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Pak Sudarno's Big Family

Sanjay Gandhi, the younger son of the Indian prime minister Indira Gandhi and her heir apparent until his death in a plane crash in 1981, was convinced that population control needed to be an essential part of India's development plan. It was the central theme of his many public appearances during the period called the Emergency (mid-1975 until early 1977), when democratic rights were temporarily suspended and Sanjay Gandhi, despite holding no official position, was quite openly running things. The family-planning program must be given "the utmost attention and importance," he said in a characteristically understated quote, "because all our industrial, economic, and agricultural progress would be of no use if the population continued to rise at the present rate."[1]

India had had a long history with family planning, starting in the mid-1960s. In 1971, the state of Kerala experimented with mobile sterilization services, the "sterilization camps" approach that was to be the cornerstone of Sanjay Gandhi's plan during the Emergency. Although most politicians before him had identified population control as an important issue, Sanjay Gandhi brought to the problem both an unprecedented level of enthusiasm and the ability (and willingness) to twist as many arms as necessary to implement his chosen policies. In

April 1976, the Indian Cabinet approved a formal statement of national population policy that called for a number of measures to encourage family planning, notably, large financial incentives for those who agreed to be sterilized (such as a month's wages or priority on a housing list), and more frighteningly, authorization for each state to develop compulsory sterilization laws (for, say, everyone with more than two children). Although only one state proposed such a law (and that law was never approved), states were explicitly pressured to set sterilization quotas and fulfill them, and all but three states "voluntarily" chose targets greater than what was proposed by the central government: The targets totaled 8.6 million sterilizations for 1976–1977.

Once laid out, the quotas were not taken lightly. The chief of the Uttar Pradesh bureaucracy wrote by telegraph to his principal field subordinates: "Inform everybody that failure to achieve monthly targets will not only result in the stoppage of salaries but also suspension and severest penalties. Galvanise entire administrative machinery forthwith repeat forthwith and continue to report daily progress by crash wireless to me and secretary to Chief Minister." Every government employee, down to the village level, and not excluding railway inspectors and school teachers, was supposed to know the local target. Parents of schoolchildren were visited by teachers, who told them that in the future, their children may be denied enrollment in school if they did not agree to get sterilized. People traveling by train without a ticket—a widely accepted practice among the poor until then—were handed heavy fines unless they chose sterilization. Not surprisingly, the pressure occasionally went much further. In Uttawar, a Muslim village near the capital city of Delhi, all male villagers were rounded up one night by the police, sent to the police stations on bogus charges, and sent from there to be sterilized.

The policy appears to have achieved its immediate target, although the incentives probably also led to some overreporting in the number of actual sterilizations. In 1976–1977, 8.25 million people were reportedly sterilized, 6.5 million of them during just the period July–December 1976. By the end of 1976, in total, 21 percent of Indian couples were sterilized. But the violations of civil liberties that were an integral part of the implementation of the program were widely re-

sented, and when in 1977 India finally held elections, discussions of the sterilization policy were a key part of the debate, as captured most memorably by the slogan "*Indira hatao, indiri bachao* (Get rid of Indira and save your penis)." It is widely believed that Indira Gandhi's defeat in the 1977 elections was in part driven by popular hatred for this program. The new government immediately reversed the policy.

In one of those ironic twists in which historians delight, it is not inconceivable that in the longer term, Sanjay Gandhi actually contributed to the faster growth of India's population. Tainted by the emergency, family-planning policies in India retreated into the shadows and in the shadows they have remained—some states, such as Rajasthan, do continue to promote sterilization on a voluntary basis, but no one except the health bureaucracy seems to have any interest in it. In the meantime, however, generalized suspicion of the motivations of the state seems to be one of the most durable residues of the Emergency; for example, one still routinely hears of people in slums and villages refusing pulse polio drops because they believe it is a way to secretly sterilize children.

This particular episode and China's draconian one-child policy are the most well-known examples of severely enforced population control measures, but most developing countries have some form of population policy. In an article published in *Science* in 1994, John Bongaarts, from the Population Council, estimated that in 1990, 85 percent of the population of the developing world lived in countries where the government had the explicit view that their population was too large and needed to be controlled through family planning.[2]

There are certainly many reasons for the world at large to be worried about population growth today. Jeffrey Sachs talks about them in his book *Common Wealth*.[3] The most obvious is its potential impact on the environment. Population growth contributes to the growing carbon dioxide emissions and hence to global warming. Drinking water is getting scarcer by the day in some parts of the world, in part directly because there are more people drinking and in part because having more people means growing more food and therefore using more water for irrigation (70 percent of fresh water is accessed for irrigation). The World Health Organization estimates that one-fifth of the world's

population lives in areas where fresh water is scarce.[4] These are of course vitally important issues, and individual families deciding how many children to have probably do not fully take them into account, which is precisely why a population policy might be needed. The problem is that it is impossible to develop a reasonable population policy without understanding why some people have so many children: Are they unable to control their own fertility (due to lack of access to contraception, for example), or is it a choice? And what are the reasons for those choices?

WHAT IS WRONG WITH LARGE FAMILIES?

Richer countries have lower population growth. For example, a country like Ethiopia, where the total fertility rate is 6.12 children per woman, is fifty-one times poorer than the United States, where the total fertility rate is 2.05.

