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Women Left Behind: Gender Disparities in Utilization of Government Health Insurance in India[†]

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We document large gender disparities within a government program that entitles 46 million poor individuals to free hospital care. We show that care is not free in practice and higher costs are associated with larger disparities. Lowering care costs increases female utilization but does not reduce gender disparities because marginal beneficiaries are as likely to be male as inframarginals. Long-term exposure to local female leaders reduces disparities by addressing factors lowering female care. In the presence of gender bias, subsidizing social services may fail to address gender inequalities without actions that specifically target females. (*JEL* H51, I12, I13, I14, J16, O15)

India consistently ranks among the five worst countries in the world for the health and survival of females (World Economic Forum 2021). A substantial body of research has documented gender bias in the allocation of household resources, and of health inputs in particular, and shown that it results in worse female health outcomes. Heavily subsidizing health care has been a key policy response to address health inequalities. For decades, this largely entailed direct provision of health care through a large network of public health facilities, but since 2008, policy has increasingly shifted to financing the provision of care through publicly funded health insurance programs. By the end of 2018, government health insurance covered the poorest 40 percent of the Indian population, or approximately 500 million people. Ensuring universal and equitable access to health care is an explicit goal of these programs. This paper shows evidence of substantial gender disparities in such programs and investigates why they persist.

We study the Bhamashah Swasthya Bima Yojana (BSBY), a government health insurance program that entitles 46 million poor individuals in Rajasthan, India, to free care at public and private hospitals. This is half the total population of the US

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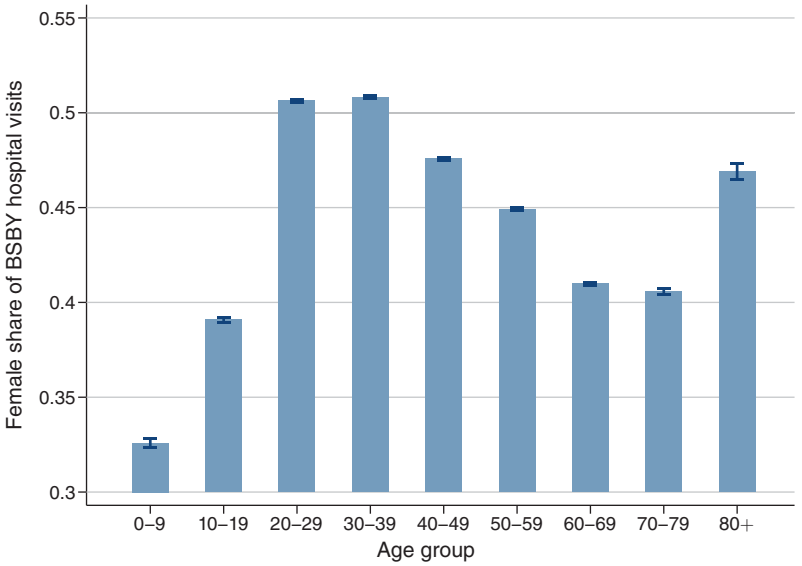

FIGURE 1. FEMALE SHARE OF BSBY HOSPITAL VISITS BY AGE GROUP

Notes: The figure presents the female share of total BSBY hospital visits within each age group using program administrative claims data. Claims data are restricted to the study sample: they exclude 2016, childbirth, and neonatal care claims (see Appendix Table A1 notes). Capped spikes represent 95 percent confidence intervals.

national Medicaid program (92 million).[1] We compile a dataset of insurance claims for all 4.2 million hospital visits under the program from its launch in late 2015 through late 2019. We geocode both hospital locations and patient addresses, which allows us to measure geographic proximity to hospitals and the distance traveled for every hospital visit. We also match patient residence locations to two rounds of the population census and to data on the gender of local political leaders (Sarpanches) across three elections between 2005 and 2015. To our knowledge, this is the first dataset of its type in India and allows us to study health care seeking under insurance with unusual granularity across time, geography, and type of care. The dataset does not cover *primary health care* visits, so our analysis speaks to gender gaps in access to advanced hospital-based care, in a context where access to primary health care is largely free.

We first document large gender disparities on both the extensive and intensive margins of BSBY utilization. Females account for only 45 percent of all hospital visits, with the biggest gaps among children under 10 years (33 percent) and adults 50 years and older (43 percent) (Figure 1), and are particularly underrepresented in private and higher-value tertiary care. Differences in underlying health needs cannot account for the gap: across several health conditions, the female share of BSBY hospital visits is more than 10 percentage points (pp) lower than is expected based on local sex-specific illness prevalence estimates and the sex ratio in the population. Using male BSBY utilization as the benchmark, we estimate over

[1] BSBY was a precursor to, and was later incorporated into, the national Pradhan Mantri Jan Arogya Yojana (PMJAY) program, the largest health insurance program in the world.

