



# Health Service Delivery in Punjab, India

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## Authors

Kidus Asfaw, Mica Bumpus, Thomas Coen, Carolyn Edelstein, Alfredo López Rojas, Claudia Mendieta, Aditi Poddar, Virginia Poggio, Matthew Soursourian, David Stephan, Rosa Vidarte

## Advisor

Professor Jeffrey S. Hammer





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## STUDENT BIOGRAPHIES

**Kidus Asfaw** is interested in the role of information communication technologies (ICT) in economic development. His professional experience has spanned product development in Silicon Valley and technology consulting in Washington D.C. His field concentration at the Woodrow Wilson School is in Development Studies. He has also worked with the World Bank's ICT sector unit on public service delivery projects in East Africa.

**Mica Bumpus** studied Public Health and Asian Studies at Texas A&M University with an emphasis on minority and women's health issues. Upon graduating with honors, she joined Teach For America and taught high school Biology and Biotechnology in Oakland, California. As a Coro Fellow, Mica performed significant work on collateral and fundraising strategy, civic engagement, consensus building, and negotiation. She is currently a master's candidate at the Woodrow Wilson of Public and International at Princeton University with a focus on health and health policy.

**Thomas Coen** is a second-year student in the Master in Public Affairs program at Princeton University's Woodrow Wilson School concentrating in international development. He previously managed an agriculture impact evaluation in Malawi and worked on political development programs in West Africa. Most recently, he was a research associate at the Congressional Research Service conducting analysis on policy issues in sub Saharan Africa.

**Carolyn Edelstein** is an MPA candidate at Princeton University's Woodrow Wilson School of Public and International Affairs concentrating in International Development. Prior to the Woodrow Wilson School, Carolyn worked with USAID's Development Innovation Ventures program, which supports the testing of cost-effective solutions to international development challenges and scales those that show evidence of success. Carolyn has worked in South Africa and India and speaks French and Mandarin Chinese. She holds an AB in Public Policy from Princeton University.

**Alfredo López Rojas** is a second-year graduate student pursuing a Master in Public Affairs from the Woodrow Wilson School at Princeton University. After participating in several Social Action Humanitarian Missions in Chile, Mexico & Bosnia-Herzegovina, he realized that the enactment, modification, and enforcement of laws is one of the most direct ways to impact a society through public policies. Accordingly, he studied a Law Degree in Universidad Anahuac in Mexico City. His desire to be an agent of change lead him establish the Fundación VALORes, a social initiative nonprofit organization.

**Claudia Mendieta** holds a BS in Economics and Graduate Diplomas in Statistics, and Sustainable Development. Master in Public Affairs Candidate, 2014 in Economics and Public Policy. She has experience in the design, implementation and evaluation of rural development projects. She has worked in topics as rural entrepreneurship management, innovation and sustainable technical change in agriculture, microfinance, food security, among others, for the Inter-American Development Bank in Peru and Bolivia, the World Bank, other non-profit entities, and the Ministry of Development and Social Inclusion in Peru.

**Aditi Poddar** has a background in economics and is concentrating in Development Studies at WWS. She did research on agricultural policy in India and the impact of the Green Revolution and worked with a rural social enterprise on livelihoods issues before coming to Princeton.

**Virginia Poggio** is interested in the interplay between income, poverty, health, and development. She has worked for the World Bank and the Inter-American Development Bank in finance, education, and health issues. She is currently collaborating with the Clinton Health Access Initiative with the modeling of the costs of scaling-up HIV treatment in 5 African countries to comply with the new WHO guidelines.

**Matthew Soursourian** came to the Woodrow Wilson School after working as a policy associate for the Mayor of Providence, Rhode Island and as a community development researcher for the Federal Reserve Bank of San Francisco. For his summer internship, Matthew worked on a financial inclusion initiative with the International Finance Corporation in New Delhi and Bihar, India.

**David Stephan** studied Economics and Finance at the Australian National University. After graduating from college he worked at the Australian Treasury on issues such as macroeconomic forecasting, climate change policy, and medium-term fiscal strategies. He worked for the World Bank in Jakarta where he undertook capacity building work with the Indonesian Ministry of Finance on forecasting and analysis of the Indonesian economy. During the past summer he worked at the Bank of Tanzania in Dar es Salaam, assisting the research department on macroeconomic modelling projects.

**Rosa Vidarte** is a Peruvian national. She holds a B.A. in Economics and has worked in economic research, mainly impact evaluation of social programs, in the Group for Analysis in Development (GRADE) in Peru and at the Inter-American Development Bank (IADB) in Washington D.C. During the summer she worked at the UNICEF office in Bangkok, Thailand.



## EXECUTIVE SUMMARY

In many aspects, Punjab has better health outcomes compared to other Indian states. However, given Punjab's relative wealth, this is not unexpected. This report looks behind the aggregate figures to uncover areas of health where Punjab is lagging behind and can improve.

In particular, Punjab is found to have significantly worse health outcomes for girls than boys. The differential begins with the sex-ratio, which is much lower than the Indian average. Compared to the rest of the country, Punjab has 73 fewer girls per 1000 boys. Punjabi girls who are born later in a family also have worse health outcomes than first- or second-born girls. For example, third-born girls are around 0.7 standard deviations shorter for their age than second-born girls. Punjabi girls are also less likely to be breastfed than boys, and those that are, are breastfed for a shorter period of time.

While Punjab's infant mortality rate has been in decline, more work remains to be done. Our analysis has shown that focusing on providing safe water and sanitation is particularly important. While improvements in the quality of health facilities can lower the mortality rate, more information is needed to better establish the link between the quality of public health facilities and infant mortality in Punjab. Further studies should also look into the link between the prevalence of agricultural fires in Punjab and childhood respiratory illnesses. The high rate of severe anemia is a particularly concerning problem in Punjab. Further investigation by the Health Ministry is warranted to check whether the prevalence of anemia is as high as suggested by the studies used in this report.

The health status of Punjabi women, while still poor by many standards, outperforms the Indian average. While Punjabi girls face discrimination from birth into their youth, it appears, at least for the data presented here, that this discrimination does not persist throughout the rest of their lives. To continue to reduce rates of morbidity for Punjabi women, this report outlined the importance of education in improving women's (and their children's) health.

Regarding the supply of curative public health services in Punjab (such as health clinics), it is difficult to make concrete policy recommendations without more data to properly understand the functioning of public health in Punjab. It is possible that public provision is influencing health outcomes in the State, however, this cannot be determined without further information. To get a better gauge of the impact public health provision is having in Punjab; officials should prioritize measuring the quality of care in public facilities. This also highlights that authorities need to understand how the public and private sectors are linked. Punjabi residents overwhelmingly use the private sector for their health needs. Increasing the supply of public care facilities may simply push out private care at no benefit (or possible reduction) to health care quality in Punjab.

To improve the functioning of the RSBY program in Punjab, this report highlights the need to strengthen the quality and depth of data collected. This can enable an allocation of resources based on how the programs are working and also allows greater control over claims. To improve the utilization rate of RSBY in Punjab, the government should conduct more awareness campaigns. Regular health check-up camps for scheme beneficiaries might increase utilization even further. Utilization rates could also improve by combining similar health care schemes. Having multiple schemes may confuse beneficiaries and duplicate state resources.

Finally, accountability for hospitals and insurance companies needs to be improved. RSBY cardholders often do not know the balance of their benefit, how much a procedure costs, or how much they were charged. By providing beneficiaries with a paper receipt, like a credit card receipt, every time their card is swiped for a service, patients will have better information to inform their health care decisions. In addition, this limits potential fraud and deception by hospital personnel when charging RSBY cards.

# I. HEALTH STATUS IN PUNJAB

## 1.1. Health Status of Punjabi Girls

The overall health status of Punjabi children is better than the Indian average. However, given Punjab's relatively higher wealth, this is not unexpected. When delving into the details however, there are some specific areas of child health where Punjab is lagging behind the national average. This is particularly the case for Punjabi girls.

There is a clear indication that Punjabi girls, have much worse health outcomes than Punjabi boys. For those girls born later (as a third child or later) there is an indication that they perform much worse than earlier born girls.

This section outlines the key areas in which Punjabi girl's health outcomes are underperforming.

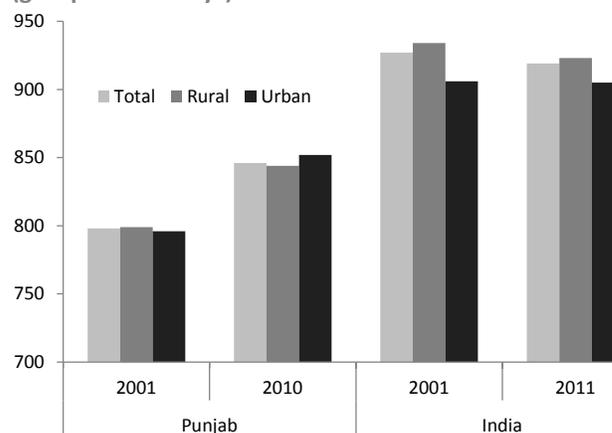
### 1.1.1. Sex-Ratio in Punjab

**The sex-ratio for Punjab is 846 females per 1000 males (0-6 years of age).** This is much lower than the Indian average of 919, ranking Punjab among the worst performing States. Some progress has been made in Punjab recently. The gap between Punjab's sex-ratio and the Indian average was 129 girls per 1000 boys in 2001, falling to 73 in 2011 (Figure 1).

**Within Punjab, the sex-ratio varies greatly by district.** The sex-ratio varies from a low of 819 in Tarn Taran to a high of 879 in Shahid Bhagat Singh Nagar.

**According to the literature, the sex-ratio in absence of sex selective abortion should be 952 females per 1000 males<sup>1</sup>.** Having a sex-ratio of 846 raises suspicion as to whether sex selective abortion is being practiced in Punjab. This can be due to the continued preference for boys in society, despite laws to prevent female feticide and schemes that encourage families to have female children.

**Figure 1: Sex-ratio in Punjab and India (girls per 1000 boys)**



Source: NFHS

**During field visits, officials from the Ministry of Health and from health facilities in Punjab were asked about their knowledge of sex selective abortion in the state.** All those interviewed stated that this practice was unlikely since the punishment for physicians practicing it was severe. However, when asked what kind of actions were in place to check whether illegal ultrasounds or selective abortions were performed or not, no clear answer was given.

### 1.1.2. Analysis of Abortion Data in Punjab

To further investigate the sex-ratio in Punjab we analyze data on abortions in the state. We use the number of abortions experienced by a household, including both spontaneous and induced abortion reported by respondents.

**In any survey, the actual rate of induced abortions will tend to be underreported.** Due to these limitations we examine all types of abortion. As such, we need to be very cautious when interpreting the results. The determinants of abortion found might reflect factors affecting both miscarriages and induced abortion. Induced abortion in turn can reflect both sex selective abortions and non-sex selective abortions.

**According to our interviews during field visits, the factors that increase sex-selective abortions in Punjab are similar to those in the rest of India.**

These include the perceived economic utility of sons, male dominance within the family, dependence on sons for old age support, high dowries and patrilineal clans among others.<sup>2</sup> However, there are many unique factors that could contribute to the rate in Punjab. Among others this includes the value of agricultural land and a lower fertility rate than the rest of India.

**We will focus our analysis on some of the unique characteristics of Punjab, such as the caste and religious makeup.** We also assess the role of sonograms/ultrasounds and/or amniocentesis tests use during antenatal checkups.

**Although prenatal sex determination in the country is forbidden, according to our interviews it does occur in Punjab.** In particular, sex-determination is more prevalent in private health facilities). We therefore use the access to these tests as a proxy of sex determination rather than the respondents' statement about knowledge of fetus' sex, which we expect to be underreported.

**Punjab has a higher rate of abortions than the rest of India.** Punjab's rate of abortions (0.24 percent) is 40 percent larger than the average for the rest of the country (0.17 percent). The rate at which a Punjabi woman uses sonograms, ultrasounds and/or amniocentesis tests is 34 percent higher than Indian women. This is consistent with a 17 percent higher access to antenatal checkups and the fact that these happen more in private facilities (21 percent fewer checkups in public facilities) compared to the rest of India.

**After examining the relationship between the rate of abortions per household and household characteristics, we find the following:**

- Increased use of sonograms/ultrasounds and/or amniocentesis is associated with more abortions.
- Antenatal care is associated with an increase in abortions, which is consistent with the fact that it is during antenatal checkups that tests

allowing sex determination are performed. Compared to private antenatal care, antenatal care in public facilities is associated with fewer abortions, which could reflect tighter monitoring and restrictions in public facilities.

- Household size in terms of number of current children is associated with an increase current in abortions (consistent with more non-selective and selective abortion).
- Religion is not significantly associated with an increase in abortions but this practice is significantly associated with belonging to higher castes. Belonging to a caste association shows a negative correlation with abortions.
- Higher income is associated with a reduction in abortions. This may reflect greater use of contraception methods or the ability to afford larger families.
- While mother's education is not significant, a proxy for women's empowerment is significantly<sup>3</sup> associated with an increase in abortions. This proxy is highly correlated with education, income and being from a high caste, making interpretations somewhat difficult.

### 1.1.3. Stunting (Height for Age)

**Punjabi children endure high levels of malnutrition.** 36.7 percent of children are stunted while 17.3 percent are severely stunted. Low rates of height for age primarily reflect malnutrition over a prolonged time period. It can also result from recurrent and chronic illnesses<sup>4</sup>

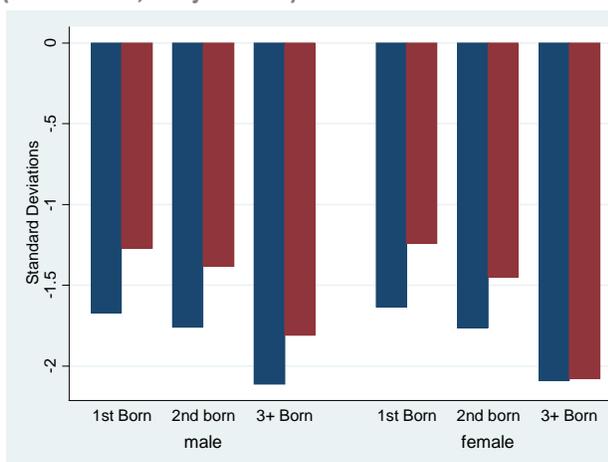
**While these rates are high, they are significantly better than the rest of India.** The average z-score<sup>5</sup> in Punjab is -1.5 compared with an Indian average of -1.9. However, Punjab's results are still below many states. In Kerala, for example, the average z-score is -1.1 and only 6.5 percent of children are severely stunted.

**Punjabi girls do not perform better than Indian girls.** The z-score for girls living in urban areas of Punjab is -1.49, barely lower than the Indian average of -1.53. While Punjabi scores are generally

around 0.4 standard deviations better than the average, girls from scheduled castes are only 0.2 standard deviations higher than the Indian average.

**The performance of girls deteriorates further as their birth order increases.** While later born Punjabi boys maintain their score differential over the rest of India, girls who are born third or later in a Punjabi family have basically the same level of stunting as the rest of India (Figure 2).