This strong relationship has convinced many, including academics and policy makers, of the validity of an old argument first popularized by the Reverend Thomas Malthus, a professor of history and political economy at the East India Company College, near London, at the turn of the eighteenth century. Malthus believed that the resources countries have are more or less fixed (his favorite example was land), and he therefore thought that population growth was bound to make them poorer.[5] By this logic, the Black Death, believed to have killed half of Britain's population between 1348 and 1377, should get credit for the high-wage years that followed. Alwyn Young, an economist at the London School of Economics, recently reinstated this argument in the context of the current HIV/AIDS epidemic in Africa. In an article entitled "The Gift of the Dying," he argued that the epidemic would make future generations of Africans better off by reducing fertility.[6] This reduction of fertility occurs both directly, through the reluctance to engage in unprotected sex, and indirectly, because the resulting labor scarcity makes it more attractive for women to work rather than have babies. Young calculated that in South Africa in the coming decades, the "boon" of a reduced population would be large enough to outweigh the fact that many of the AIDS orphans would not get a proper

education; South Africa could be 5.6 percent richer in perpetuity as a direct consequence of HIV. He concluded by observing, no doubt for the benefit of his more squeamish readers, "One cannot endlessly lament the scourge of high population growth in the developing world and then conclude that a reversal of such processes is an equal economic disaster."

Young's article generated a heated controversy that centered on whether the HIV/AIDS epidemic indeed causes a decline in fertility. Careful follow-up[7] has since refuted this claim. However, people were mostly willing to concede his other premise—that a cut in fertility would make everyone richer.

Yet this is less obvious than it sounds. After all, there are many times more people on the planet today than when Malthus first formulated his hypothesis and most of us are richer than Malthus's contemporaries. Technological progress, which did not figure in Malthus's theories, has a way of making resources appear from nowhere; when there are more people around, there are more people looking for new ideas, and so perhaps technological breakthroughs are more likely. Indeed, for most of human history (starting in 1 million BC), regions or countries that had more people were growing *faster* than the rest.[8]

The case is therefore unlikely to be settled on purely theoretical grounds. And the fact that today countries with higher fertility rates are poorer doesn't tell us that they are poorer because of high fertility: It could instead be that they have high fertility because they are poor, or some third factor could cause both high fertility and poverty. Even the "fact" that periods of rapid economic growth often coincide with sharp declines in fertility, as in Korea and Brazil in the 1960s, is ambiguous at best. Did families start having fewer children when growth accelerated, perhaps because they had less time to take care of them? Or did the reduction in fertility free up resources for other investments?

As we have had to do many times already, we need to shift perspective, leave the large question aside, and focus on the lives and choices of poor people—if we want to have any hope of making progress on this issue. One way to start is by looking at what happens within the family: Are large families poorer because they are large? Are they less able to invest in the education and health of their children?

One of Sanjay Gandhi's favorite slogans was "A small family is a happy family." Accompanied by a cartoon image of a beaming couple with their two plump children, it was one of the most universal sights in late 1970s India. This could have been the illustration of an influential argument offered by Gary Becker, a Nobel Prize–winner in economics. Families, Becker argued, face what he called a "quality-quantity trade-off." That is, when there are more children, each of them will be of lower "quality" because the parents will devote fewer resources to feeding and schooling each of them properly.[9] This would be particularly true if the parents believed, rightly or wrongly, that it is worth investing more in the most "gifted" of their children, which, as we have already discussed, is what happens in the S-shaped world. Some children could then end up being entirely denied their life chances. If children born into large families are less likely to receive proper education, nutrition, and health care (what economists call investment in human capital), and if poor families are more likely to be large (say, because they cannot afford contraception), this creates a mechanism for the intergenerational transmission of poverty, in which poor parents beget (many) poor children. Such a poverty trap could potentially provide a rationale for a population policy, an argument that Jeffrey Sachs makes in *Common Wealth*.[10] But is it actually true? Do children who grow up in larger families have obvious disadvantages? In our eighteen-country data set, children born into large families do tend to have less education, though this is not true everywhere—rural Indonesia,[11] Côte d'Ivoire, and Ghana[12] are among the exceptions. However, even where it is true, there is no presumption that it is *because* the children have many siblings that they are poor and less educated. It could just be that poor families who choose to have many children also do not value education as much.

To test Becker's model and find out whether an increase in family size leads to reduced investment in children's human capital, researchers have tried to focus on instances where the increase was in part beyond the control of the family. Their results are surprising: In such cases, they found no evidence that children born in smaller families are really more educated.

One example of a situation where a family ends up with more children than it expected, given that most of the world's poor do not use

fertility-enhancing therapies, is the birth of twins: If the family was planning to have two children, for example, but twins are born at the second birth, the first child then has one more sibling than he or she would otherwise have had. The sex composition of children is another factor. Families often want to have both a boy and a girl. This means that a couple whose second child was of the same gender as their first is more likely to plan for a third than a family that already has a boy and a girl.[13] In many developing countries, parents are also more likely to have an additional child if they have not yet had a boy. Compare a girl who is a first child, and has one female sibling, with one who has a male younger sibling: The former is more likely to grow up with two or more siblings than the latter, for the purely accidental reason (at least till the advent of child sex-selection technologies) that she had a younger sister rather than a younger brother. A study in Israel that focused on these sources of variation in family size found, surprisingly, that large family size appears to have had no adverse effects on the education of the children, even among Israeli Arabs, who are mostly very poor.[14]

Nancy Qian found an even more provocative result when she looked at the effect of the one-child policy in China. In some areas, the policy was relaxed to allow a family whose first child was a girl to have a second child. She found that girls who, because of this policy, got a sibling they would not otherwise have had received *more* education, not less,[15] in apparent defiance of Becker's theorem.

