearly a pattern. One could perhaps blame the South Asian obsession with cricket—that colonial cousin of baseball that baffles most Americans—but if cricket is absorbing all the sporting talent of one-fourth of the world's population, the results are really not that impressive. South Asians have never had the dominance over cricket that Australia, England, and even the tiny West Indies had in their heydays, despite their intense fealty to the sport and their massive size advantage—Bangladesh, for example, is bigger than England, South Africa, Australia, New Zealand, and the West Indies put together. Given that child malnutrition is one other area where South Asia really stands out,

it seems plausible that these two facts—wasted children and Olympian failure—have something to do with each other.

The Olympics are not the only place where height plays a role. In poor countries and rich countries alike, taller people do earn more. It has long been debated whether this is because height really matters for productivity—it could be discrimination against shorter people, for example. But a recent paper by Anne Case and Chris Paxson made some progress in nailing down what explains this relationship. They show that in the United Kingdom and the United States, the effect of height is entirely accounted for by differences in IQ: When we compare people who have the same IQ, there is no relationship between height and earning.<sup>22</sup> They interpret their findings as showing that what matters is good nutrition in early childhood: On average, adults who have been well nourished as children are both taller and smarter. And it is because they are smarter that they earn more. Of course, there are many not-so-tall people who are very bright (because they have reached the height they were meant to reach), but overall, tall people do better in life, because they are visibly more likely to have reached their genetic potential (both in height and in intelligence).

The study, when reported by Reuters under the not-so-subtle headline “Taller People Are Smarter—Study,” created a firestorm. Case and Paxson were deluged by hostile e-mails. “Shame on you!” scolded one man (4 feet 9 inches). “I find your hypothesis insulting, prejudicial, inflammatory and bigoted,” said another (5 feet 6 inches). “You have loaded a gun and pointed it at the vertically challenged man's head” (no height given).<sup>23</sup>

But in fact, there is a lot of evidence for the general view that childhood malnutrition directly affects the ability of adults to function successfully in the world. In Kenya, children who were given deworming pills in school for two years went to school longer and earned, as young adults, 20 percent more than children in comparable schools who received deworming for just one year: Worms contribute to anemia and general malnutrition, essentially because they compete with the child for nutrients.<sup>24</sup> 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.”<sup>25</sup>

The impact of undernutrition on future life chances starts before birth. In 1995, the *British Medical Journal* coined the term “Barker Hypothesis” to refer to Dr. David Barker’s theory that conditions in utero have long-term impact on a child’s life chances.<sup>26</sup> There is considerable support for the Barker Hypothesis: To cite just one example, in Tanzania, children who were born to mothers who received sufficient amounts of iodine during pregnancy (because of an intermittent government program of distributing iodine capsules to would-be mothers) completed between one-third and one-half year more schooling, compared to their younger and older siblings who were in utero when the mother was not getting these capsules.<sup>27</sup> Although half a year of education might seem a small gain, it is a substantial increase, given that most of these children will complete only four or five years of schooling. In fact, based on their estimates, the study concludes that 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.

Although we saw that the impact of just increasing calories on productivity may not be very large per se, there are some ways to improve nutrition even for adults that will much more than pay for themselves. The one that we know most about is iron to treat anemia. In many Asian countries, including India and Indonesia, anemia is a major health problem. Six percent of men and 38 percent of women in Indonesia are anemic. The corresponding numbers in India are 24 percent and 56 percent. Anemia is associated with low aerobic capacity, general weakness and lethargy, and in some cases (especially for pregnant women) it can be life-threatening.

The Work and Iron Status Evaluation (WISE) study in Indonesia provided randomly chosen men and women in rural Indonesia with regular iron supplementation for several months, while the comparison group received a placebo.<sup>28</sup> The study found that the iron supplements made the men able to work harder, and the resulting increase in their

income was many times the cost of a yearly supply of iron-fortified fish sauce. A year’s supply of the fish sauce cost \$7 USD PPP, and for a self-employed male, the yearly gain in earnings was \$46 USD PPP—an excellent investment.

The puzzle is that people do not seem to want more food, and yet more food and especially more judiciously purchased food would probably make them, and almost certainly their children, significantly more successful in life. The key investments that would achieve this are not expensive. Most mothers could surely afford iodized salt, which is now standard in many parts of the world, or one dose of iodine every two years (at 51 cents per dose). 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.<sup>29</sup> As for food, households could easily get a lot more calories and other nutrients by spending less on expensive grains (like rice and wheat), sugar, and processed foods, and more on leafy vegetables and coarse grains.