**Figure 2: Stunting in Children**  
(standard deviations below WHO reference median)  
(India = blue, Punjab = red)



Source: NFHS

**This results in a large increase in stunting between the second and later born girls in Punjabi families.** The z-score for a second born girl in Punjab is around -1.4 while for those born later the number jumps to -2.1. The gap between later born girls and second born girls (0.7 standard deviations) is much larger than the same gap between boys (0.4 standard deviations).

**To understand whether these differences are Punjab specific or reflect general characteristics of Punjabi children we undertake statistical analysis of a child's z-score.** We control for family characteristics such as wealth, religion, caste and their mother's characteristics. A series of indicator variables are included to test whether there are additional effects on the z-score from being from Punjab, and more specifically, from being a later born girl in Punjab.

**We find that later born females have significantly worse z-scores than males, and even more so in Punjab.** Being a female child who is born third or higher in a family reduces a child's z-score by around 0.4 standard deviations. However, this rate is even higher for a Punjabi girl, whose z-score is a further 0.2 standard deviations (0.6 in total) lower than a first born non-Punjabi boy.

#### 1.1.4. Polio Vaccination Rate

**Similar to stunting, Punjab's overall performance in vaccination coverage is better than the rest of India.** Around 60 percent of Punjabi children have the recommended basic vaccinations, compared to 43.5 percent in India.

**However, the rate of polio vaccinations is lower in Punjab than the rest of India.** Around 75 percent of Punjabi children have the recommended number of polio doses by the age of 23 months, lower than the rest of India average of 79 percent. This is the only vaccination where the Punjab average is lower than the rest of India.

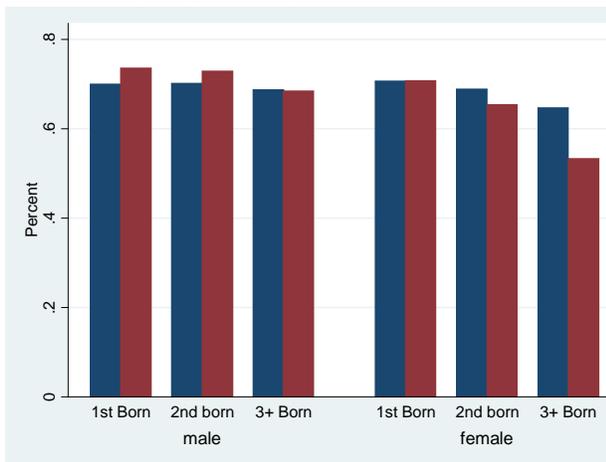
**The rate of vaccinations in Punjabi girls is lower, especially as their birth order increases (Figure 3).** For girls who are the third or later child in a family, the proportion that has all recommended vaccinations is 29 percent. This is much lower than the rate for similar boys at 46 percent. In the rest of India the rate of vaccination coverage for boys and girls is very similar.

**Similar to stunting, the gap between vaccination rates for second born and later born Punjabi girls is large.** Later born Punjabi girls have a polio vaccination rate of 53 percent compared to 65 percent for second born girls. A similar picture emerges for all recommended vaccinations, where the rate for later born girls is only 29 percent whereas it is 43 percent for second born girls.

**To see whether the difference between boys and girls is significant in Punjab we estimate a model for the rate of vaccinations.**<sup>6</sup> Factors that increase coverage include the mother's educational attainment and age; and a family's wealth. Factors associated with lower vaccination rates include

being born later; being Muslim; and being from a scheduled tribe or other backward class (OBC).

**Figure 3: Polio Vaccination Rate**  
(percent of children with recommended polio vaccines)  
(India = blue, Punjab = red)



Source: NFHS

**The rate of vaccinations for later-born Punjabi girls is significantly lower than for boys.** For a girl born third or later in Punjab, the rate of vaccination coverage is almost 14 percentage points lower than a first-born boy. Examining this for rural and urban households, we find that this effect is only significant in urban areas. Urban later born girls have vaccination rates that are more than 16 percent lower than first born boys in Punjab.

### 1.1.5. Breastfeeding Practices

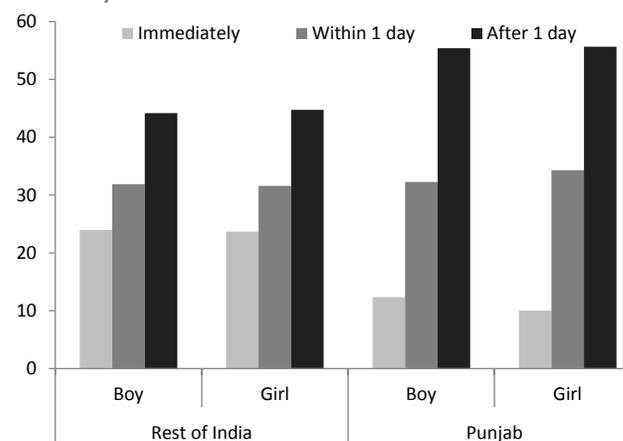
**Punjabi women have worse breastfeeding practices than the Indian average.** Breastfeeding is the normal way of providing young infants with the nutrients they need for healthy growth and development. According to the WHO “exclusive breastfeeding is recommended up to 6 months of age, with continued breastfeeding along with appropriate complementary foods up to two years of age or beyond.”<sup>7</sup>

**Punjabi women breastfeed their babies for a shorter period of time than the rest of India.** Breastfeeding duration can affect the length of postpartum amenorrhea. The duration of breastfeeding is important because breast milk provides useful amounts of energy, good quality protein, and other nutrients to the baby. While

Punjabi mothers breastfeed their babies for a little more than a year, the Indian average is significantly higher, at almost 14 months.

**New mothers in Punjab start breastfeeding their babies later.** The Government of India recommends that initiation of breastfeeding should begin immediately after childbirth, preferably within one hour (Ministry of Women and Child Development, 2006). Early initiation of breastfeeding is encouraged for a number of reasons. Mothers benefit from early suckling because it stimulates breast milk production and facilitates the release of oxytocin, which helps the contraction of the uterus and reduces postpartum blood loss. The first breast milk (colostrum) is highly nutritious and has antibodies that protect the newborn from diseases. Late initiation of breastfeeding not only deprives the child of valuable colostrum, but also becomes a reason for introduction of prelacteal feeds (that is, something other than breast milk) that are potentially harmful and contribute to diarrhea in the newborn. Only 11 percent of women in Punjab started breastfeeding within one hour of birth, as is recommended, compared to almost 32percent in the rest of the country. Analogously, more than 55percent of new mothers only start breastfeeding their babies after a day of birth, while only 35percent of mothers do this in the rest of the country (Figure 4).

**Figure 4: When Do Punjabi Mothers Begin Breastfeeding**  
(percent of children with recommended polio vaccines)



Source: NFHS

**In Punjab, baby girls are significantly less likely to be breastfed than baby boys.** Punjabi babies are less likely to be breastfed in general: around 7 percent of babies in Punjab are not breastfed at all, versus a bit more than 5 percent in the rest of India. Baby girls are particularly disadvantaged in Punjab. Even though baby boys are not significantly more likely to be breastfed than baby girls in India, baby girls in Punjab are 2.3 percentage points less likely to be breastfed than baby boys. In other words, in Punjab, 6 percent of baby boys are never breastfed, whereas this is the case for 8.4 percent of baby girls.

**Boys are breastfed for longer than girls, especially in Punjab.** For other states in India, boys are on average breastfed for roughly half a month longer than girls. But this difference across genders is of almost two months in Punjab (Figure 5).

**Sikh mothers breastfeed their babies for significantly shorter periods than women from other religions.** Whereas Sikh mothers breastfeed their babies for less than a year, mothers from other religions breastfeed for more than two months longer. Within Punjab, this difference is still significant, but somewhat smaller: Sikh mothers in Punjab breastfeed their babies for almost a month less than mothers from other religions.

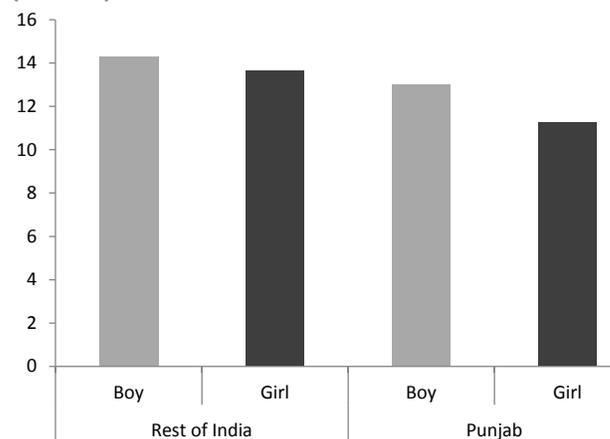
**Scheduled caste mothers breastfeed their babies for a significantly longer period of time.** The average breastfeeding duration for scheduled-caste women is half a month longer than women from other castes. However, this difference is not statistically significant for mothers within Punjab.

## 1.2. Infant Mortality

**The infant mortality rate (IMR) in Punjab has decreased over time and is below the Indian average.** The IMR has decreased from 52 in 2001, to 28 in 2012 (Figure 6). However, the rate remains high, especially compared to other wealthy states.

Punjab's under-five mortality (U5MR) is lower across both genders and area of residence than the rest of India. However, the gap between Punjab's U5MR for females and males is larger in rural areas than the rest of India. In India, the U5MR gap for

**Figure 5: Breastfeeding Duration (months)**



Source: NFHS

### Main Findings

The section has found evidence that the health status of Punjabi girls is significantly worse than that of Punjabi boys.

The differential begins with the sex-ratio, which is much-lower than the Indian average. Compared to the rest of the country, Punjab has 73 fewer girls per 1000 boys.

Punjabi girls who are born later in a family also have worse health outcomes than first or even second born-girls. An example is that third-born girls are around 0.7 standard deviations shorter for their age than second born girls.

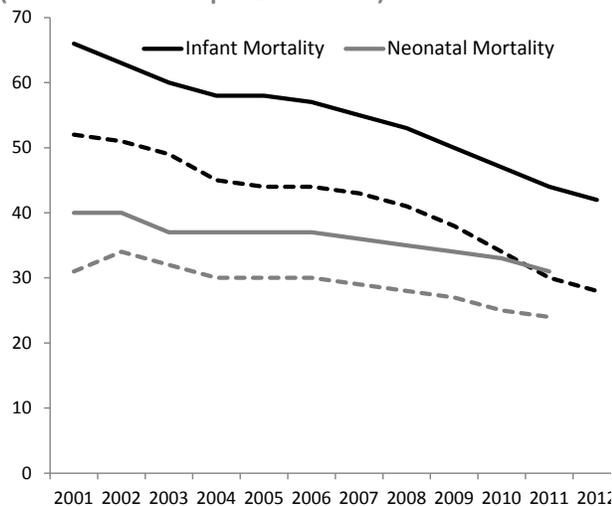
Punjabi girls are also less likely to be breastfed than boys, and those that are, are breastfed for a shorter period of time.

boys and girls is around 10 per 1000 children, whereas for Punjab it is slightly higher at 13 per 1000 (Figure 7).

To understand the determinants of IMR in more detail, we undertake statistical analysis using the NFHS survey.

**An educated mother decreases the probability of child death, more so in Punjab than in the rest of India.** In this sense, education plays a protective role

**Figure 6: Infant mortality**  
(number of deaths per 1000 births)



Source: Ministry of Health Punjab

Solid Lines are Indian averages, dashed lines are Punjab averages.

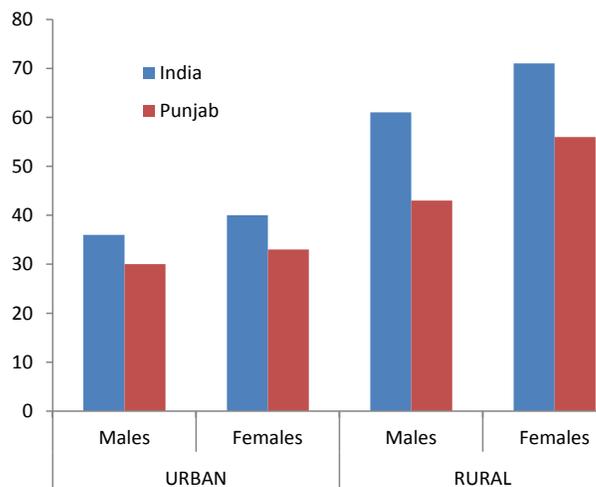
against child mortality. Educated mothers are more likely to provide good nutrition and care, to seek medical attention when the child is ill among other practices that improve children’s health and chances of survival.<sup>8</sup> For children 0 to 5 years of age, having a mother that completed primary school decreases the probability of death by 4.3 percentage points compared with mothers with no education. Having a mother that completed secondary school reduces the probability of dying even further, by 4.8 percentage points compared to a mother with no education.

**More income is not associated with a statistically significant reduction in child mortality in Punjab, but it is for India as a whole.** More analysis may be needed to explore why this difference exists. The coefficients on wealth for Punjab and India have the same direction, though: a negative coefficient that indicates a reduction in child mortality. While the relationship has the same direction for Punjab and India, Punjab’s higher average income probably attenuates the effect of income on child mortality in Punjab.<sup>9</sup>

### 1.2.1. Neonatal Mortality

The IHDS dataset has indicator is for whether the household ever had a child who was born but later died (only survived few hours or days). This is a

**Figure 7: Under-five mortality across gender and area of residence**  
(number of deaths per 1000 children)



Source: Indian Census 2011

measure of the neonatal mortality rate (NNM), which differs in the length of time considered compared to the infant mortality rate (a death within the first year of life). This measure can be of particular importance for health officials because it can be more associated with medical care (which health authorities control) than infant mortality, which can be more associated with household characteristics.

In this regard, our analysis found that safe water and safe sanitation lowered NNM by 1.7 and 3.4 percentage points respectively. Other public health measures such as antenatal care are also associated with a reduction in infant mortality of 3.4 percentage points.

One way to proxy for the quality of available health services is patient waiting time. Our analysis showed that longer waiting times are associated with increased NNM. However, because we have used a proxy, caution is needed in interpreting this as the effect of quality on NNM.

Household characteristic that reduce NNM include higher education attainment by the mother and the age of household head. However, larger household sizes were associated with increased rates of NNM.

Interestingly, being from a low caste Sikh household is associated with a 17.5 percentage point increase in NNM compared to higher caste Sikh households.

As noted previously, Punjab has a much lower rate of both IMR and NNM. Using our analysis to examine the drivers of this difference we find that a large proportion is not explained by the variables available in our survey (Figure 8). When we separately analyze NNM for only boys, the dummy for Punjab is significant and associated with a large reduction in mortality (3.5 percentage points lower compared to the rest of India). This indicates that there are other channels (other than the variables we are controlling for) through which characteristics specific to Punjab affect boy mortality in particular.

### Main Findings

Punjab has continued to reduce its rate of IMR and NNM over the last decade. However, its rate of preventable deaths still remains too high, especially relative to other wealthier states. The high rate of urban IMR for girls compared to the rest of India is an area worth further investigation.