Another piece of evidence comes from Matlab, Bangladesh. This area was the setting for one of the most impressive experiments in voluntary family planning in the world. In 1977, a sample of half of 141 villages was selected to receive an intensive family-planning outreach program called the Family Planning and Maternal and Child Health Program (FPMCH). Every two weeks, a trained nurse brought family-planning services to the homes of all married women of childbearing age who were willing to receive her. She also offered help with prenatal care and immunizations. Perhaps not surprisingly, the program led to a sharp reduction in the number of children. By 1996, women in the program areas between the ages of thirty and fifty-five had about 1.2 fewer children than those in the areas that didn't get the program.

This change was accompanied by a drop in child mortality by one-fourth, but since the program also directly intervened to improve child health, there is no reason to attribute the increase in child survival to the change in fertility. Yet despite the facts that fertility decreased and lots more money was spent on making children healthier, by 1996, there was no significant difference in the height, weight, school enrollment, or years of education achieved for either boys or girls. Again, the quality-quantity relationship seems to be absent.[16]

Of course, these three studies alone may not be the last word, and there is certainly a need for more research, but for now, our reading of the evidence, contrary to what Sachs argues in *Common Wealth*, is that there is no smoking gun to prove that larger families are bad for children. As such, it is hard to justify top-down family planning as a means of protecting children from having to grow up in large families.

That family size does not adversely affect children seems counterintuitive, however: If the same resources have to be shared among more people, some of them at least should end up with less. If children do not suffer, who does? One possible answer is the mother.

The Profamilia program in Colombia suggests that this is definitely something to worry about. Launched by a young obstetrician named Fernando Tamayo in 1965, Profamilia was the major provider of contraception in Colombia over the next few decades and is one of the longest-standing family-planning programs in the world. By 1986, 53 percent of Colombian women of reproductive age were using contraceptives, mainly obtained through Profamilia. And women who had access to family planning as teenagers through this program had more schooling and were 7 percent more likely to work in the formal sector than those who did not.[17]

Along similar lines, the Bangladeshi women who benefited from the program in Matlab were heavier and taller than those in the comparison group and also earned more. The availability of contraception gives women more control over their reproductive lives—they can decide not just how many babies to have but also when to have them. And there is clear evidence that getting pregnant too early in life is very bad for the health of the mother.[18] Moreover, early pregnancy, or even get-

ting married, often results in dropping out of school.[19] But to locate the case for family planning in society's desire to protect the mother raises an obvious question: If getting pregnant at the wrong time is not in her interest, why does it happen? More generally, how do families make fertility decisions, and how much control do women have over these decisions?

DO THE POOR CONTROL THEIR FERTILITY DECISIONS?

One reason the poor may not be able to control their fertility is that they may not have access to modern contraception methods. According to the official UN report on progress toward the Millennium Development Goals, filling "unmet demand" for modern contraceptives could "result in a 27 percent drop in maternal deaths each year by reducing the annual number of unintended pregnancies from 75 million to 22 million."[20] Poor and uneducated women are much less likely to use contraception than richer and more educated women. Moreover, in the last decade, there has been no increase in the use of modern contraception among poor women.

Yet, low *usage* is not necessarily a sign of *lack of access.* The same kinds of demand-supply wars that have animated the field of education have their equivalents in the family-planning arena and, perhaps not surprisingly, the supply and demand wallahs are often the same people. The supply wallahs (such as Jeffrey Sachs) emphasize the importance of access to contraception, noting that people who use modern contraceptive methods have much lower fertility rates; the demand wallahs retort that this relationship just reflects the fact that those who want to reduce fertility mostly find their way to the right kind of contraception without any outside help, so just making contraception available will not do very much.

To find out whether it was the case, Donna Gibbons, Mark Pitt, and Mark Rosenzweig painstakingly matched the data on the number of family-planning clinics available at three points in time (1976, 1980, and 1986) in each of several thousand Indonesian subdistricts to village-level survey data on fertility.[21] Unsurprisingly, they found that regions that had more clinics had lower fertility. However, they also

found that the decline in fertility over time was unrelated to the increase in the number of clinics. They concluded that family-planning facilities were provided where people wanted them, but that they had no direct effect on fertility. Demand wallahs, 1; supply wallahs, 0.

The Matlab program has long been the poster child for the supply wallahs. Here at least, they argue, there is incontrovertible evidence that the availability of contraceptives makes a difference. As we saw, women age thirty to fifty-five in 1996 had on average 1.2 fewer children in treatment areas than those in control areas. But the program in Matlab was doing much more than just making contraceptives available. One of its key components was the biweekly visit by a female health worker to households where women were in purdah and therefore limited in their mobility, bringing the discussion of contraception to places where it used to be taboo. (This also made the program expensive—Lant Pritchett, then a World Bank economist, estimated that the Matlab program cost thirty-five times more per fertile woman and per year than the typical family-planning program in Asia.)[22] Thus, it is plausible that the program directly altered the households' desired number of children, rather than just giving them some tools they could use to control their fertility. Moreover, since about 1991, fertility has stopped falling in the program areas, and the difference between program areas and other control areas has started to narrow. In 1998, the last year for which we have data, the total fertility rate was 3.0 in the program areas, 3.6 in the control areas, and 3.3 in the rest of Bangladesh.[23] The Matlab program may have simply accelerated a trend toward fertility reduction that was happening in the rest of the country. So at best, this one seems to be a draw.

The study of the Colombian Profamilia program also concludes that the program had very little effect on overall fertility. Access to Profamilia led women to have only about 5 percent fewer children in their lifetimes, which is less than one-tenth of the total fertility decline since the 1960s. Demand wallahs, 2; supply wallahs, 0.

Thus, the data seem to squarely hand victory to the demand wallahs: Contraceptive access may make people happy by giving them a much more convenient way to control their fertility than the available alternative. But it appears to do, in itself, little to reduce fertility.