#### WHY DO THE POOR EAT SO LITTLE?

##### *Who Knew?*

Why did anemic Indonesian workers not buy iron-fortified fish sauce on their own? One answer is that it is not clear that the additional productivity translates into higher earnings if employers do not know that a well-nourished worker is more productive. Employers may not realize that their employees are more productive now because they have eaten more, or better. The Indonesian study found a significant increase in earnings *only* among self-employed workers. If the employers pay everyone the same flat wage, there would be no reason to eat more to get stronger. In the Philippines, a study found that workers who worked both for a piece rate and for a flat wage ate 25 percent more food on days they worked for piece rate (where effort mattered, since the more they worked, the more they got paid).

This does not explain why all pregnant women in India aren’t using only iodine-fortified salt, which is now available for purchase in every

village. A possibility is that people may not realize the value of feeding themselves and their children better. The importance of micronutrients was not fully understood, even by scientists, until relatively recently. Although micronutrients are cheap and can sometimes lead to a large increase in lifetime income, it is necessary to know exactly what to eat (or what pills to take). Not everyone has the information, even in the United States.

Moreover, people tend to be suspicious of outsiders who tell them that they should change their diet, probably because they like what they eat. When rice prices went up sharply in 1966–1967, the chief minister of West Bengal suggested that eating less rice and more vegetables would be both good for people's health and easier on their budget. This set off a flurry of protests, and the chief minister was greeted by protesters with garlands of vegetables wherever he went. Yet he was probably right. Understanding the importance of popular support, Antoine Parmentier, an eighteenth-century French pharmacist who was an early fan of the potato, clearly anticipating resistance, offered the public a set of recipes he had invented using potatoes, including the classic dish *Hachis Parmentier* (essentially what the British call shepherd's pie, a layered casserole composed of ground meat with a covering of mashed potatoes). He thereby set off a trajectory that ultimately led, through many twists and turns, to the invention of "freedom fries."

Also, it is not very easy to learn about the value of many of these nutrients based on personal experience. Iodine might make your children smarter, but the difference is not huge (though a number of small differences may add up to something big) and in most cases you will not find out either way for many years. Iron, even if it makes people stronger, does not suddenly turn you into a superhero: The \$40 extra a year the self-employed man earned may not even have been apparent to him, given the many ups and downs of his weekly income.

Consequently, it is no surprise that the poor choose their foods not mainly for their cheap prices and nutritional values, but for how good they taste. George Orwell, in his masterful description of the life of poor British workers in *The Road to Wigan Pier*, observes:

The basis of their diet, therefore, is white bread and Margarine, corned beef, sugared tea, and potato—an appalling diet. Would it not be better if they spent more money on wholesome things like oranges and wholemeal bread, or if they even, like the reader of the *New Statesman*, saved on fuel and ate their carrots raw? Yes it would, but the point is, no human being would ever do such a thing. The ordinary human being would sooner starve than live on brown bread and raw carrots. And the peculiar evil is this, that the less money you have the less you are inclined to spend it on wholesome food. A millionaire may enjoy breakfasting off orange juice and Ryvita biscuits; an unemployed man does not. . . . When you are unemployed, you don't *want* to eat dull wholesome food. You want to eat something a little *tasty*. There is always some cheap pleasant thing to tempt you.<sup>30</sup>

### *More Important Than Food*

The poor often resist the wonderful plans we think up for them because they do not share our faith that those plans work, or work as well as we claim. This is one of the running themes in this book. Another explanation for their eating habits is that other things are more important in the lives of the poor than food.

It has been widely documented that poor people in the developing world spend large amounts on weddings, dowries, and christenings, probably in part as a result of the compulsion not to lose face. The cost of weddings in India is well-known, but there are also less cheerful occasions when the family is compelled to throw a lavish party. In South Africa, social norms on how much to spend on funerals were set at a time when most deaths occurred in old age or in infancy.<sup>31</sup> Tradition called for infants to be buried very simply but for elders to have elaborate funerals, paid for with money the deceased had accumulated over a lifetime. As a result of the HIV/AIDS epidemic, many prime-age adults started dying without having accumulated burial savings, but their families felt compelled to honor the norm for adults. A family that had just lost one of its main potential earners might have to spend something like 3,400 rand (around \$325 USD PPP), or 40 percent of

the household annual per capita income, for the funeral party. After such a funeral, the family clearly has less to spend, and more family members tend to complain about “lack of food,” even when the deceased was not earning before he died, which suggests that funeral costs are responsible. The more expensive the funeral, the more depressed the adults are one year later, and the more likely it is that children have dropped out of school.