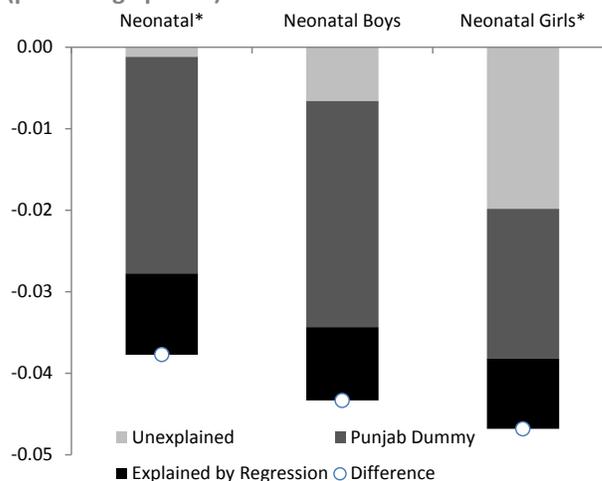
The analysis presented here has shown that focusing on promotion and preventive care does play a crucial role in reducing infant mortality. Safe water and sanitation are particularly important.

### 1.3. Child Morbidity

The health status of children in Punjab has gradually increased over time and, in most respects, is better than the Indian average. However, while in aggregate children are healthier in Punjab; there are several categories of health in which Punjabi children perform no better, or worse than, the rest of India.

In this section, we outline two categories of health status where this is the case: prevalence of cough and severe anemia.

**Figure 8: Differences in Punjab and Indian NNM (percentage points)**



Source: NFHS

\*Punjab dummy not statistically significant

Further study is also required into the relationship between IMR and the quality of available health services. The proxy variable used in the analysis (waiting times) showed a significant relationship with IMR. More information is needed to better establish the link between actual quality of health facilities and IMR in Punjab.

The much higher probability of NNM in low-caste Sikh households (17.5 percentage points higher compared to higher-caste Sikh households) is an area that also warrants further investigation.

#### 1.3.1. Prevalence of Cough

Statistical analysis is used to determine whether these differentials can be explained by standard determinants, or whether there is something unique about Punjab that requires further investigation.

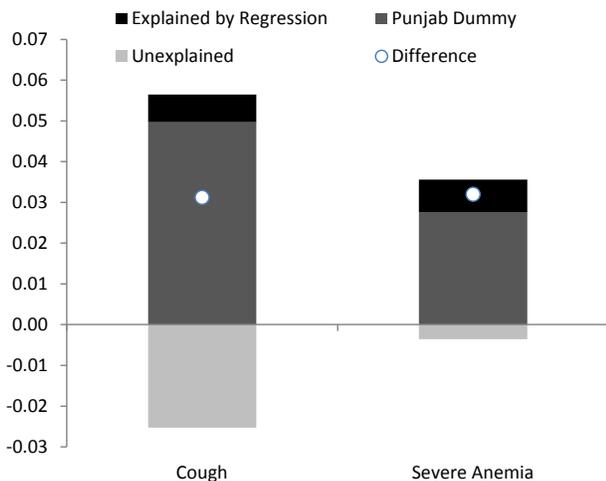
**The prevalence of coughs among Punjabi children is much higher than the Indian average.** Around 21 percent of Punjabi children were reported as

suffering from a cough in the previous two weeks, compared to 18 percent in the rest of India. The differential is even higher when we compare rural children in the two groups.

**The prevalence is highest among the other backward classes.** In Punjab, the OBC report coughs in a quarter of children, and among 28 percent of boys. This compares to 17 percent in both groups in the rest of India. Unlike with stunting and vaccination figures, there is no trend for later born children to have worse outcomes. If anything, there is a slight tendency for those children to report lower rates of cough.

**Controlling for other factors, there is a significantly higher rate of cough in Punjab.** Children in Punjab have around a 5 percentage point higher incidence of cough than the rest of India. If we restrict our attention to rural areas, Punjabi children have a 5 percentage point higher prevalence of cough than other Indian children. In our analysis, Punjab specific characteristics would indicate that, controlling for other factors, this gap should be as large as 12 percentage points.

**Figure 9: Differences in Punjab and Indian Morbidity (percentage points)**



Source: NFHS

**The analysis highlights that most of the observed difference between Punjab and India is driven by Punjab specific characteristics.** Given the availability of our data, it is likely that there are

determinants that have been omitted that may well explain the difference (Figure 9).

**One missing determinant may be the prevalence of fires in the Punjab.** Satellite data that tracks fires around the world shows a very strong concentration of fires in Punjab and very few in other States (Figure 24). To grow wheat and vegetables in Punjab’s second growing season (around November), the fields must first be cleared from the previous growing season.<sup>10</sup> This is most often done by setting fires and burning the fields. There is evidence that higher exposure to the resulting smoke is very harmful for children with, among others things, the rate of cough increasing.<sup>11</sup> Given that fires are only prevalent in Punjab, it is possible that this is the factor that the Punjab Dummy is accounting for in the analysis.

### 1.3.2. Severe Anemia

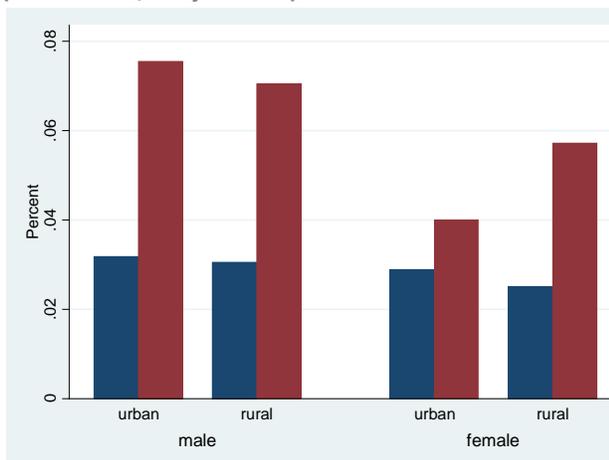
**The rate of severe anemia is much stronger in Punjabi children, especially boys.** The rate of severe anemia is 6.4 percent in Punjab, over twice the prevalence in the broader population. The incidence is particular high in males, especially in urban areas (7.5 percent). This is one of the few health indicators where males perform worse than females across subgroups in both Punjab and India more generally (Figure 10).

**Punjab’s higher rates of anemia are not a new phenomenon.** In the previous round of the NFHS survey in 1998-99 Punjab’s rate of severe anemia was 5.9 percent, higher than the Indian average. The rate of moderate anemia was 56.7 percent, much higher than the Indian average of 45.9 percent.

**Anemia is very high among the scheduled castes and OBC in Punjab.** Males from the OBC in Punjab suffer rates of anemia of 10.4 percent, over three times the rate amongst OBC in the rest of India. As birth order increases, there is a tendency for the rate of severe anemia to decline marginally.

**The analysis indicates the following variables are significantly correlated with a higher prevalence of severe anemia:**

**Figure 10: Severe Anemia among girls and boys (%)**  
(India = blue, Punjab = red)



Source: NFHS

- Controlling for other factors, girls have a 1.5 percentage point lower prevalence than boys.
- Members of scheduled tribes, castes and OBC have a higher prevalence compared to other Indians. The size of the effect ranges from 0.6 to a 1.0 percentage point increase in severe anemia rates, controlling for other factors.
- Households that treat their water have a 0.4 percentage point lower incidence of severe anemia.
- After controlling for other indicators, wealth is not statistically significant.
- Children whose mother suffered from severe anemia are 1.1 percentage points more likely to also suffer from severe anemia.
- Children who are breastfed for longer periods have lower rates of severe anemia. Anemia prevalence starts reducing after 9 months of breastfeeding.

**The importance of breastfeeding to reduce anemia rates is particularly important for Punjab, where rates of breastfeeding are lower than the rest of India.** The average duration of breastfeeding in India is 10.3 months compared to only 9.7 months in Punjab. If Punjabi women breastfed for the same period as Indian women, severe anemia rates would be lower by around 1.9 percentage points.

**There is a significantly higher prevalence of severe anemia in Punjab.** Even after controlling for other factors, the prevalence of severe anemia in Punjab is almost 3 percentage points higher than other States. Differences in household characteristics account for very little of the higher rate of anemia in Punjab (

Figure 9). Given this finding, this is an area of child morbidity that authorities should investigate further.

### Main Findings

The analysis has shown that for several indicators, outcomes are worse in Punjab, even when controlling for standard covariates. Health Ministry authorities should collect more detailed information on these particular health issues to understand the drivers of their prevalence in Punjab.

Further studies should be carried out into the link between the prevalence of fires in Punjab and childhood respiratory illnesses. Authorities should monitor the air quality in Punjab during periods when agricultural fires are more frequent and see if this coincides with an increase in coughs in Punjabi children.

The high rate of severe anemia is a particularly concerning problem in Punjab. However, caution is always warranted when conducting large-scale surveys such as the NFHS when it involves collecting and testing blood samples. However, the high prevalence is consistent with the higher prevalence of anemia among children in Punjab as evidenced in the NFHS-2 survey in the late 1990s. Further investigations should be undertaken by the Health Ministry to check whether the prevalence of anemia is as high as suggested by the NFHS study. Given our findings that severe anemia is higher in Punjab, even when controlling for other factors, authorities should investigate what factors may be causing this in Punjabi children.

#### 1.4. Health Issues of Punjabi Women

**Punjabi women fare better than the average Indian woman in most health outcomes.** The prevalence of anemia, tuberculosis, asthma, and goiter is significantly smaller among women in Punjab than the Indian average (Table 1). However, the prevalence of diabetes in Punjab is not significantly different than the national average. A potential explanation for this finding is that while almost all the conditions under study would show a strong income gradient; diabetes is a chronic condition, so the income gradient is not significant. Given Punjab's higher income, it is perhaps not surprising that the incidence of diabetes in Punjab is not lower than the Indian average (Figure 11).

**Disease prevalence varies across different castes.** For example, compared to people not associated with a scheduled caste or tribe or other backward classes, individuals from scheduled castes enjoy lower prevalence of goiters, whereas people from other backward classes suffer from relatively less asthma and diabetes.

**If women state a problematic distance to a health facility, there are statistically significant higher rates of anemia and asthma, but show no increased risk of tuberculosis, diabetes, or goiter.** This could mean that being far from a health facility is relatively more problematic when a woman suffers from asthma and anemia than from other conditions.

**Table 1: Prevalence of selected conditions in Punjab, Kerala, and rest of India (percent)**

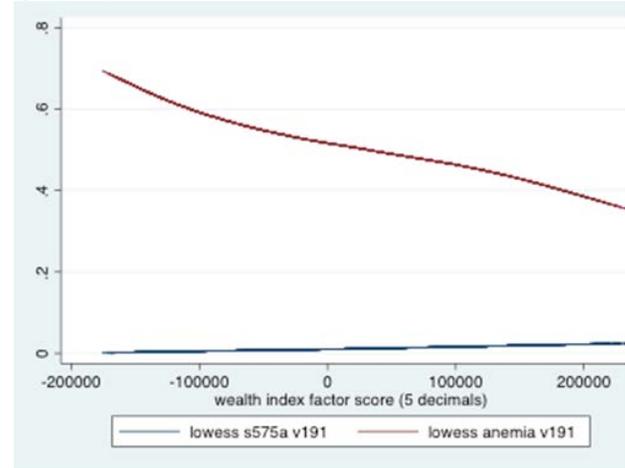
	India	Punjab	Kerala
Anemia	55.3	38	32.8
TB	0.4	0.06	0.3
Asthma	1.7	0.95	4.1
Diabetes*	0.89	0.85	2.6
Goiter	0.96	0.6	5.8

Source: NFHS

\* Diabetes figures for India and Punjab are not statistically significantly different than each other

**Some diseases are less prevalent among more educated and wealthier women.** Statistical analysis shows that the prevalence of some of the diseases

**Figure 11: Incidence of Anemia and Diabetes across wealth (percent)**



Source: NFHS

under consideration (diabetes and anemia) decreases significantly with an individual's wealth and educational level. Interestingly, living in rural or urban areas is not associated with significant differences in these conditions. Punjabi women are significantly richer by almost three quarters of a quintile and more educated than the Indian average with 0.6 additional years of education.

**Punjab does better than the rest of country in overall disease prevalence, except for diabetes.** Therefore, we would expect women from Punjab to suffer from less diabetes and anemia than other less wealthy and less educated states. Even though Punjab has lower rates of anemia than the rest of the country, the rate of diabetes is not significantly different from the national average. For its level of wealth and education, one would expect Punjab to have much lower rates of diabetes.

**Punjabi women report lower rates of TB, diabetes and asthma than Punjabi men.** While we have seen that for some indicators, Punjabi girls perform worse than Punjabi boys, there does not seem to be continued differences at later stages of life for the indicators we have data for (Table 2).

**Punjabi women perform as favorably as Punjabi men when compared to the Indian average for their gender.** Regardless of gender, people in

**Table 2: Prevalence of selected conditions in Punjab, for men and women (percent)**

	MEN		WOMEN	
	India	Punjab	India	Punjab
Anemia	0.247	0.137	0.553	0.380
TB	0.007	0.004	0.004	0.001
Asthma	0.018	0.011	0.017	0.009
Diabetes	0.014	0.014	0.009	0.009
Goiter	0.004	0.002	0.010	0.006

Source: NFHS

Punjab have a 0.4 percentage point lower prevalence of TB, 0.7 percentage point lower prevalence of asthma, and between 0.2 and 0.3 percentage point lower goiter prevalence than their Indian counterparts.

**Punjabi women also perform better than Indian women on maternal mortality figures.** The rate of maternal mortality per 1000 live births was 1.72 in 2007-09 compared to the Indian average of 2.12. However, while the rate remains lower in Punjab, it has not improved since 2001-03. In that period of time, the Indian average has fallen from 3.01 to 2.12. This could be because it is harder to reduce the rate once it falls to a certain level, or it could indicate some problems in maternal health in Punjab (Table 3).

**Table 3: Maternal Mortality Rates (per 1000 live births)**

	Punjab	India
2001-03	1.78	3.01
2004-06	1.92	2.54
2007-09	1.72	2.12

Source: Ministry of Health Punjab

### 1.4.1. Health Determinants

**Taking other factors into consideration, Punjabi women suffer less from anemia and goiter.** Since women of Punjab are wealthier and more educated, their health status should be analyzed when income and educational attainment are controlled for. Regression analysis shows that Punjabi women suffer from less anemia and goiter than the average woman in India, controlling for education, wealth, water and sanitation, access to public health services, and residency status. Punjabi women,

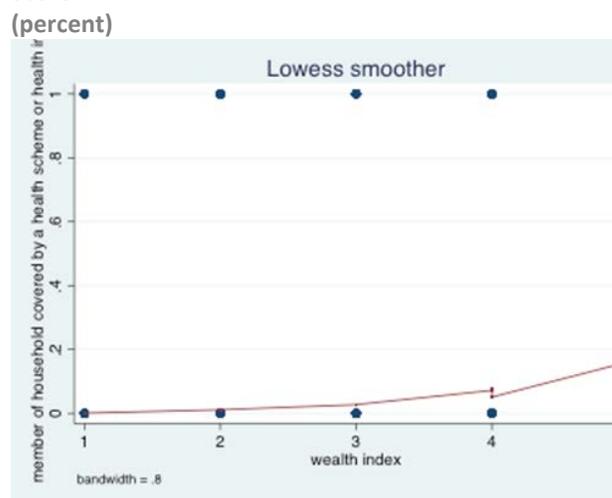
however, seem to have similar rates of diabetes and asthma as all of India. The way wealth, education, water and sanitation, access to public health, and residency status jointly affect health outcomes is not significantly different in Punjab than in the country as a whole.