Sex, School Uniforms, and Sugar Daddies

What better access to contraceptives can do, however, is help teenagers postpone pregnancies. The Profamilia program did that in Colombia and helped women get better jobs down the line. Unfortunately, in many countries, teenagers are barred from accessing the family-planning services unless their parents give official consent. Teenagers may be the most likely to have an unmet need for contraception, mainly because many countries do not recognize the legitimacy of their sexual desires or assume that they have so little control that they would not be able to use contraception properly. The result is that teenage pregnancy rates are extremely high in many developing countries, particularly in sub-Saharan Africa and in Latin America. According to WHO, the rate of teen pregnancy is above 10 percent in Côte d'Ivoire, Congo, and Zambia; and Mexico, Panama, Bolivia, and Guatemala have rates between 8.2 and 9.2 births per 100 adolescent women (in the United States, which has one of the highest teen pregnancy rates in the developed world, there are 4.5 births per 100 adolescent women).[24] Further, the little that seems to be done about this issue or the related issue of the spread of sexually transmitted diseases (including HIV/AIDs) tends to completely miss the mark.

Esther found a clear example of the consequences of this kind of misguided effort in Kenya. With Pascaline Dupas and Michael Kremer, she followed schoolgirls—initially ages twelve to fourteen, who had never been pregnant.[25] One, three, and five years down the road, average pregnancy rates among them were 5 percent, 14 percent, and 30 percent, respectively. Early pregnancies are not only undesirable in and of themselves, but they are also a marker for risky sex, which in Kenya means a higher risk of contracting HIV/AIDS. The official strategy to address this problem in Kenya, the result of a delicate balancing act negotiated among civic groups, various churches, international organizations, and the government, mostly emphasizes that sexual abstinence is the only foolproof solution. The standard message spells out a clear hierarchy of strategies: Abstain, Be faithful, use a Condom . . . or you Die (or in other words, ABCD). In schools, children are taught to avoid sex until marriage, and condoms are not discussed. For many years, this

trend was encouraged by the U.S. government, which focused its AIDS prevention money on abstinence-only programs.[26]

This strategy presumes that adolescents are not responsible or smart enough to weigh the costs and benefits of sexual activity and condom use. If this were indeed the case, scaring them away from sex altogether (or at least from sex outside marriage) would be the only way to protect them. But several simultaneous experiments that Esther, Pascaline Dupas, and Michael Kremer conducted in Kenya suggest that, quite to the contrary, adolescents make carefully calculated, if not fully informed, choices about whom to have sex with and under what conditions.

In the first study, the ABCD strategy was evaluated by arranging for teachers in 170 randomly chosen schools to be trained in teaching the ABCD curriculum. Not surprisingly, this training increased the time spent on AIDS education in schools, but there were no changes in reported sexual behavior or even in knowledge about AIDS. In addition, when measured one, three, and five years after the intervention, pregnancy rates among adolescents were the same in schools where teachers were trained and where they were not, suggesting no change in the extent of risky sex.

The effects of the two other strategies that were tried in the same schools could not have been more different. The second strategy just involved telling the girls something they did not know: the fact that older men are more likely to be infected with HIV than younger ones. A striking feature of HIV is that women from the ages of fifteen to nineteen are five times more likely to be infected than young men in the same cohort. This seems to be because young women have sex with older men, who have comparably high infection rates. The "sugar daddies" program simply informed students about what kind of people are more likely to be infected. Its effect was to sharply cut down sex with older men (the "sugar daddies") but, also interestingly, to promote protected sex with boys their own age. After a year, the pregnancy rates were 5.5 percent in schools that had not received the program and 3.7 percent in schools that had received it. This reduction was mainly attributable to a reduction by two-thirds in pregnancies where an older male partner was involved.[27]

The third program just made it easier for girls to remain in school by paying for a school uniform. Teenage pregnancy rates in the schools where uniforms were offered fell from 14 percent to 11 percent after a year. To put it slightly differently, for every three girls who stayed in school because of the free uniform, two delayed their first pregnancy. Intriguingly, this effect was entirely concentrated in the schools where the teachers had not been trained in the new sex-education curriculum. In schools that had both the HIV/AIDS and the uniforms programs, girls were no less likely to become pregnant than those in the schools that had nothing. The HIV/AIDS education curriculum, instead of reducing sexual activity among adolescents, actually *undid* the positive effect of the uniform distribution.

Putting these different results together, a coherent story starts to emerge. Girls in Kenya know perfectly well that unprotected sex leads to pregnancy. But if they think that the prospective father will feel obliged to take care of them once they give birth to his child, getting pregnant may not be such a bad thing after all. In fact, for the girls who cannot afford a school uniform and therefore cannot stay in school, having a child and starting a family of her own may be a relatively attractive option, compared to just staying at home and becoming the general "Hey, you" for the whole family, the usual outcome for unmarried out-of-school teenage girls. This makes older men more attractive partners than young boys who cannot yet afford to get married (at least when the girls don't know that they are more likely to have HIV). Uniforms reduce fertility by giving girls the ability to stay in school, and thus a reason not to be pregnant. But the sex-education program, because it discourages extramarital sex and promotes marriage, focuses the girls on finding a husband (who more or less has to be a sugar daddy), undoing the effect of the uniforms.

One thing is relatively clear: For the most part, poor people, even adolescent girls, make conscious choices about their own fertility and sexuality and find ways—though perhaps not pleasant ways—to control it. If young women get pregnant even though it is extremely costly for them, it must reflect someone's active decision.

Whose Choice?