Not surprisingly, both the king of Swaziland and the South African Council of Churches (SACC) have tried to regulate funeral expenditures. In 2002, the king simply banned lavish funerals<sup>32</sup> and announced that if a family was found to have slaughtered a cow for their funeral, they would have to give one cow to the chief’s herd. The SACC, rather more soberly, called for a regulation of the funeral industry, which, they felt, was putting pressure on families to spend more than they could afford.

The decision to spend money on things other than food may not be due entirely to social pressure. We asked Oucha Mbarbk, a man we met in a remote village in Morocco, what he would do if he had more money. He said he would buy more food. Then we asked him what he would do if he had even more money. He said he would buy better-tasting food. We were starting to feel very bad for him and his family, when we noticed a television, a parabolic antenna, and a DVD player in the room where we were sitting. We asked him why he had bought all these things if he felt the family did not have enough to eat. He laughed, and said, “Oh, but television is more important than food!”

After spending some time in that Moroccan village, it was easy to see why he thought that. Life can be quite boring in a village. There is no movie theater, no concert hall, no place to sit and watch interesting strangers go by. And not a lot of work, either. Oucha and two of his neighbors, who were with him during the interview, had worked about seventy days in agriculture and about thirty days in construction that year. For the rest of the year, they took care of their cattle and waited for jobs to materialize. This left plenty of time to watch television. These three men all lived in small houses without water or sanitation. They struggled to find work, and to give their children a good

education. But they all had a television, a parabolic antenna, a DVD player, and a cell phone.

Generally, it is clear that things that make life less boring are a priority for the poor. This may be a television, or a little bit of something special to eat—or just a cup of sugary tea. Even Pak Solhin had a television, although it was not working when we visited him. Festivals may be seen in this light as well. Where televisions or radios are not available, it is easy to see why the poor often seek out the distraction of a special family celebration of some kind, a religious observance, or a daughter’s wedding. In our eighteen-country data set, it is clear that the poor spend more on festivals when they are less likely to have a radio or a television. In Udaipur, India, where almost no one has a television, the extremely poor spend 14 percent of their budget on festivals (which includes both lay and religious occasions). By contrast, in Nicaragua, where 58 percent of rural poor households have a radio and 11 percent own a television, very few households report spending anything on festivals.<sup>33</sup>

The basic human need for a pleasant life might explain why food spending has been declining in India. Today, television signals reach into remote areas, and there are more things to buy, even in remote villages. Cell phones work almost everywhere, and talk time is extremely cheap by global standards. This would also explain why countries with a large domestic economy, where a lot of consumer goods are available cheaply, like India and Mexico, tend to be the countries where food spending is the lowest. Every village in India has at least one small shop, usually more, with shampoo sold in individual sachets, cigarettes by the stick, very cheap combs, pens, toys, or candies, whereas in a country like Papua New Guinea, where the share of food in the household budget is above 70 percent (it is 50 percent in India), there may be fewer things available to the poor. Orwell captured this phenomenon as well in *The Road to Wigan Pier* when he described how poor families managed to survive the depression.

Instead of raging against their destiny, they have made things tolerable by reducing their standards. But they don’t necessarily reduce their

standards by cutting out luxuries and concentrating on necessities; more often it is the other way around—the more natural way, if you come to think of it—hence the fact that in a decade of unparalleled depression, the consumption of all cheap luxuries has increased.<sup>34</sup>

These “indulgences” are not the impulsive purchases of people who are not thinking hard about what they are doing. They are carefully thought out, and reflect strong compulsions, whether internally driven or externally imposed. Oucha Mbarbk did not buy his TV on credit—he saved up over many months to scrape enough money together, just as the mother in India starts saving for her eight-year-old daughter’s wedding some ten years or more into the future, by buying a small piece of jewelry here and a stainless steel bucket there.

We are often inclined to see the world of the poor as a land of missed opportunities and to wonder why they don’t put these purchases on hold and invest in what would really make their lives better. The poor, on the other hand, may well be more skeptical about supposed opportunities and the possibility of any radical change in their lives. They often behave as if they think that any change that is significant enough to be worth sacrificing for will simply take too long. This could explain why they focus on the here and now, on living their lives as pleasantly as possible, celebrating when occasion demands it.