**In general, having higher education and wealth, reduces the prediction that a woman has anemia or tuberculosis.** However, more educated women seem to report a higher rate of goiter.

**If women state a problematic distance to a health facility, they have higher rates of asthma, but show no increased risk of anemia, tuberculosis, diabetes, or goiter.** This could mean that being far from a health facility is relatively more problematic when a woman suffers from asthma than from other conditions.

**Women with higher rates of health insurance coverage report lower rates of anemia but higher rates of asthma.** Women that are covered by a health scheme and/or insurance may use more screening and diagnosis practices compared to those who are not covered. However, the relationship between being insured and income is non-linear, which could explain part of the relationship between health insurance and prevalence of disease: it could be that it's not that insured people suffer less from anemia and TB, but that they are richer (Figure 12).

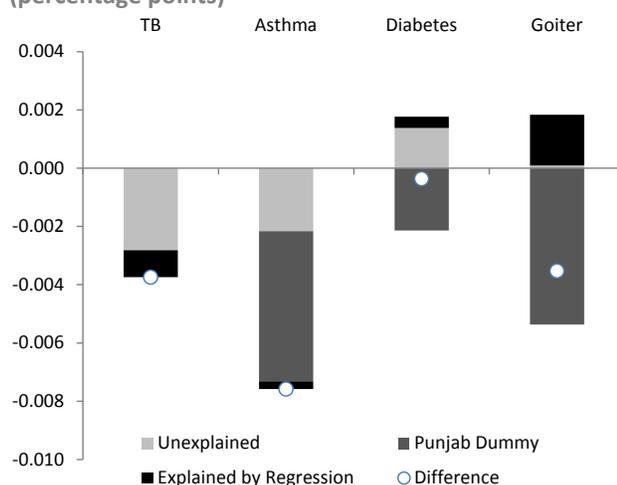
**Figure 12: Prevalence of Insurance against Wealth Score**



Source: NFHS

**Overall, Punjab manages to do better than expected in health outcomes for women.** Analysis suggests that given its observed characteristics, Punjab should do worse than the Indian average for asthma, diabetes, and goiter; but better for anemia. However, Punjab does better than the country's average in all covered health outcomes. In other words, there is something in Punjab that improves the health profile of the state that is not being captured by the observable characteristics studied in this paper (Figure 13).

**Figure 13: Explained and Unexplained Components of Female Morbidity (percentage points)**



Source: NFHS

### 1.4.2. Age at First Birth

As female education and urbanization increases, there is decreased need for women to have large numbers of children and to start having children at an early age (Figure 14). Ample studies report a relationship between teen childbearing and economic determinants, suggesting a young age of first birth contributes to substantial, long-term socioeconomic disadvantage for both mother and child.<sup>12</sup> Consequentially, many social issues are exacerbated by a population having a low age of first birth and can benefit as age of first birth rises. Women in Punjab start having children at an older age than the Indian average. The mean age at which women have their first child is 20.7 years in Punjab, significantly higher than the Indian average of 19.2

years. However, women from Kerala start having children at an even older age, 21.7 years.

**Regression analysis shows that age at first birth increases with education level and wealth; and that women living in rural settings have their first child at a significantly younger age.** Age at first birth increases by 0.32 years with every additional year of school for all India, and increasing by one wealth quintile is associated with an increase in age at first birth of 0.82 years. Since Punjab is a relatively wealthy and well-educated state, we would expect Punjabi women to delay their childbearing age compared to the national average. On the other hand, Punjab is a more rural state, so this would lead us to expect that Punjabi women start having children at a younger age.

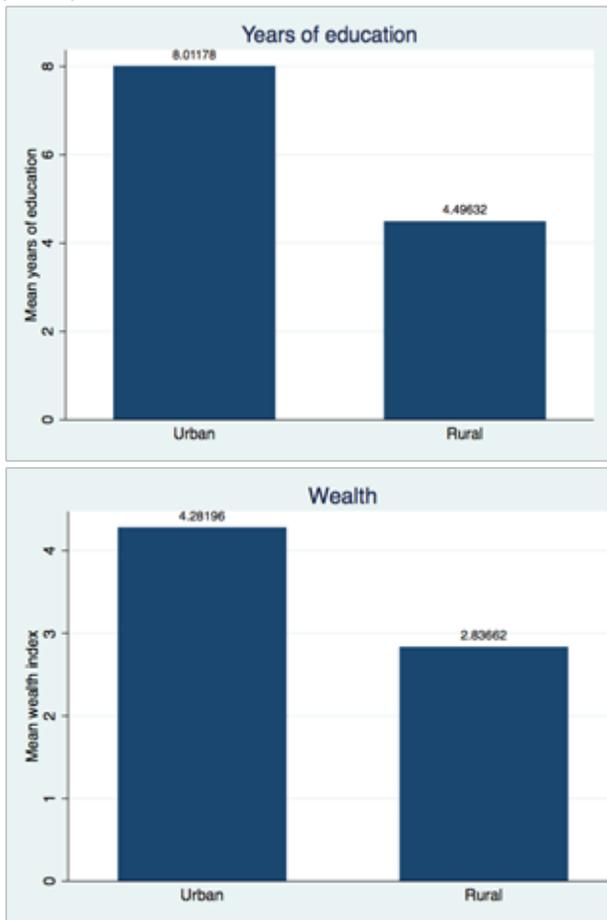
Women in rural areas have a much lower age of first birth than urban women (1.17 years younger). However, in Punjab, the effect is a much smaller 0.5 years.

**Taking other factors into consideration, Punjabi women delay their decision to start having children, compared to the rest of India.** Controlling for education, wealth, water and sanitation, access to public health services, and residency status, Punjabi women report a higher age at first birth than the rest of the country, almost 0.6 years of difference with the rest of the country.

**Education is the single most important factor behind age at first birth in Punjab.** In Punjab, age at first birth increases significantly with education but income is not significantly associated with age at first birth. Education is the only factor that is significantly associated with higher age at first birth in Punjab.

**Punjab does better than expected in age at first birth.** Analysis suggests that given its observed characteristics, Punjab should have a higher age at first birth than the Indian average. Moreover, Punjab does better than predicted by observable characteristics. In other words, there is something in Punjab that increases the age at which women start having babies that is not being captured by the observable characteristics studied in this paper (Figure 15).

**Figure 14: Determinants of age at first birth and residency status (mean)**



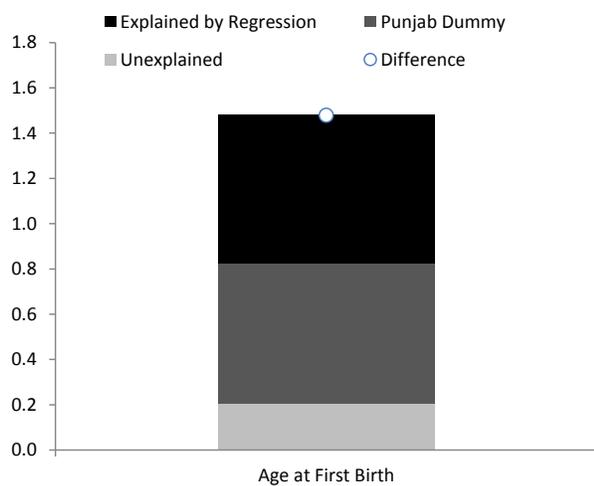
Source: NFHS

### Main Findings

This section showed that the health status of Punjabi women, while still poor by many standards, outperforms the Indian average. While Punjabi girls face discrimination from birth into their youth, it appears, at least for the data presented here, that this discrimination does not persist throughout the rest of their lives.

To continue to reduce rates of morbidity for Punjabi women, this section outlined the importance of education and the impact of improving education for women can have on health outcomes for both women and children. However, further analysis is needed to ascertain exactly where the funding would come from for increased education. While undoubtedly a good thing, if the extra funding for education is diverted from other health programs then the net effect on health status in Punjab is unclear.

**Figure 15: Explained and unexplained Age at First Birth (mean)**



Source: NFHS

## II. THE DEMAND AND SUPPLY OF HEALTH CARE SERVICES IN PUNJAB

### 2.1. Supply of public health care delivery

In Punjab, private providers dominate the delivery of primary and secondary health delivery. The role of public facilities in health care in Punjab is important, but limited due to the fact that private providers are more numerous, closer and more frequently available than public providers.

#### *The Political Economy of Health Care in Punjab*

Punjab signed a MOU with the Government of India on June 15 2006, for implementation of the National Rural Health Mission (NRHM). The main aim of the NRHM is to fill critical gaps in the delivery of rural healthcare services. This includes increasing the provision of civil infrastructure, equipment, and manpower. The NRHM also aims to improve the Implementation of Family Welfare, Mother and Child Healthcare Programs as well as selected Disease Control Programs in an integrated manner.

The introduction of the NRHM shifted the priorities of public health services from investing in infrastructure to investing in basic health services. Currently, the broad areas of investment under the NRHM Flexipool budget focus on strengthening existing facilities and programs instead of creating

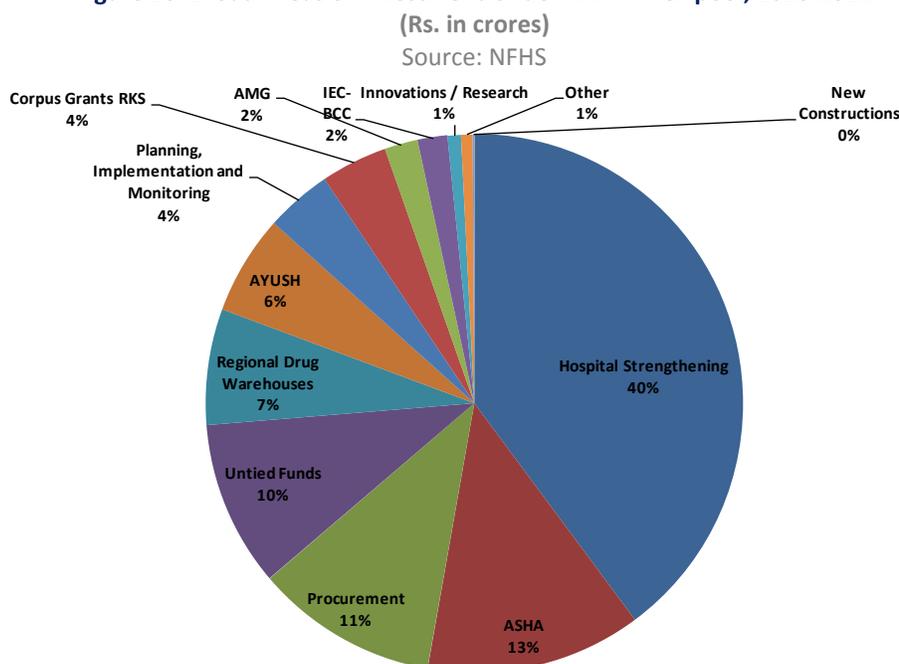
new ones. Spending on new construction was a tiny portion of the budget in Punjab (Figure 16).

The authorized 2013 NRHM budget includes a considerable fraction of untied funds for discretionary use. According to interviews with officials, parts of these funds have been used to promote public-private partnerships and to boost the participation of NGOs to increase take-up of public services.

**This raises the concern that funds provided to Punjab under the NRHM substituted instead of supplemented state health expenditures.** Since the implementation of NHRM there has been an increase of almost 6 percent in the share of public health spending by centrally sponsored schemes, compared to a 6 percent decrease in state sponsored schemes.

**Expenditure on health and family welfare for Punjab has increased at a lower speed than GSDP for most of the past twenty years.** Currently, spending is less than one percent of state output, lower than the normative ratio of 3 percent.<sup>13</sup>

**Figure 16: Broad Areas of Investment Under NRHM Flexipool, 2010-2011**



Punjab's public health expenditure as a share of GSDP during 2012 was only 0.56 percent compared to the India average of 1.2 percent. It appears that the implementation of the NRHM in Punjab has not contributed to an increase in the share of spending on health in Punjab (Table 4).

**Table 4: Real Expenditure Health & Family Welfare (Rs)**

	08-09	09-10	10-2011	11-12
	2001	2010	2001	2011
Central	158	211	278	305
State	735	837	1039	1248
% GSDP	0.51	0.51	0.54	0.56
Total (Rs)	893	1048	1317	1553

Source: Ministry of Health and Family Welfare of Punjab, 2013

A major reason identified by officials for the low rate of spending was that funds flow within districts on a per facility normative basis instead of being responsive to utilization patterns. This leads to scarcity in some facilities and stagnant funds in others. An example of the problem this creates is that more pregnant women go to public health facilities, but the delivery load is unevenly distributed across facilities. Some facilities receive a higher load of work but do not receive a higher share of funding.

### Health Infrastructure

During last three decades there has been a slow increase in the number of medical institutions as well as beds in Punjab. However, this increase has been insufficient for the population growth rate of the State.<sup>14</sup> During the period 1982-2008 the population served per bed increased from 817 to 1078 while the population served per institution increased from 8,997 to 12,335.

### District Distribution of Facilities

There is a big gap concerning the allocation of health institutions between districts within Punjab. The majority of health institutions (54.52 percent) are placed in seven districts (Ludhiana, Gurdaspur, Jalandhar, Amritsar, Hoshiarpur, Firozpur and Patiala), while the newly created districts are lagging behind in the distribution of health institutions.

- **Population served per institution** is highest in Ludhiana (16247) followed by Faridkot (15232) and Amritsar (14932) and Firozpur (13425), while it was lowest in SBS Nagar (8148) followed by Barnala (10164), Hoshiarpur (10277) and Kapurthala (10306).
- **Population served per bed** is lowest in Amritsar (688) followed by Faridkot (792) and Patiala (809), while it was highest in SAS Nagar (1775) followed by Sangrur (1605) and Muktsar (1548).
- **Average radius served per institution** range from 2.111 km in Jalandhar to 3.365 km in Firozpur.

Regarding the availability of health institutions and beds available within those institutions, Ludhiana, Jalandhar, Patiala, Gurdaspur, Amritsar have been given higher priority, whereas Kapurthala, Rupnagar and the newly created districts Barnala, Fatehgarh Sahib, Mansa, Moga, Muktsar, SAS Nagar, SBS Nagar, TarnTaran lag far behind the other districts in health infrastructure.<sup>15</sup>

### Private Health Care Providers

India ranks lowly in terms of financial protection for household health expenditure. More than 70 percent of health financing is through out of pocket payments by households when they use health services.<sup>16</sup> In Punjab the situation is even worse than the national average.