One issue that immediately arises when we think about fertility choice, however, is whose choice? Fertility decisions are made by a couple, but women end up paying most of the physical costs of bearing children. Not surprisingly, their preferences for fertility end up being quite different from those of men. In surveys on desired family size in which men and women are separately interviewed, men usually report a larger ideal family size and consistently a lower demand for contraception than their wives. Given the potential for disagreement, how much say a woman has within the household will clearly matter. It is plausible, for example, that a woman who is much younger than her husband or much less educated (both consequences of early marriage) will find it harder to stand up to her husband. But it also depends on whether she can find a job, her freedom to divorce, and her survival options in the case of divorce. These contingencies, in turn, depend on the legal, social, political, and economic environment she and her husband inhabit, which can be affected by public policy. In Peru, for example, when former squatters were handed out property rights, fertility declined in households that got a title (compared to those that got nothing), but only if the woman's name was included on the title along with that of the man.[28] One likely explanation is that with her name on a property title, the woman acquired more bargaining power in the family and was therefore able to weigh more heavily in the decision on family size.

The conflict between husbands and wives also implies that whereas the availability of contraceptives per se may not do very much to reduce fertility, small changes in the *way* in which they are made available can potentially have larger effects. Nava Ashraf and Erica Field provided 836 married women in Lusaka, Zambia, with a voucher guaranteeing free and immediate access to a range of modern contraceptives through a private appointment with a family-planning nurse. Some women received the voucher in private. Some received the voucher in the presence of their husbands. Ashraf and Field found that this made a huge difference: Compared to cases where husbands were involved, women who were seen alone were 23 percent more likely to visit a

family-planning nurse, 38 percent more likely to ask for a relatively concealable form of contraception (injectable contraceptives or contraceptive implants), and 57 percent less likely to report an unwanted birth nine to fourteen months later.[29] One of the reasons the Matlab program changed fertility choices more than other family-planning programs is probably also that by visiting the women in their houses, presumably when the husbands were away, the female health worker may have enabled some of them to adopt family planning without his knowledge. In contrast, women whose mobility was restricted by the custom of purdah (which forbids a woman to leave the house without her husband) would have had to be accompanied by their husbands to go receive the services at a central location, and this might have changed their decision.

A possible explanation for the relatively large effects of the Matlab program, especially early on, is that it accelerated social change. One reason the fertility transition takes time is that people other than the wife and husband have a say about it. Fertility is in part a social and a religious norm, and deviations from it do get punished (by ostracism, ridicule, or religious sanctions). Therefore, it matters what the community deems to be appropriate behavior. In the treatment areas in Matlab, this change was faster than elsewhere—the community health worker, who tended to be a relatively well-educated and assertive woman, was both the embodiment of the new norm and the carrier of news about the shifting norms in the rest of the world.

Kaivan Munshi studied the role of social norms in the contraception decisions in Matlab. He cites a young woman who described how her peer group discussed "how many children we would have, what method would be suitable for us . . . whether we should adopt family planning or not, all these topics. . . . We used to know from people that they used (contraceptives). If a couple takes any such method, the news somehow spreads."[30]

Munshi found that in Matlab villages where there was a community health worker, women were more likely to adopt contraceptives if village members of their own religious group had had higher contraceptive use over the previous six months. Even though both Hindus and Muslims within the village had access to the same health worker and

had exactly the same access to contraceptives, Hindus adopted contraceptive use when other Hindus were doing so and Muslims adopted contraceptives when other Muslims did. The contraceptive adoption by Hindus had no effect on the adoption by their Muslim neighbors, and vice versa. This pattern, Munshi concludes, must mean that the women were progressively learning about what was acceptable behavior within their communities.

Negotiating shifts in the social norm within traditional societies can be a very complex business. It is not easy, for example, to ask certain questions (Is contraception against religion? Will it make me permanently barren? Where can I find it?) because the act of asking itself reveals your inclinations. As a result, people often pick up things from the most unlikely sources. In Brazil, a Catholic country, the state has carefully stayed away from encouraging family planning. However, television is very popular, in particular the telenovelas (soap operas) that air on prime time on one of the main channels, Rede Globo. From the 1970s through the 1990s, access to the Rede Globo channel expanded dramatically, and with it the viewership of the telenovelas. At the telenovelas' peak popularity in the 1980s, the characters in the soaps tended to be very different from the average Brazilian in terms of both class and social attitudes: Whereas the average Brazilian woman had almost six children in 1970, in the soap operas most female characters under the age of fifty had none, and the rest had one. Right after soaps became available in an area, the number of births would drop sharply; moreover, women who had children in those areas named their children after the main characters in the soap.[31] The novelas ended up projecting a very different vision of the good life than the one that Brazilians were used to, with historic consequences. This was not entirely accidental—in Brazil's straitlaced society, the soap opera ended up being the outlet of choice for many creative and progressive artists.

At the risk of sounding, perhaps one time too many, like the "two-handed economists" who irritated Harry Truman, the answer to the question "Do the poor control their family decisions?" thus seems to proceed in two steps. At the most obvious level, they do: Their fertility decisions are the product of a choice, and even the lack of availability of contraception does not seem to be a big constraint. At the same

time, what leads them to make these choices may be in part factors that are outside their immediate control: Women, in particular, may be pressured by their husbands, their mothers-in-law, or social norms to bear more children than they would like. This suggests a very different set of policies than those adopted by Sanjay Gandhi, or by the well-intentioned international organizations today: Making contraception available will not be sufficient. Affecting social norms may be more difficult, although the example of TV in Brazil shows it can be done. But the social norms may also reflect economic interests in a society. To what extent do the poor want many children simply because it is a sound economic investment?