#### SO IS THERE REALLY

#### A NUTRITION-BASED POVERTY TRAP?

We opened this chapter with Pak Solhin, and his view that he was caught in a nutrition-based poverty trap. At the most literal level, the main problem in his case was probably not a lack of calories. The Rakshin Program was providing him with some free rice, and between that and the help his brother was giving him, he would probably have been physically able to work in the field or on a construction site. Our reading of the evidence suggests that most adults, even the very poor, are outside of the nutrition poverty trap zone: They can easily eat as much as they need to be physically productive.

This was probably the case with Pak Solhin. This not to say that he was not trapped. But his problem may have come from the fact that his job had vanished, and he was too old to be taken as an apprentice on a construction site. His situation was almost surely made worse by the fact that he was depressed, which made it difficult for him to do anything at all.

The fact that the basic mechanics of a nutrition-based poverty trap do not seem to be at work for adults does not mean that nutrition is not a problem for the poor. But the problem may be less the quantity of food than its quality, and in particular the shortage of micronutrients. The benefits of good nutrition may be particularly strong for two sets of people who do not decide what they eat: unborn babies and young children. In fact, there may well be an S-shaped relationship between their parent’s income and the eventual income of these children, caused by childhood nutrition. That is because a child who got the proper nutrients in utero or during early childhood will earn more money *every year of his or her life*: This adds up to large benefits over a lifetime. For example, the study of the long-term effect of deworming children in Kenya, mentioned above, concluded 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 \$3,269 USD PPP. Small differences in investments in childhood nutrition (in Kenya, deworming costs \$1.36 USD PPP per year; in India, a packet of iodized salt sells for \$0.62 USD PPP; in Indonesia, fortified fish sauce costs \$7 USD PPP per year) make a huge difference later on. This suggests that governments and international institutions need to completely rethink food policy. Although this may be bad news for American farmers, the solution is not to simply supply more food grains, which is what most food security programs are currently designed to do. The poor like subsidized grains, but as we discussed earlier, giving them more does little to persuade them to eat better, especially since the main problem is not calories, but other nutrients. It also is probably not enough just to provide the poor with more money, and even rising incomes will probably not lead to better nutrition in the short run. As we saw in India, the poor do not eat any more or any better when their income goes up; there are too many other pressures and desires competing with food.

In contrast, the social returns of directly investing in children and pregnant mother nutrition are tremendous. This can be done by giving away fortified foods to pregnant mothers and parents of small children, by treating children for worms in preschool or at school, by providing them with meals rich in micronutrients, or even by giving parents incentives to consume nutritional supplements. All of this is already being done in some countries. The government of Kenya is now systematically deworming children in school. In Colombia, micronutrient packets are sprinkled on kids' meals in preschool. In Mexico, social welfare payments come with free nutritional supplements for the family. Developing ways to pack *foods that people like to eat* with additional nutrients, and coming up with new strains of nutritious and tasty crops that can be grown in a wider range of environments, need to become priorities for food technology, on an equal footing with raising productivity. We do see some instances of this across the world, pushed by organizations such as the Micronutrient Initiative and HarvestPlus: A variety of orange sweet potatoes (richer in beta carotene than the native yam) suitable for Africa was recently introduced in Uganda and Mozambique.<sup>35</sup> A new salt, fortified both with iron and iodine, is now approved for use in several countries, including India. But there are all too many instances where food policy remains hung up on the idea that all the poor need is cheap grain.

3

# Low-Hanging Fruit for Better (Global) Health?

Health is an area of great promise but also great frustration. There seems to be plenty of “low-hanging fruit” available, from vaccines to bed nets, that could save lives at a minimal cost, but all too few people make use of such preventive technologies. Government health workers, who are in charge of delivering basic health-care services in most countries, are often blamed for this failure, not entirely unfairly, as we will see. They, on the other hand, insist that plucking these low-hanging fruits is much harder than it seems.

In winter 2005 in the beautiful town of Udaipur in western India, we had an animated discussion with a group of government nurses. They were very upset with us because we were involved in a project that aimed to get them to come to work more often. At some point in the proceedings, one of them got so exasperated that she decided to be blunt: The job was essentially pointless anyway, she announced. When a child came to them with diarrhea, all they could offer the mother was a packet of oral rehydration solution (or ORS, a mixture of salt, sugar, potassium chloride, and an antacid to be mixed with water and drunk by the child). But most mothers didn't believe that ORS could do any good. They wanted what they thought was the right treatment—an