Private medical care is the chief health service provider in Punjab and covers 90 percent cases of non-hospitalized care and over two-thirds of the cases of hospitalized care. There is very little information available on private medical services, especially the quality of care provided there compared to the public sector. However, what is clear is that despite high costs, even very poor consumers are turning to private health service providers. Given they have the option of free public health facilities; this implies either that households in Punjab have the resources to use more private facilities than the rest of India, or they lack faith in the quality of the public health care system.<sup>17</sup>

### 2.1.1. Absenteeism and Vacancies in Punjabi Public Health Facilities

The high rate of vacancies and absenteeism at public health facilities makes it difficult to improve health status through publicly provided health care. Patients commonly complain that when they attend a public clinic it is not open or is understaffed. Without addressing the personnel side of public health, it will be very difficult to improve public health through spending on physical infrastructure.

This section outlines results from research undertaken for the World Bank’s World Development Report (WDR 2004). The study involved surprise visits to primary health clinics in India to measure provider attendance and vacancy rates.

Punjab has very high rates of vacancies and staff absences, especially considering its high income relative to other States. Examining the rate of vacant doctor positions in PHCs by state, Punjab has a rate of around 20 percent. While this is lower than States such as Uttar Pradesh (30 percent), Punjab’s rate is much higher than other richer States such as Gujarat (around 5 percent).

Examining absenteeism rates by State, there is a general (albeit weak) negative relationship between the State’s per capita income and its rate of absenteeism. However, as can be seen in Table 5, Punjab has a relatively high rate of absenteeism by health workers.<sup>18</sup>

**Table 5: Absence rates for health workers by state (percent)**

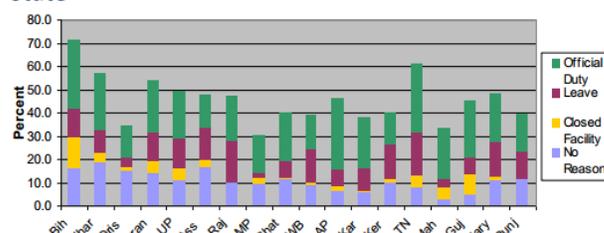
	MOICs	Doctors	Nurses
Bihar	63.5	71.2	60.3
Assam	48.2	47.6	51.5
Kerala	36.0	40.2	48.6
<b>Punjab</b>	<b>49.7</b>	<b>39.4</b>	<b>45.9</b>

Source: Chaudury et al. (2008)

When we examine each State’s absentee rate, restricted to only two categories of absence, there is a clearer negative relationship between income and absenteeism. However, Punjab has a very high rate of unexplained absences, with almost 15 percent of absences without a reason (Figure 17).

This is around the same rate of unexplained absences as much poorer states such as Bihar.

**Figure 17: Reasons of Absence amongst Doctors by State**



Source: Chaudury et al. (2008)

The study into absenteeism finds that the predominant explanation for whether a public health worker is in attendance is whether they live close to the facility or not. This finding has some important policy implications. While an area of Punjab may lack cheap and free health facilities, devoting more scarce resources to building public facilities may have little health benefit if they are more likely to be vacant and/or understaffed.

### 2.1.2. Potential Implications

It is difficult to make concrete policy recommendations in this area without more data to properly understand the functioning of public health in Punjab. It is possible that public provision is influencing health outcomes in the State, however, without further information, it is impossible to tell.

To get a better gauge of the impact public health provision is having in Punjab; officials should prioritize measuring quality of care in public facilities. The study on absenteeism shed light on the possible poor care that people are receiving (or not receiving) in the Punjab public health sector.

This also highlights that authorities need to understand how the public and private sectors are linked. Private provision of health care is quite prevalent in Punjab. Increasing the supply of public care may simply push out private care at no benefit (or possible reduction) in health care quality in Punjab.

Given the challenges in the public provision of health care, one potential avenue is for Punjab to

separately address primary care from catastrophic illness care. Private insurance to cover catastrophic illness is one area where the public sector has an important role to play (see section 3 on the implementation of the RSBY scheme in Punjab).

## 2.2. The Demand for Health Care in Punjab

Following our analysis of the supply of healthcare in Punjab, this section considers the demand for healthcare services, including when people do and do not seek care, and if they do pursue care, what factors are relevant for their decisions about where to go.

For this section, we mostly rely on data from the 2005 Indian Human Development Survey (IHDS). We distinguish between no care, and three care options: pharmacy self-care, public healthcare, and private healthcare. We also consider two illness cases: short-term illness, which includes fever, cough/cold, diarrhea, and other common symptoms; and long-term illness, which requires a diagnosis from a clinician, and includes conditions such as tuberculosis, diabetes, cataracts, high blood pressure, heart disease, leprosy, cancer, polio, epilepsy, mental illness, paralysis, and sexually transmitted diseases or HIV/AIDS.

### 2.2.1. When Do People Seek Care?

Individuals in Punjab are not significantly more or less likely to be sick than individuals in the rest of India, but they are more likely to seek care. On average, only 1 percent of individuals will seek no care for short-term illnesses, compared to 6 percent in the rest of India. On average, only 2 percent of individuals will seek no care for long-term illnesses, compared to 9 percent in the rest of India. Although individuals from rural areas in the rest of India are less likely to seek care than individuals from urban areas for long-term treatment, the rural/urban distinction is not significant in Punjab (Figure 18). Moreover, individuals in rural areas are more likely to seek care in Punjab than those from either rural or urban areas in the rest of India.

### 2.2.2. Who Seeks Care?

**Individual characteristics:** On average, women are more likely to report slightly higher illness rates than men, both in Punjab and India. However, they are less likely to seek treatment than men in both Punjab and the rest of India. Women in Punjab seem less likely than women in the rest of India to receive treatment, controlling for other individual characteristics including age and religion/caste, at 95 percent confidence level.

While in the rest of India young children (aged 4 or younger) are significantly more likely to receive treatment than other ages, the same is not true in Punjab. In general, controlling for age did not appear significant. Caste and religion did not seem to have a significant impact on who seeks care in Punjab, or in the rest of India.

#### Household Characteristics

Household income significantly positively correlates with likelihood to seek treatment in the rest of India. In Punjab, the relationship appeared significant as well, though the overall model was not significant.

#### Illness Characteristics

More severe symptoms, specifically limited mobility and fever, are positively correlated with individuals seeking treatment in the rest of India. In Punjab, the same relationship appeared significant as well, though the overall model was not significant.

#### Village Characteristics

Proximity to healthcare facilities did not significantly predict whether individuals would seek care in Punjab or the rest of India, whether the facilities are primary health centers, community health centers, or sub-centers.

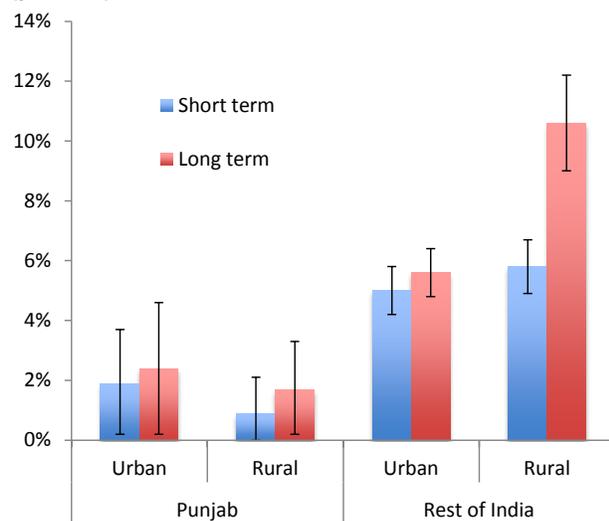
**Table 6: Where do you go when sick? Comparative snapshot from five surveys**

Survey/Type of Respondent	Question	Source of Care (%)		
		No treatment	Government	Private
Ill patients				
NSS 1995	Whether any treatment received from non-government sources (for illness reported in the last 15 days)	2	8	90
NSS 2005	Whether any treatment received from non-government sources (for illness reported in the last 15 days)	6	18	76
IHDS (2004-5)	If sought care in last 30 days, where did you go?	--	8	92
Women respondents		No	Government (% answered "yes")	Private (% answered "yes")
NFHS-2 (1998-99) Women's Questionnaire	Have you visited a health facility for yourself or your children <u>in the last 12 months?</u>	19	24	76
NFHS-3 (2005-6) Women's Questionnaire	<u>In the last 3 months</u> , have you visited a health facility for any reason for yourself or your children?	63	30	70
All respondents, hypothetical		Home treatment	Government	Private
NFHS-2 (1998-99) Household Questionnaire	Where do household members go when sick?	0.17	14	86
NFHS-3 (2005-6) Household Questionnaire	Where do household members go when sick?	0.17	20	80

### Perceptions of medical institutions

Overall, around 64 percent of individuals have a great deal of confidence in medical institutions, both in Punjab and in the rest of India, and 27 percent have some confidence, although the survey data does not distinguish by public or private medical institutions. In the rest of India, low confidence is a significant predictor of whether or not individuals will seek medical care, even controlling for other individual, household, illness and village characteristics. In Punjab, low confidence was not a significant predictor.

**Figure 18: Proportion of people who seek treatment (percent)**



Source: NFHS

### 2.2.3. Where Do People Seek Care?

Individuals in Punjab, whether living in urban or rural areas, suffering from short or long-term illnesses, or of any income level, visit private healthcare facilities between 80 percent and 95 percent of the time. At this rate, they are more likely to visit private healthcare facilities than individuals in the rest of India, regardless of income level, illness type, or whether they live in rural or urban areas. They are also less likely to visit public healthcare facilities in almost all cases for short-term illnesses. For long-term illnesses, Punjabis may be just as likely to use public healthcare facilities as others in the rest of India.

Interestingly, the level of private sector use falls by about the same proportion that the level of public sector use rises between short-term and long-term morbidity types, implying that it would be worth investigating whether some individuals who would visit the private sector for short term illness would visit the public sector for long term illness.

When considering usage of the private sector, most often, individuals seek treatment from a licensed doctor or nurse who operates fully in the private sector. Individuals in Punjab rarely visit traditional healers for short-term illnesses (0.6 percent in urban areas, and 0.2 percent in rural areas, compared to 2.4 percent in the rest of India) and rarely visit public health practitioners who offer private services outside of their public sector practice (1-2 percent for all illnesses relative to 5-6 percent in the rest of India).

When comparing usage rates of types of healthcare in Punjab to the rest of India, the public sector treats those that would otherwise seek no treatment or self-medicate via a pharmacy rather than outcompeting the private sector.

### 2.3. Janani Suraksha Yojana (JSY)

In April 2005, the government of India launched Janani Suraksha Yojana (JSY) under the National Rural Health Mission (NRHM). JSY was enacted to improve maternal and child health in India by encouraging women to seek antenatal care, give birth in a hospital or health facility, and receive postnatal checkups. NRHM identified ten high-focus states where maternal mortality was particularly high and rates of institutional deliveries particularly low. Punjab was not one of the high-focus states due to its relative wealth and high rates of institutional deliveries.

The 2nd District Level Household and Facility Survey (DLHS-2), conducted in 2002-2004, revealed that 40 percent of births in India (and 30 percent of births in rural areas) were delivered in an institutional setting. At this time, Punjab's rate of institutional births was nearly ten percentage points higher at 49 percent.

**Table 7: Place of Delivery by District (percent)**

District	Private	Government	Home
Amritsar	15.6	3.1	11.3
Barnala	13.0	5.3	9.3
Bathinda	14.0	5.0	9.9
Faridkot	5.9	8.6	10.5
Fateghar Sahib	10.4	6.0	7.4
Firozpur	14.4	3.7	9.9
Gurdaspur	9.5	2.8	14.1
Hoshiarpur	12.3	4.7	13.9
Jalandhar	14.4	4.1	9.1
Kapurthala	17.0	3.2	11.1
Ludhiana	12.5	4.3	8.6
Mansa	12.9	3.9	11.2
Moga	11.7	5.0	10.1
Mukstar	12.1	4.4	11.4
Nawanshahr	11.2	4.5	12.6
Patiala	11.4	6.4	7.7
Rupnagar	9.4	6.4	8.5
Sangrur	12.8	7.0	8.0
SAS Nagar Mohali	7.3	12.1	6.9
Tarn Taran	12.4	3.9	11.8

Source: DLHS-3

By the next DLHS (DLHS-3) in 2007-2008, India's national rate of institutional deliveries had increased to 47 percent, nearly reaching Punjab's 2004 rate. Punjab's rate had continued to increase and was reported at 63 percent in DLHS-3, while the rate in Punjab's rural areas clocked in at a slightly lower 59.5 percent. The institutional birth rate by district ranged from 49 to 73 percent, meaning that even the districts with the lowest percentage of institutional births were still above the national average (Table 7).

JSY was implemented between DLHS-2 and DLHS-3 and likely contributed to the increase in institutional births nationwide. Because Punjab was not identified as a high-focus state, JSY was not rolled out as strongly in the state by the time the DLHS-3 survey began. This is evident from JSY participation rates as reported in DLHS-3: only 2.7 percent of women in Punjab received financial assistance from JSY, compared to a national average of 13.3 percent. Conversely, the DLHS village survey reported that 95.7 percent of villages in Punjab reported that at least one woman had participated in JSY, whereas nationally only 74 percent of villages had reported.

Punjab also boasted higher rates of antenatal care, with 83 percent of women receiving any antenatal checkup per DLHS-3, compared to 75.2 percent of women nationally.

These patterns suggest that JSY's impact on Punjab's maternal health is eclipsed by state trends and above-average demand for antenatal care and institutional deliveries. Further, recent research has found little evidence that while JSY has increased the number of institutional deliveries; it does not seem to affect maternal health outcomes – specifically maternal mortality. A paper published in *The Lancet* in 2010 reported significant effects of JSY on perinatal and neonatal deaths at the national level, although the significance disappeared at a district-level analysis.<sup>19</sup> Similarly, the researchers

did not find an association between JSY participation and maternal mortality rates. A recent study that focused on nine of the high-focus states found no association between JSY and maternal mortality rates.<sup>20</sup> Finally, a study from the Post Graduate Institute of Medical Education and Research (PGIMER) in Chandigarh found that nationwide institutional births increased 57 percent while perinatal mortality decreased by only 2.5 percent.<sup>21</sup> In Punjab specifically, institutional births increased 66.3 percent during the period of study, while perinatal mortality decreased 7.7 percent. The authors concluded that quality of care must not be discounted due to a narrow focus on increasing the share of institutional births.

### *The Role of Midwives*

A more fundamental issue underpinning the question of how the Indian government can improve maternal health outcomes is the role of midwives. Traditionally, a midwife (called a *dai*), was the most common form of birth assistance throughout India. JSY was created, in part, to address the persistently high rates of maternal mortality, which the government believed was related to mothers' preference for midwives rather than institutional deliveries. Although the introduction of JSY has been accompanied by an increase in the number of institutional deliveries, as described in the preceding section, India has not witnessed the decrease in maternal deaths that the program's designers anticipated.