CHILDREN AS FINANCIAL INSTRUMENTS

For many parents, children are their economic futures: an insurance policy, a savings product, and some lottery tickets, all rolled into a convenient pint-size package.

Pak Sudarno, the scrap collector from the Cica Das slum in Indonesia, who was sending his youngest child to secondary school because that seemed to him to be a worthwhile gamble, had nine children and a large number of grandchildren. When we asked him whether he was happy that he had had so many children, he said "absolutely." He explained that with nine children, he could be sure that at least a couple of them would turn out fine and take care of him when he was old. Clearly, having more children also increases the risk that something will go wrong with at least one of them. In fact, one of Pak Sudarno's nine children suffered from severe depression and had disappeared three years before. He was sad about that, but at least he had the other eight to console him.

Many parents in rich countries don't need to think in quite these terms because they have other ways to deal with their waning years—there is Social Security, there are mutual funds and retirement plans, and there is health insurance, public or private. In the coming chapters, we will discuss at some length why many of these options are not really available to someone like Pak Sudarno. For the time being, we will just observe that for most of the world's poor, the idea that children (and

family beyond children—siblings, cousins, and so forth) will take care of parents in old age and during times of need is the most natural thing. In China, for example, more than half the elderly lived with their children in 2008, and that fraction increases to 70 percent for those who had seven or eight children (this was before family planning, when having many children was actually politically favored).[32] Elderly parents also received regular financial help from their children, particularly boys.

If children are in part a way to save for the distant future, we would expect that when fertility drops, financial savings go up. China, with its government-enforced restriction on family size, provides us with the starkest example of this phenomenon. After encouraging high fertility rates immediately after the revolution, China started encouraging family planning in 1972, then introduced the one-child policy in 1978. Abhijit, with two Chinese-born coauthors, Nancy Qian (an only child born in the one-child policy era) and Xin Meng (one of four children born before it began) examined what happened to savings rates after the introduction of family planning.[33] Households that had their first child after 1972 have one less child on average than those who had that child before 1972, and their savings rates are approximately 10 percentage points higher. These results imply that up to one-third of the phenomenal increase in savings rates in China in the past three decades (the household savings ratio increased from 5 percent in 1978 to 34 percent in 1994) can potentially be explained by the reduction in fertility induced by family-planning policies; the effect was particularly strong for households that had a daughter rather than a son at first birth, consistent with the view that sons are supposed to be the ones who take care of parents.

This is a huge effect, but of course the Chinese "experiment" is somewhat extreme: It was a large, sudden, and involuntary reduction in family size. Something similar happened in the Matlab area in Bangladesh, however. By 1996, families in villages where contraception had been made available had significantly more assets of all kinds (jewelry, land, animals, house improvements) than families in the comparable villages where it was not available. On average, a household in the treatment area had 55,000 takas' more worth in assets ($3,600 USD

PPP, more than twice the GDP per capita of Bangladesh) than those in control areas. There is also a link between fertility and the amount of money given to parents by their children: Those in the treatment areas received on average 2,146 takas less in transfers from their children every year.[34]

The very strong substitution between family size and savings may help us explain the surprising finding that having fewer children does not translate into healthier or better-educated children: If parents who have fewer children expect lower money transfers in the future, they also need to save more in anticipation, and this cuts into the funds they have available for investing in the children they have. Indeed, if investing in children tends to have a much higher return than investing in financial assets (after all, feeding a child is not that expensive), families may actually be poorer in a lifetime sense when they have fewer children.

The same logic also tells us that if parents don't expect their daughters to be nearly as useful in taking care of them as their sons—say, because they have to pay a dowry to get their daughters married or because women are expected to get married and once married, their husbands have economic control over them—parents will be less invested in the lives of their daughters. Families not only choose an optimal number of children, they also choose the gender composition. We typically think of our children's gender as something we don't get to decide, but that turns out to be untrue: Sex-selective abortions, which are now widely available and extremely cheap, allow parents to choose whether they would rather abort a female fetus. As the stickers pasted on the dividers in Delhi's main road advertising (illegal) sex-determination services put it: "Spend 500 rupees now and save 50,000 rupees later" (on dowries). And even before sex-selective abortion was an option, in environments where a whole range of childhood diseases can easily turn fatal if not properly dealt with, there was always neglect, deliberate or otherwise, which can be an effective way to get rid of any unwanted children.

Even if their children don't die before or after birth, when parents prefer boys, they may have children until they have the number of boys they want. This means that girls will tend to grow up in larger families,

and many of the girls will be born in a family that really wanted boys. In India, girl babies stop getting breast-fed earlier than boys, which means that they start drinking water earlier and have accelerated exposure to waterborne life-threatening diseases like diarrhea.[35] This is mostly the unintended consequence of the fact that breast-feeding acts as a contraceptive. After the birth of a girl (particularly if she has no brothers), parents are more likely to want to stop breast-feeding earlier in order to increase the wife's chances of getting pregnant again.

Whatever the exact mechanics of discrimination against baby girls (or potential baby girls), the fact remains that the world has many fewer girls than human biology would predict. In the 1980s, in a now classic article in the *New York Review of Books*, Amartya Sen calculated that there were 100 million "missing women" in the world.[36] This was before sex-selective abortion was available—and things have only gotten worse since. In some regions in China, there are today 124 boys for every 100 girls. Between 1991 and 2001 (the date of the latest census in India), the number of boys under seven per 100 girls the same age increased from 105.8 to 107.8 for India as a whole. In Punjab, Haryana, and Gujarat, three of India's richest states but also three of the states where discrimination against girls is believed to be the greatest, there were respectively 126.1, 122.0, and 113.8 boys per 100 girls in 2001.[37] Even according to self-reports, which almost certainly underestimate the phenomenon, the number of abortions is particularly high in those states: In families with two daughters, 6.6 percent of pregnancies ended in an induced abortion and 7.2 percent in a "spontaneous" abortion.