The lack of improvement has raised questions about whether JSY is targeting the most effective intervention. A recent UNICEF-funded study from Columbia researchers underscored the "serious, persistent gaps in safe delivery capacity at the primary level, especially sub-centers and remote PHCs, despite efforts to decentralize care through NRHM."<sup>22</sup>

A study published in 2010 found that in 2005 only 41% of PHCs in Punjab had a functioning labor room and only 35% offered 24-hour delivery facilities.<sup>23</sup> Furthermore, the majority of births in rural Punjab are still delivered at home. Over 86% of households who opted for home delivery stated that they chose home delivery due to "traditional attitudes." Another 13% cited economic reasons for delivering at home.

Thus, any strategy to address safe deliveries must reconcile two facts. First, despite incentive payments, large numbers of rural and poor women still prefer home deliveries. Second, even if women opt for institutional deliveries, this does not necessarily lead to improved health outcomes for themselves or for their children.

Therefore, policymakers must engage in a two-pronged approach that:

- a) Professionalizes the delivery-attendant career and improves the capacity of midwives,
- b) Addresses sub-standard PHCs and a lack of trained staff.

### *JSSK*

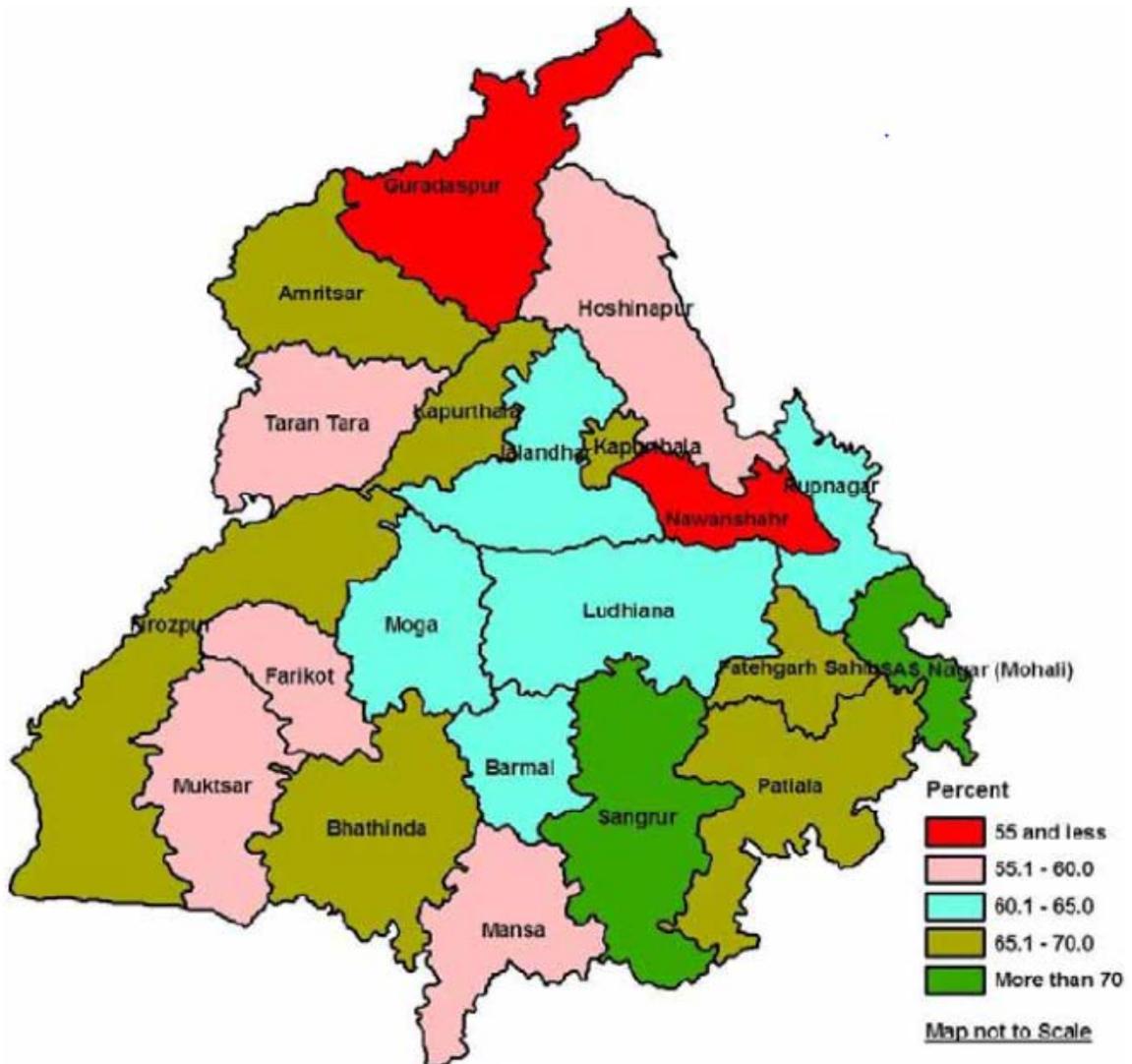
In June 2011, NRHM launched another program aimed at improving maternal health. The new program, called Janani Shishu Suraksha Karyakaram (JSSK), provides free entitlements to pregnant women, most notably free deliveries, C-sections, drugs, diagnostics, and transportation.<sup>24</sup> Because the program was so recently implemented, very little data is available to evaluate its impact. Nevertheless, we may be concerned that the same quality of care issues will arise with JSSK.

### Lessons from Other Programs

Researchers have questioned whether attaching conditions to cash transfers (such as JSY) lead to different outcomes from transfers without conditions attached. A 2010 study on a CCT in Malawi targeting girls' schooling revealed that outcomes were the same between an experimental group that received a conditional

transfer and another group that received an unconditional transfer.<sup>25</sup> The monitoring costs associated with conditional programs raise questions about overall cost-effectiveness in an under-resourced context. Finally, as the studies cited above have shown, it is critical that supply side factors are taken into account.

Figure 19: Institutional Deliveries in Punjab, 2007-2008



## III. RASHTRIYA SWASTHYA BIMA YOJNA (RSBY)

### 3.1. Program Overview

The Government of India launched Rashtriya Swasthya Bima Yojna (RSBY) in October 2007. The scheme provides households that are below poverty line (BPL) access to secondary care in public and private hospitals that have been empanelled for up to Rs. 30,000 a year for a maximum of 5 family members. It also covers travel costs up to Rs. 100 per visit with a limit of Rs. 1000 per year.

The RSBY card issued to the enrollees allows completely cashless transactions and covers all pre-existing conditions. The scheme is implemented by the Ministry of Labour and Employment at the central level with technical support from GIZ, the German development agency. Individual states opt into the program and administer it locally. Beneficiaries pay a Rs. 30 per year per family registration fee, which is used to cover part of the administrative expenses of the state nodal agencies while the premium is paid by the government (75 percent by the central government and 25 percent by the state government). By November 2013, 37.64 million families across 460 districts were enrolled in the program and 6.34 million cases of hospitalization under the scheme had been reported throughout India.<sup>26</sup>

While the impact of RSBY on health outcomes is still unclear, there are at least three evaluation studies currently underway and some preliminary data analysis that shows that the scheme improved access to secondary care for BPL families. It provides beneficiaries with the opportunity to make choices – between empanelled private and public providers in any implementing district – which empowers the poorest in the country to seek the health care provider they desire.

With this choice, beneficiaries are often choosing private providers over public ones. While only 60 percent of the empanelled hospitals in the country are private, they make up 75 percent of RSBY claims. However, in Punjab this gap is small and the claims from both public and private hospitals are almost equal. Therefore, for some months we see a higher percentage of claims from public hospitals while at

other time there are more claims from private hospitals. For instance, in September 2013, 51.5 percent of empanelled hospitals were private, while 55.4 percent of the claims came from them. But over the year 2012-2013, on average there were more claims from public hospitals. The RSBY utilization trend over time also shows an increase in the use of public hospitals, which could mean that public hospitals are responding to RSBY incentives and beginning to compete effectively with private providers.<sup>27</sup> However, we should be cautious while interpreting the increase in utilization at public hospitals, as it does not necessarily mean effective competition by public hospitals and we would need more data on pre-RSBY hospital utilization trends to conclude decisively. Nonetheless, a higher use of public hospitals could also be based on geographic proximity, a fear of being mistreated at a fancy private hospital, or a view that private hospitals are out-of-reach.

#### 3.1.1. Program Implementation & Structure in Punjab

RSBY was rolled out in Punjab starting July 2008 and covered all districts by 2010. In Punjab, it is implemented by the Punjab Health Systems Corporation (PHSC), the state nodal agency that is responsible for the administration and monitoring of the program, which is housed in the Department of Health and Family Welfare (DOHFW).

RSBY had a difficult start in Punjab because of lack of coordination between the state government and the insurance companies. The PHSC faced the challenge of preparing its team in terms of capacity to use RSBY's sophisticated technology but also in terms of creating a giant shift in the conventional thinking on welfare programs. However, the state improved its implementation quickly – through various training sessions and a different insurance provider. In fact, GIZ considers it one of the 5 best states in terms of RSBY implementation even though it has relatively low enrollment numbers.<sup>28</sup>

## 3.2. Current Landscape

The current status of RSBY implementation in Punjab has been analyzed using three sets of data: district-level empanelled hospitals and enrollment figures;<sup>29</sup> insurance claims submitted between August 2012 and September 2013 from 19 districts to Reliance General Insurance;<sup>30</sup> and call center information from January to November 2013 provided by the PHSC. Due to the limited amount of available data, it is stressed that this analysis only explains the scheme's status within the August 2012 to October 2013 timeframe.

### 3.2.1. RSBY Usage

From the 5,738 RSBY claims made in 19 districts, the following general observations were made:

- 58.14 percent of patients were female;
- average patient age was 47 years;<sup>31</sup>
- the majority of patients were spouses, with a slight plurality at 33 percent;
- patients were commonly hospitalized for either 1, 3, or 5 days (20 percent each);

#### *Where are Claims Made From*

Even though there are more empanelled private hospitals, the majority of claims came from public hospitals (55.35 percent) with figures showing strong utilization of RSBY by community health centers (CHC), the most rural public facility eligible for RSBY operations, which made 43 percent of the total claims in the sample distribution. The weakest utilization came from district hospitals, private multi-specialty, and general surgery hospitals, with each making only 5 percent, 2 percent, and 4 percent of total claims, respectively. Small, general private hospitals, however, made up 21 percent of claims, with the remainder of claims coming from sub-district, eye/dental, and nursing/maternity hospitals.

To get a better understanding of why this might be, a closer look into claim approval and rejection rates by hospital type - averaging 77.9 percent and 13 percent, respectively - were made. It was observed that low-utilizing hospitals carried higher rejection and lower approval rates than high-utilizing hospitals by over 9 percentage-points. This might highlight how there is a "learning curve" for filing claims, and low-utilizing hospitals might not be filing claims correctly in the beginning, leading to a higher rejection rate. The higher rejection rates could also discourage these types of hospitals from filing further claims.

#### *Claims by District*

When comparing RSBY utilization by district Amritsar has the largest volume of patients (more than 1150) and Moga has the second largest. Fatehgarh Sahib, Mansa, Mohali, and Muktsar have extremely low volumes with less than 50 claims each during this time period. The average patient volume per hospital is highest in Fazilka, Moga, and Pathankot (more than 50 patients per hospital) and lowest in Mansa and Muktsar (less than 5 patients per hospital). This shows that Moga has the best utilization of RSBY overall while Mansa and Muktsar have the worst.

Sixty-five percent of RSBY beneficiaries from Fatehgarh Sahib and 25 percent in Patiala were found to be receiving care in Moga and Amritsar, respectively. This serves as an indication that access to RSBY care in these two districts is either less accessible, or of poorer quality, prompting patients to go to a neighboring district or due to normal agriculture migratory patterns. The distribution between public and private hospitals varies between districts, but Amritsar and Moga have a significantly larger number of private hospital claims, while Ferozpur, Jalandhar, and Pathankot - relatively rural districts - have a larger number of public hospital claim (Figure 21).

Figure 20: Per-capita hospital rates in Punjab

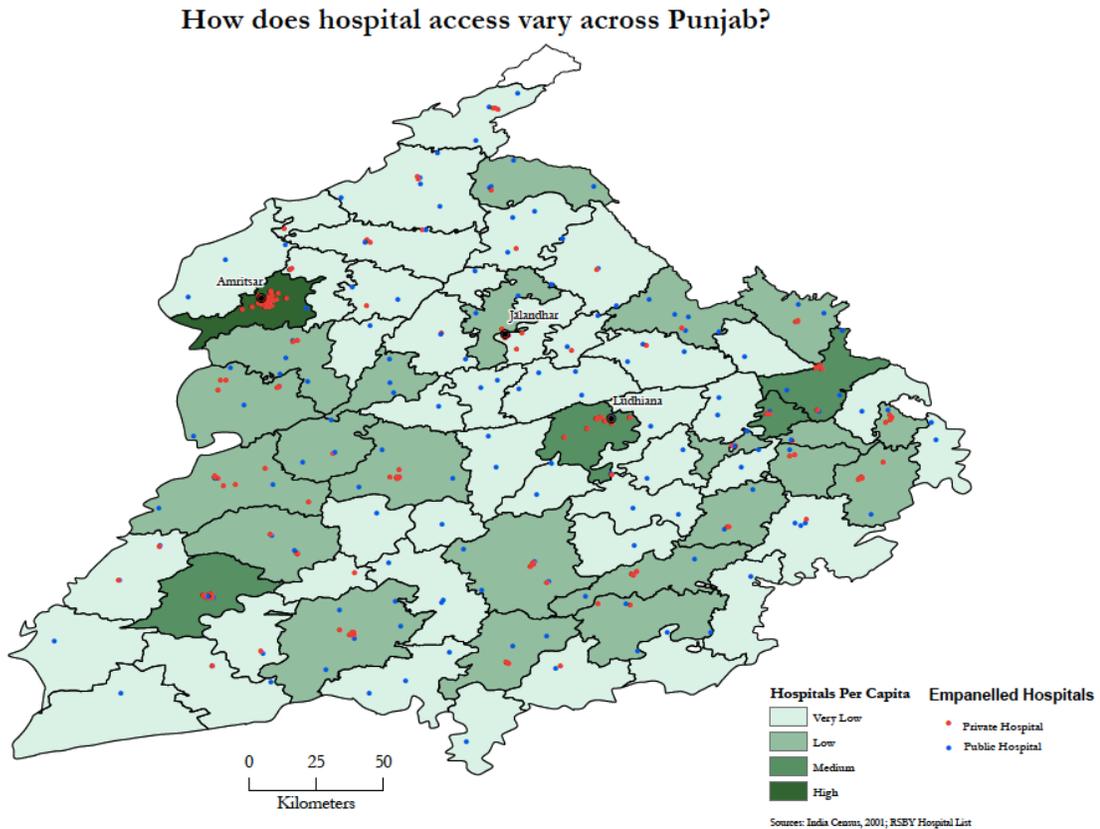
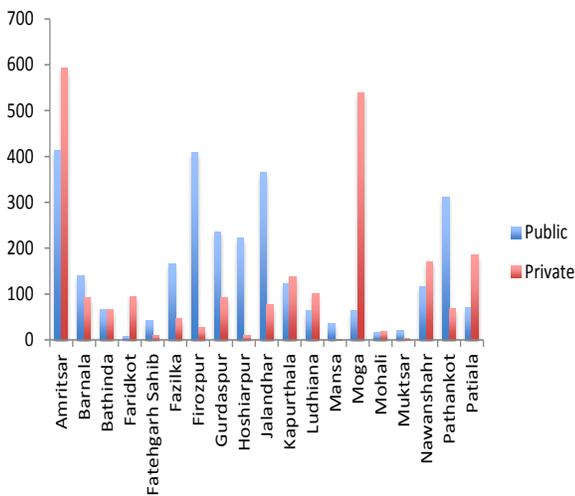


Figure 21: Public vs Private Claims (number)



Source: 2012-2013 RSBY Claims Data, MOLE.

### Types of Procedures Claimed

When decomposing claims by the types of procedures conducted, the majority of claims showed to have an unspecified or general code that does not correspond to a medical procedure. For instance, 44 percent of all packages were coded as “General Ward - Unspecified” and 45 percent of all procedures were marked as “Medical”. Furthermore, procedures related to Cataracts, Cholecystectomy, Hernia, and Hysterectomy composed 11 percent, 6 percent, 6 percent, and 8 percent, respectively, of total procedures performed; gynecological-related procedures composed 10.5 percent of all claims. These numbers are indications of the prevalence of eye-, gall bladder-related and women’s health-related medical procedures within RSBY.

### **Characteristics of Empanelled Hospitals**

When examining the number of RSBY empanelled hospitals relative to the population density across the 81 tehsils in Punjab, hospital per capita rates varied widely. Even with larger populations in urban areas, cities were still often overrepresented with empanelled hospitals compared to the rest of the state (Figure 20).

Rural areas are also being mostly served by CHCs. While RSBY beneficiaries can (and do) travel to neighboring tehsils (or even another state) for health care, Figure 20 also shows areas that are under-represented by empanelled hospitals where the government (or private providers) may want to target when considering where to expand health facilities. The over-representation in urban areas initially could have been a result of a customer's ability to pay. With RSBY, perhaps private providers will find new market opportunities to open facilities in under-served rural communities.

### **Overall Usage Summary**

We find RSBY in Punjab to be providing secondary health care access to women and spouses who would otherwise be vulnerable to not being treated. Furthermore, the program is targeting an age group commonly requiring secondary care.

Our analysis shows great promise for the integral role CHCs could play in RSBY with a significant number of claims coming from such hospitals. However, we are concerned with the low utilization rate from district hospitals and private multispecialty hospitals, which have the resources to provide a diverse array of services at a larger scale. While several districts, notably Moga, are showing relatively strong utilization of RSBY, a number of other districts are at severely low utilization -- these districts include Bathinda, Fatehgarh Sahib, Ludhiana, Mansa, Mohali, and Muktsar -- districts with very little similarities in RSBY implementation. Moreover, the large proportion of services sought in different districts by beneficiaries in Fatehgarh Sahib and Patiala as well as the significant variation in hospitals per capita across tehsils prompts for a deeper

investigation to the quality and availability of medical services.

Lastly, the overwhelming size of unspecified procedure codes on claims raises concern on the quality of information being provided by RSBY empanelled hospitals. From the specified claims, Cataracts, Cholecystectomy, Hernia, and Hysterectomy comprise 31 percent of the total claims. Reasons to why these procedures are prominent needs to be further examined.

#### **3.2.2. Hospital Quality**

Through our interviews with GIZ, we learned that the central RSBY bureau in the Ministry of Labor and Employment captures over 50 data points on each empanelled (and de-empanelled) hospital. We have been told that this includes number of beds, staff specializations, geo-coordinates, and other vital information that can help assess the quality of service a hospital can provide based on its resources and capacity. We were not able to acquire this data set in time to complete this report, but we do urge that our analysis be extended into this area in order to assess the quality of hospitals being empanelled in Punjab through RSBY.

#### **3.2.3. Patient Feedback**

The PHSC instituted a new patient feedback mechanism in August 2012 as a way to more effectively resolve RSBY cardholder issues with the insurance scheme. The PHSC created a calling center within the nodal agency where a knowledgeable staff member was available during business hours to field any queries related to RSBY and to try to resolve them expeditiously. The staff member logged data from the call including the date, time, contact name and number, RSBY card number, nature of the query, and what was done to resolve the issue. The contact number for the call center was broadcast widely in the RSBY literature distributed to cardholders as well as at empanelled hospitals.

The call center intends to provide an additional layer of accountability between those receiving the services (beneficiaries) and those tasked with delivering the services (hospitals, insurance

companies, and the nodal agency). It also attempts to redress a key challenge embedded within RSBY: information asymmetry between providers and users.

We analyzed call center data from January 22, 2013 through November 8, 2013, when the call center was fully operational and 306 complaints were logged. The vast majority, almost 40 percent, concerned more routine, general questions about RSBY that the staff member was able to answer immediately. Another ten percent of the sample dealt with questions on empanelled hospitals, which was mostly answered by the staff member, or was otherwise forwarded to the insurance representative covering the caller's district.

The third most popular type of call, also around ten percent, involved specific hospital complaints where the caller was denied treatment, charged for services that should have been free, or experienced malfunctioning RSBY equipment like the card scanner. About five to six percent of the sample calls were concerned with adding names to an RSBY account, renewing an RSBY card, activating a card, and seeking treatment information.

The call center log demonstrates the continued informational challenges of RSBY to ensure that

beneficiaries receive the proper information about how to access and use the scheme. It also shows the implementation challenges, particularly with monitoring such a vast provider network and the incentives of some providers to mistreat their clients. Even though this call center log is useful for monitoring hospitals and insurance companies, DOHFW should consider complimenting it with a more pro-active policy that includes increased health awareness and educational campaigns.<sup>32</sup>

### **3.3. Scheme Successes in Punjab**

#### ***Organizational Structure***

Some part of Punjab's success in implementing the scheme is derived from the choice of the DOHFW in Punjab rather than the Department of Labour as the implementer. The PHSC functions under the DOHFW, and monitors public hospitals and coordinates with them on many aspects – including data collection – even outside the RSBY context. Therefore, the agency has a deeper understanding of the public health system in the state and has established coordination mechanisms with healthcare providers to some extent.

The Department's presence at the village level is crucial in facilitating program delivery, spreading awareness in rural areas among beneficiaries, and

sensitizing staff in public hospitals as it leverages its grassroots ASHA workers and other such existing infrastructure for these activities. In states across India, this Department also seems to have better cross-departmental coordination within the state relative to the Department of Labour.<sup>33</sup>

#### ***Technology & Data Centralization***

RSBY has successfully helped hospitals move away from conventional paper-based transactions to a digital, centralized medium. By digitizing each step from beneficiary enrollment to claim payments, RSBY has provided the ability to streamline medical and insurance processes, remove physical cash transactions, introduce real-time data reporting and monitoring, and strengthen the accountability of

beneficiaries, hospitals, and insurance companies through data-driven solutions. This is a major success for the program and the Punjab health system. In particular, biometric smart cards and the back end features of the system show the technology innovation of the scheme.

RSBY's requirement for each beneficiary household to have a pre-loaded smart code containing the personal information, fingerprints, and photograph of all members of the household comes with three great advantages. First, this removes the literacy and cash availability requirement for the patient during admission, making going to a hospital less intimidating. Second, having pre-loaded funds on the card guarantees that the patient does not have to provide up-front payments and that the hospital has the ability to quickly check whether the patient has enough funds through the insurance card to carry out a medical procedure. Third, the biometric and photo identification elements to the smart card significantly reduce opportunities for identity fraud. This is primarily important for RSBY as it ensures that only registered BPL families are benefiting from the program, holding hospitals accountable for verifying the identity of patients.

The most important feature to RSBY, though, is its technological capability to centralize data and make it available for review. DOHFW and insurance companies are equipped with robust analytics for tracking fraud, managing claim errors, and attending to queries by patients, hospitals, and third party administrators (TPAs). Data-driven decision making and real-time data management are becoming integral to the success of programs, and by having a program which enables such processes to take place, the technology behind RSBY has introduced a new operating mechanism within the Punjab health care system.

### ***Versatility and Flexibility***

One of the hallmarks of RSBY is that while it was created by the center government and they guarantee at least 75 percent of its funding, the national government allows states the flexibility to experiment with program structure and implementation. State participation in the scheme is voluntary. States can also choose whether to have the Department of Labor or the DOHFW to have program oversight. As an incentive mechanism to encourage public hospitals to compete with private hospitals for RSBY patients, the center government allows states to decide whether staff members receive up to 25 percent of RSBY revenue.<sup>34</sup> In addition, states can use the RSBY technology to institute top-up schemes that cover a larger segment of the population or cover primary or tertiary health procedures.<sup>35</sup> The program's built in flexibility allows each state to adapt the program to its unique political, economic, and social context. It also allows states the opportunity to experiment and learn from one another. There are frequent coordination meetings between state representatives in New Delhi. Thus, RSBY functions as a dynamic program encouraging innovations and local experimentation. The RSBY smart cards can also be used to deliver cashless services for other social programs.

## **3.4. Scheme Challenges in Punjab**

### ***Hospital Audits***

Monitoring empanelled hospitals, not only to minimize moral hazard on the part of the hospitals but also to ensure a high quality of care is a serious challenge (but not just in Punjab). The economic concept of moral hazard is the tendency for an

agent to take unnecessary risks because she knows that the costs and consequences of that risk will be borne by someone else. In this case, moral hazard on the part of the hospitals occurs when hospitals carry out unnecessary surgery or decide to use the more expensive treatment option because they know that the cost will be covered under RSBY. They

also know that it is unlikely that the patient will have sufficient information to decide whether they need this particular surgery or not. Therefore, moral hazard on the part of hospitals and quality of care are closely related. The only information for monitoring that is collected is information on facilities infrastructure and availability of staff. In most cases, it is collected only at the empanelment stage; therefore the DOHFW is not aware of the quality of care that beneficiaries actually receive after empanelment.<sup>36</sup>

Interviews with insurance companies revealed that the companies did carry out frequent checks on infrastructure and staffing but even these metrics do not give information on the quality of care provided by the available infrastructure and staff.<sup>37</sup> This lack of a robust and regular monitoring system makes it difficult to attend to and solve problems systematically as they emerge.

In 2012, RSBY initiated a quality management process for monitoring the quality of empanelled hospitals in 5 other states. In this process, the hospitals carry out a self-assessment, which is verified by insurance company assessors. The poorest performing hospitals face the threat of de-empanelment.<sup>38</sup> However, it has not been implemented in Punjab yet, and there remains a focus on quantity metrics as indicators of success rather than quality metrics in the state. While the quality management process is definitely a step forward, periodic physical audits of hospitals may still be very useful.

### *Primary care*

Punjab tested a pilot for expanding RSBY coverage to outpatient care in Rupnagar, Sangrur and Tarn Taran that started in early 2013 and ended in October 2013. While the results of an evaluation (being carried out by the World Bank) of this pilot have not yet been released, designers of the project believe that the inclusion of primary care will reduce expenditures on in-patient care.<sup>39</sup>

The major challenges facing outpatient care in RSBY are the large administrative costs and developing an efficient and well-functioning provider payment mechanism.<sup>40</sup> As the transactions are higher in

frequency but the amounts are much smaller for outpatient care, the administrative costs are higher. These transactions are also more difficult to monitor for fraud. But since these amounts are typically quite small, the expectation is that there will be a very low incentive for fraud, while a high number of fraudulent transactions by a single institution (which would be financially rewarding in aggregate) would probably be more easily detectable. Within the current fraud detection framework, a sudden large increase in the number of people seeking primary care at one institution might seem suspicious or too many claims for a certain type of primary care treatment might also raise alarm bells (outside of an epidemic). Since the reimbursement process is discretionary, there is a risk of misclassification of the type of care by providers.

For instance, hospitals could be classifying as secondary care that which is actually primary care to be able to qualify for RSBY reimbursement. Therefore, including primary care in the scheme would decrease this tendency. However, benefit packages for primary care need to be designed carefully to incentivize necessary primary and preventive health services rather than unnecessary secondary care.<sup>41</sup> But there is a delicate balance to be maintained in incentivizing primary care while avoiding fraudulent claims. For optimal insurance when including both primary and secondary care, deductibles would have to be introduced into the system which could lead to a different set of problems.

While we do not have the results of the impact evaluation of the RSBY outpatient pilot, a study of a different micro health insurance program for the poor, which included inpatient care, saw that households with this insurance had a substantially higher number of visits to the community health worker and more referrals to doctors. They also spent fewer days in a hospital bed, and spent less out-of-pocket on hospitalization expenses. It seems that this insurance incentivized frequent visits to the community health worker, which could have led to early identification of illnesses and more timely referrals to a hospital where the patient could get treated at an earlier stage and hence at a lower cost.<sup>42</sup>

However, even this study does not comment on whether the inclusion of primary care in insurance packages improves health outcomes or the health status of beneficiaries. Unless providers guarantee a high quality of care, the higher frequency of visits does not necessarily mean better health outcomes. In fact, research suggests that access to a primary health care provider often does not affect health status – primarily because of the low quality of care. On the other hand, public health programs, like access to clean water and sanitation, do improve health outcomes and reduces the need to go to a provider for primary care.<sup>43</sup>

### Coordination with state-sponsored scheme

BPSSBY launched by the Government of Punjab in November 2013 extends the RSBY model to those poor beneficiaries who are not in the existing BPL list. However, this scheme will issue a separate card and will not be using the RSBY technological platform. This lack of integration of the schemes could create inefficiencies and inequities. Processes would be duplicated and would require separate management structures increasing costs.<sup>44</sup> This fragmentation would also lose the advantage of a centralized data and information system, which can help standardize procedures and facilitate knowledge transfers. Understanding two schemes that are technically different but in essence very similar would confuse beneficiaries of both schemes. While expanding social services is a laudable objective, it would have been more efficient to use the existing RSBY infrastructure rather than establishing a new scheme.