But this is less of a problem where girls are more valuable either in the market for marriage or in the labor market. In India, girls are not supposed to get married within their own villages. Typically, there are designated areas, not too close to the village but not too far away, into which a majority of the girls will marry and move. As a result, it is possible to look at what happens when there is economic growth in this marriage "catchment" area, which presumably makes it easier to find a prosperous family to marry a daughter into. Andrew Foster and Mark Rosenzweig studied this and found that the mortality differential between boys and girls decreases when a girl's marriage prospects are brighter; in contrast, economic growth *in the village,* which increases

the value of investing in boys (because they stay home), leads to a widening of the mortality gap between boys and girls.[38]

Perhaps the most striking illustration of how a household's treatment of girls responds to the relative values of boys and girls comes from China, which has one of the largest imbalances between boys and girls. During the Maoist era, centrally planned agricultural production targets focused on staple crops. In the early reform era (1978–1980), households were allowed to produce cash crops, including tea and orchard fruits. Women tend to be more useful than men in the production of tea, which needs to be plucked with delicate fingers. In contrast, men are more useful than women in the production of orchard fruits, which involves lifting heavy loads. Nancy Qian showed that when we compare children born in the post- and pre-reform periods, the number of girls in the tea plantation regions (hilly and rainy) increased, but it went down in the regions that were more suitable for orchards.[39] In regions that were not particularly suitable to either tea or orchards, where agricultural income increased across the board without favoring either gender, the gender composition of children did not change.

What all of this underscores is the violence, active and passive, subsumed within the functioning of the traditional family. This was, until fairly recently, ignored by most (though not all) economists, who preferred to leave that black box closed. Yet most societies rely on the goodwill of the parents to make sure that children get fed, schooled, socialized, and taken care of more generally. Given that these are the same parents who contrive to let their little girls die, how much faith should we place in their ability to get this done effectively?

THE FAMILY

For the sake of their models, economists often ignore the inconvenient fact that the family is not the same as just one person. We treat the family as one "unit," assuming that the family makes decisions as if it were just one individual. The paterfamilias, the head of the dynasty, decides on behalf of his spouse and his children what the family consumes, who gets educated and for how long, who gets what kind of bequest,

and so on. He may be altruistic, but he is clearly omnipotent. But as anybody who has been part of a family knows, this isn't quite how families work. This simplification is misleading, and there are important policy consequences from ignoring the complicated dynamics within the family. We already saw, for example, that giving women access to a formal property title is important for fertility choices, not because it changes her view on how many children she wants but because it makes her views count more.

The realization that the simplest model was missing important aspects of how the family works led to a reassessment in the 1980s and 1990s:[40] Family decisionmaking came to be seen as the result of a bargaining process among family members (or at least between the two parents). Both partners negotiate over what to buy, where to go on vacation, who should work how many hours, and how many children to have, but do so in a way that serves both of their interests as well as possible. In other words, even if they disagree on how the money should be spent, if one of them can be made happier without hurting the other one's well-being, they would make sure it is done. This view of the family is usually referred to as the "efficient household" model. It recognizes that there is something special about the family—its members, after all, did not meet just yesterday and are presumably tied together for the long term. It should therefore be possible (and in their interest) to negotiate over all their decisions to make sure that they do as well as they can, as a family. For example, if the family runs a small enterprise (be it a farm or a small business), it should always try to make as much money from it as possible, and only afterward find a way to split up the gains among its members.

Christopher Udry tested this prediction in rural Burkina Faso, where each household member (the husband and the wife, or wives) works on a separate plot.[41] In an efficient household, all inputs (family labor, fertilizer, and so forth) should be allocated to the various plots in a way that maximizes total family earnings. The data squarely rejected this view: Instead, plots farmed by women were allocated systematically less fertilizer, less male labor, and less child labor than plots farmed by men. As a result, these households systematically produced less than they could have. Using a little bit of fertilizer on a plot increases its

productivity a great deal, but increasing the amount beyond that initial level does not do very much—it is more effective to use a little bit of fertilizer on all the plots than a lot of fertilizer on just one plot. But most of the fertilizer in the Burkina Faso households was used on the husband's plot: By reallocating some of the fertilizer plus a bit of labor to the wives' plots, the family could increase its production by 6 percent without spending an extra penny. Families were literally throwing money away because they could not agree on the best way to use the resources they had.

The reason they were doing so also seems clear: Even though they are part of the same family, what the husband grows on his own plot seems to determine what he gets to consume, and likewise for his wife.[42] In Côte d'Ivoire, women and men traditionally grow different crops. Men grow coffee and cocoa, whereas women grow bananas, vegetables, and other staples. Different crops are affected differently by the weather: A particular rainfall pattern may result in a good year for the male crops and a bad year for the female crops. In a study with Udry, Esther found that in good "male" years, more is spent on alcohol, tobacco, and personal luxury items for men (such as traditional items of clothing). In good "female" years, more resources are spent on little indulgences for women but also on food purchases for the household. What is particularly odd about these results is that spouses do not seem to be "insuring" each other. Knowing that they will be together for a long time, the husband could gift his wives some extra goodies in a good male year in return for some extras when the weather goes the other way. Informal insurance arrangements of this kind *between households* of the same ethnic group are not uncommon in Côte D'Ivoire,[43] so why do they not operate within the family?

One finding in Côte d'Ivoire gives us a useful hint about why families are different. There is a third "player" in the family drama—the modest yam, nutritious and easy to store, a staple food in the area. Yams are typically a "male" crop. But as the French anthropologist Claude Meillassoux explains, it is not a crop that the husband can freely sell and spend.[44] Yams are meant for the basic sustenance of the household. They can be sold, but only to pay for school fees or medical care for the children, not to buy a new blouse or some tobacco. And indeed,

when there is a good year for yams, the family does consume more yams, which is perhaps not surprising, but spending on food purchased in the market and on education also increases. The yam makes sure that everyone in the family is properly fed and educated.

Thus, what makes the family special is not that its members are effective in negotiating with each other: Quite the contrary—they operate by observing simple, socially enforceable rules such as "Thou shalt not sell thy child's yam to buy new Nikes" that safeguard their basic interests, without having to negotiate all the time. Other results also make more sense viewed in this light. We saw that when women make more money on their plots, the family eats more. This may be a product of another rule that Meillassoux describes: It is the woman who is in charge of feeding the family; her husband gives her a fixed amount of money for that, but then it is her job to figure out how to do it best.

The family is bound together then, not in perfect harmony or by the ability to always divide up resources and responsibilities efficiently, but by a very incomplete, very coarse, and often very loose "contract" that defines the responsibilities of each member toward the other members. It is likely that the contract has to be socially enforced, because children cannot negotiate with parents, or wives with husbands, on an equal basis, but society gains from all members of the family having something like a fair share of resources. The incomplete nature of the contract probably reflects the difficulty of enforcing anything more sophisticated. There is no way for anyone to make sure that parents feed their children the right number of yams, but society may be able to sanction or show disapproval of parents who are seen selling yams to buy sneakers.

One problem with rules that rely on social norms for enforcement is that these norms change slowly, and therefore there is always the risk that the rules are entirely out of sync with reality, sometimes with tragic consequences. In Indonesia in 2008, we met a middle-aged couple at their house, a small white-and-green bamboo structure built on pillars. Right next to it stood another white-and-green house, much larger, airy, made of concrete. It belonged to their daughter, who worked as a maid in the Middle East. The couple was obviously very

poor: The husband had a persistent cough and a headache that never seemed to go away, which made it hard for him to work. But he could not afford to see a doctor. Their younger child had dropped out of school after middle school because they could not afford his bus fare to the city. Suddenly, a four-year-old came into the room: She was visibly healthy, well fed, and dressed nicely in a pretty dress, with shoes that had little lights in them that went on and off as she ran around the room. It turned out that her grandparents were taking care of her while their daughter was away. Her mother sent money for the child, but nothing extra for the husband and wife. It seemed that they were the victims of some norm that had not yet shifted—married daughters were still not expected to take care of their parents, despite the obvious inequity it implied, but grandparents continued to feel obligated to take care of their granddaughters.

Despite the many obvious limitations of the family, society does not have another viable model for bringing up children, and though one day social pension programs and health insurance might free the elderly in today's poor countries from relying on their children for old-age care, it is not entirely obvious that it would make them (or their children) happier. The right space for policy is not so much to replace the family as it is to complete its action and, sometimes, protect us from its abuses. Starting from the right understanding of how families function is crucial in being able to do so effectively.

It is, for example, now widely recognized that public support programs that put money in the hands of women, like the Mexican program PROGRESA, for example, may be much more effective in directing resources toward children. In South Africa, at the end of apartheid, all men over sixty-five and women over sixty who did not have a private pension became eligible for a generous public pension. Many of these old people lived with their children and grandchildren, and the money was shared with the families. But it is only when a grandmother lived with a granddaughter that the granddaughter benefited: Those girls were significantly less likely to be stunted. Pensions received by a grandfather had no such effect. And there is more: Only if the pension was received by the girl's *maternal* grandmother was this effect seen.[45]

At least one of the two of us is inclined to interpret this evidence as saying that men are just a lot more selfish than women. But it may also be that this is where the norms and social expectations, which we argued play an important role in family decision-making, kick in. Perhaps women are expected to do things for the family when they get some windfall cash and men are not. If this is the case, not only who gets the money, but how it is earned, will also matter: Women may not feel that the money they have earned from their own work or their small business "belongs" to their family or their children. Paradoxically, it may be precisely because of women's traditional role in the family that public policy can get some mileage by empowering them.

We now return to the question of whether the poor really want such large families. Pak Sudarno wanted nine children. His large family was not the product of lack of self-control, lack of access to contraception, or even a norm imposed by society (although the fact that he got to make this decision may have been; his wife did not tell us what she would have wanted herself). At the same time, he believed that having nine children made him poor. So he did not really "want" so many children. He only needed nine children because there was no other way for him to be sure that at least one of them would support him later in his life. In an ideal world, he would have had fewer and tried to raise them as well as he could, but he would not have had to depend on them later.

Although many elderly people in the United States would prefer to spend more time with their children and grandchildren (at least if sitcoms are to be believed), the fact that they have the option of surviving on their own—thanks in part to Social Security and Medicare—may be very important for their dignity and their sense of self. It also means that they do not need to have lots of children in order to ensure that there will be someone to take care of them. They can have the number of children they really want, and if it turns out that none of them are willing or able to take care of them, there is always the public fallback.

The most effective population policy might therefore be to make it unnecessary to have so many children (in particular, so many male

children). Effective social safety nets (such as health insurance or old age pensions) or even the kind of financial development that enables people to profitably save for retirement could lead to a substantial reduction in fertility and perhaps also less discrimination against girls. In the second part of the book, we turn to how this can be done.