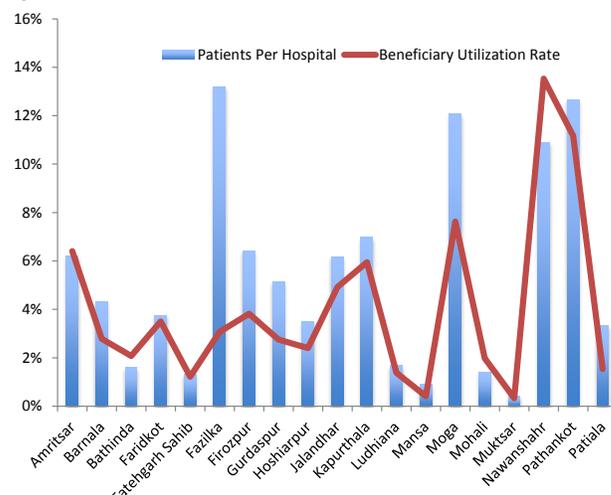
### Underutilization

Based on August 2012 to September 2013 data, we have observed very low levels of utilization by both patients and hospitals of RSBY. The utilization rate of RSBY by patients - the number of unique RSBY cards processed by a hospital divided by the total number of enrolled BPL families - is below 14 percent across all districts. With the exception of Moga, Nawanshar, and Pathankot, the utilization rates are actually below 6 percent, with Mansa and Muktsar posting less than 1 percent utilization of RSBY (Figure 22). These are extremely low numbers and can defeat the program’s purpose to provide

access to secondary care for those who cannot afford it.

It is possible that RSBY claims are not being filed by hospitals. In district and sub-district hospitals where only 5 percent and 7 percent of total claims come from, respectively, the issue could be that large public hospitals do not have an incentive to process RSBY claims. In addition, even though a travel stipend of Rs. 100 is provided to each RSBY patient, access to a hospital might be limited due to distance or work schedules. The other issue could be that RSBY enrolled beneficiaries are not provided sufficient information on using their card after enrollment, therefore not incentivizing them to receive care through the scheme. Without a higher utilization rate, RSBY’s cost per BPL family will be very expensive and unjustified.

**Figure 22: Utilization rate by district (percent)**



Source: 2012-2013 RSBY Claims Data, MOLE.

### Beneficiary targeting

One of the challenges of any social program is how to appropriately and effectively target the correct beneficiaries. RSBY defines its beneficiaries as the BPL population. The cut-off for being BPL though varies by state and each state carries out a survey from the Planning Commission every ten years to gauge who is BPL eligible. A further confounding factor is that being BPL also allows you to receive other government social services beyond RSBY.

The amount of funding available from the center government generally covers a set number of BPL households, even if the state believes it has many more. Out of a population of roughly 28 million, Punjab claims it has 453,936 BPL households and has enrolled 210,081 in RSBY. These numbers however date to the 2001 Planning Commission survey. Insurance company representatives from Reliance and Star Health argue that Punjab's poor enrollment rate is due to out-of-date lists and that they have enrolled almost everyone on the list who still lives in Punjab, although they have been unable to re-enroll 27 percent of spouses after their husbands die due to problems with the BPL list. As a largely agricultural and relatively wealthy state, Punjab attracts significant migrant labor from neighboring states, which can complicate its social service targeting.

The Planning Commission conducted a survey in 2012 to update the BPL list but has yet to release its findings. All stakeholders queried on the delay pointed to the political nature of the BPL list and that it will not be released until after elections in 2014. As such not all BPL eligible households are on the BPL list and many families whose incomes exceed the BPL threshold are on the list or have RSBY cards.

### *Accountability*

One challenge in health care delivery is aligning incentives between providers and users to create positive feedback mechanisms that improve the quality of care. Health care service is difficult to monitor, hard to attribute outcomes, and involves heterogeneous, transaction-intensive tasks. In many cases there are multiple principals, making clear lines of authority ambiguous. Doctors have sometimes taken advantage of their information asymmetry over patients to perform unnecessary and dangerous procedures, as several investigations into the increase in hysterectomies has found.<sup>45</sup> Within the civil service, rapid job transfers reduce incentives for employees to invest in learning the intricacies of their position, about the communities they serve, and ways to improve organizational performance.<sup>46</sup> Yet, RSBY has brought about some innovative accountability measures to bypass the aforementioned challenges. The scheme focuses on

demand-side accountability where patients can "vote with their feet" by going to any empanelled hospital they prefer.

The central government also allows states to decide whether public sector doctors receive up to 25 percent of RSBY revenue to incentivize caring for RSBY patients.<sup>47</sup> While this has not been implemented in Punjab so far, and could lead to its own problems, financial incentives for doctors do allow the possibility to better align provider and user incentives. In addition, as discussed earlier, Punjab implemented an RSBY hotline to quickly troubleshoot beneficiary problems and log complaints.

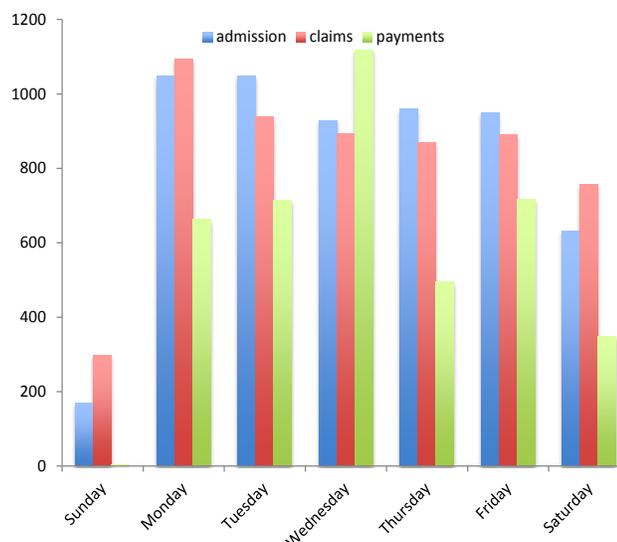
The DOHFW has experimented with other accountability measures as well, most recently releasing a fortnightly list of "Top Performing Doctors." Yet, the metrics merely look at quantity such as babies delivered, surgeries performed, and patients seen, and nothing on quality. The impact that RSBY accountability measures will have on the overall health sector will likely be limited. After all, RSBY constituted less than 0.3 percent of health expenditures in India in 2011.<sup>48</sup> However, this also offers an opportunity for continual experimentation in how to implement a more effective accountability structure and then scale-up that success to other health department programs.

### *Quality of Insurance*

A common complaint we heard during field visits to both public and private hospitals was that the insurance companies were very slow to respond to claims and rejected claims without substantial reasoning. Using the 2012-2013 claims data set, we observed that there was no consistency to processing frequency by the day of the week; we actually see that the bulk of payments were processed on Wednesdays and the least were on Thursdays (Figure 23). We also observe that the monthly volume of payments do not follow patterns with monthly volume of claims submitted. This inconsistent pattern explains why hospitals have frustrations with insurance companies, and needs to be addressed in order to encourage empanelled hospitals to confidently take in RSBY patients in the future.

Since 87 percent of claims were submitted the same day as discharging the patient, which demonstrates that hospitals have overwhelmingly abided by the requirement to file claims within a week of discharging patients, we also constructed a statistical model to better understand why rejections occurred.

**Figure 23: Processing frequency by day of the week (number)**



Source: 2012-2013 RSBY Claims Data, MOLE.

### 3.5. Recommendations

Based off of our study and analysis of Punjab’s RSBY implementation, we see the following recommended changes to the program as viable and the most effective to achieving the Department’s goal of providing quality healthcare to the poor:

#### Strengthen Quality and Depth of Available Data

Focus on data quality that can enhance the types of health analysis the Department can conduct on health outcomes. This can ultimately enable you to allocate resources based on how programs are improving citizens’ quality of life.

Become more transparent with data that does not compromise the patient’s identity and allow civil society organizations greater access for analysis. This will provide your Department with the

What we found is that CHCs and Nursing and Maternity hospitals have the lowest likelihood of having their claims rejected, but claims coded under “Medical” have a 20 percent probability of rejection. Similarly, claims coded “Gynaecology” and “Hysterectomy” was 6.2 percent more likely to be rejected. Surprisingly, filing an unspecified claim reduces the chances of a claim getting rejected by 8.9 percent. These figures suggest that the quality of insurance audits need to be improved by speeding up processing times and enforcing clearer procedure codes for all claims.

#### Data Quality

The greatest challenge we faced during our analysis of claims data was the quality of data in each claim. Even though the RSBY platform is designed in a fashion conducive for clear and detailed input, there is currently no enforcement on the quality of information hospitals place in their claims. For example, 44 percent of total claims had unspecified codes and yet there is no relationship between this and the risk of a claim being rejected. In order to build a robust inventory of patient history that can allow the ministry to make data-driven decisions, there needs to be greater quality control on claims.

capability to receive socially-driven spot checks and monitoring for data quality and fraud. Perhaps a mechanism to achieve this would be to create a public online data portal that authorized users could access.

One way data quality could be controlled is through stricter enforcement of claims with unspecified codes. An audit system that can detect the unnecessary use of unspecified codes coupled with a penalty structure for such use can enhance the type of procedure information fed into the system.

#### Increase Utilization of Scheme

Increasing awareness campaigns could increase the rather low utilization rates. In fact, regular health check-up camps for scheme beneficiaries along with awareness camps might increase utilization even

further as one non-government micro health insurance scheme found.<sup>49</sup> The health check-up camps add value even though free public care exists because they could lead to early detection of conditions and thus lead to lower stress and expenditure, as it is rare for individuals from BPL households to go to a healthcare provider just for a check-up. It could also bring the doctor geographically closer to the individual.

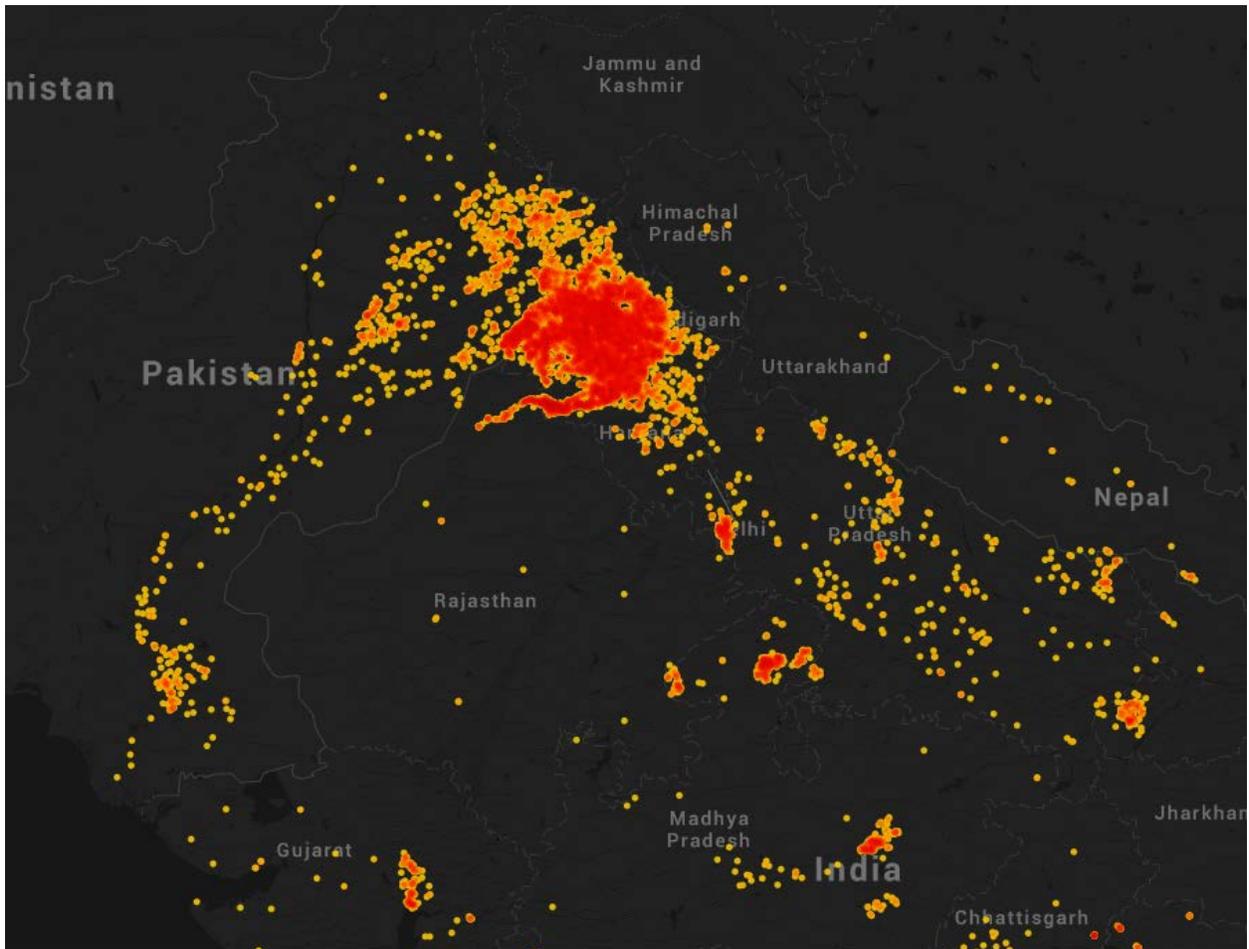
In addition, implementing BPSSBY, a similar insurance scheme, could be creating confusion for program beneficiaries and leading to lower utilization. By combining the schemes and decreasing duplicative tasks, the state could increase coverage to more beneficiaries and provide more clarity to the beneficiary pool.

### **Improve Accountability Mechanism for Hospitals and Insurance Companies**

RSBY card holders often do not know the balance of their benefit, how much a procedure costs, or how much they were charged. By providing beneficiaries with a paper receipt, like a credit card receipt, every time their card is swiped for service, they will have better information to inform their health care decisions. In addition, it limits any fraud and deception that hospital personnel may try when charging RSBY cards.

# APPENDIX

Figure 24: Prevalence of Fires in the Punjab Region  
(darker red indicates more intense fires)



ps with [CartoDB](#)

Source: <http://www.wri.org/>

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- <sup>4</sup> International Institute for Population Sciences (IIPS) and Macro International (2007)
- <sup>5</sup> The measurements are in standard deviations from the median reference population determined by the World Health Organisation (WHO). Stunted is for those children with a Z-score of -2.0 or two standard deviations below the WHO reference. A z-score of -3.0 is severely stunted.
- <sup>6</sup> Due to the very small number of later born girls in the survey for Punjab, the regressions including Punjab dummies are for all children (12-59 months). The reference estimation without the Punjab dummies is only for children 12-23 months.
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# ਦੁਰਬੀਨੀ ਅਪ੍ਰੋਸਨ ਕੇਂਦਰ

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(COLPOSCOPY)

• ਮੰਜੂਰ ਸੁਦਾ (ABORTION) ਕੇਂਦਰ

• ਮੰਜੂਰ ਸੁਦਾ ਨਲਬੰਦੀ ਅਪ੍ਰੋਸਨ ਕੇਂਦਰ  
(GOVT. APPROVED FAMILY-

PLANING SERVICES CENTRE)

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ਯੋਜਨਾ ਤਹਿਤ ਕੈਸ਼ਲੈਸ ਸੁਵਿਧਾ

• SGPC ਵਾਰਡ ਧਾਰਕਾਂ ਨੂੰ ਮੁਫਤ ਇਨਡੋਰ ਸੁਵਿਧਾ

A.R.C.M. ਗੁਪਤਾ ਨਗਰ ਸਿੰਗ ਹੋਮ

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