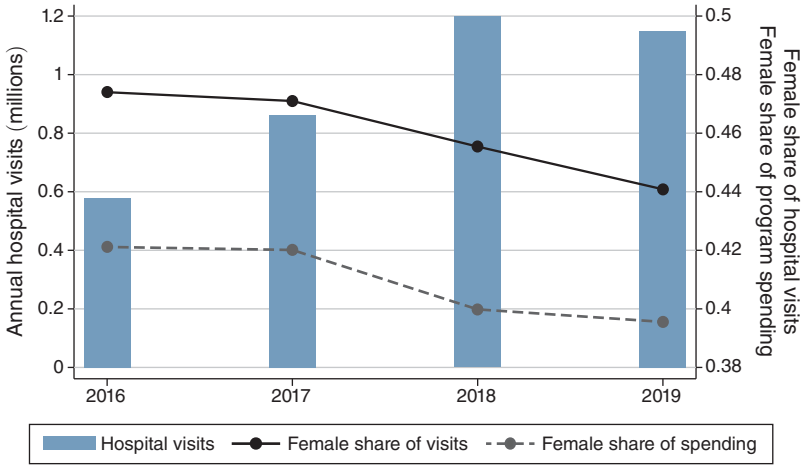

FIGURE 2. BSBY UTILIZATION OVER TIME

Notes: The figure shows total annual hospital visits (bars), the female share of visits (solid line), and the female share of total program spending (dashed line) under BSBY using program administrative claims data from January 2016 (shortly after the launch of the program in December 2015) through October 2019 (when our access to the data ended). Childbirth and neonatal care visits are excluded. Program spending is the total value reimbursed to hospitals for insurance claims filed.

225,000 missing female hospital visits between 2017 and 2019 for nephrology, cardiology, and oncology services alone. Furthermore, the female shares of utilization and spending *decrease* over four years of BSBY implementation, even as total utilization increases substantially (Figure 2), indicating that program expansion alone is insufficient to address these gender gaps. As a result of these disparities, 57 percent of total public spending and 60 percent of nonchildbirth spending on BSBY is on males.

We propose a conceptual framework to explain why gender inequalities in care seeking persist despite the substantial subsidy for hospital care and the likely impact of different types of policy interventions. In the framework, gender-biased societal norms and practices lead to three classes of factors, or "wedges," that lower household usage of health care for females relative to males and make it more sensitive to costs: (i) the economic return on investments in female health may be lower due to factors like patrilocality and low female labor force participation ("differential returns"); (ii) households may value female health less ("biased preferences"); (iii) the cost of seeking care for females may be higher than for males due to factors such as women's limited mobility, safety concerns, or hospitals treating them disrespectfully ("female-specific costs").

The first empirical implication of the framework is that if BSBY is not costless, female utilization of BSBY will be lower than for males, and care-seeking costs will be associated with larger gender disparities. We document that this is the case. Drawing on almost 20,000 surveys with BSBY patients, we first show that care is not free in practice: almost 40 percent of patients (whether male or female) report unauthorized out-of-pocket (OOP) charges by hospitals. Using OOP charges for male care to calculate average charges by hospital and service, we

show that the female share of BSBY visits decreases by about 3.5 percent with every additional ₹1,000 (∼$14) in OOP charges for a service. We also analyze the gender gradient in the travel distance to the nearest health facility, which entails monetary and nonmonetary time and transportation costs. The female share of utilization decreases by about 3.5 percent for every additional 10 kilometers (km) in the distance to the nearest hospital, indicating that households are more likely to forgo care for females as travel costs increase. Conditional on seeking care, the distance traveled is 10 percent greater for males than females even *within the same household*. Differences are also significant among children, suggesting that higher female-specific costs of travel for women cannot fully explain the gender gap.[2] These results show that BSBY does not fully offset care-seeking costs—even if BSBY can ensure that hospital care is free, households face travel and time costs—which results in gender disparities because households are willing to allocate fewer resources to female health. Female-specific barriers may further increase the household's cost of care seeking for women, exacerbating the disparities.

Having shown that care-seeking costs contribute to gender inequalities, a natural question is whether decreasing costs reduces gender inequality. We exploit an administrative reform in January 2018 that suddenly expanded the number of private hospitals allowed to participate in BSBY to test whether decreasing the cost of available care options near locations with previously limited BSBY access (effectively increasing the BSBY subsidy) helped close the gender gap. We conduct a difference-in-differences analysis, comparing changes in BSBY utilization over time in locations where a nearby private hospital was enrolled or "impaneled" in BSBY (and, therefore, became subsidized) in 2018 to locations where no nearby private hospital was impaneled in 2018. The "treatment" is a reduction in the total cost of available private care, which could entail reductions in out-of-pocket charges (for people previously obtaining unsubsidized care) and/or in distance costs (for people previously seeking care farther away). Lowering the distance to the nearest subsidized private hospital by about two-thirds (20 km) increases female BSBY visits by 17 percent and male visits by 19 percent and fails to change the gender gap over the next year (and almost 2 years later). The second insight of our conceptual framework helps make sense of the somewhat counterintuitive finding that reducing care costs does not reduce gender inequality even though higher costs are associated with larger gender gaps. Increasing the BSBY subsidy induces some households to obtain care for females (in addition to males), thus increasing female utilization. However, it also induces some households to start obtaining care, but only for males; inducing them to bring women would require an even larger subsidy. The overall effect of lowering care costs depends, therefore, on the change in household composition it causes; gender inequalities in program usage may not decrease if it induces more households to participate for whom the marginal beneficiary is male. More simply, increasing the BSBY subsidy increases female levels of utilization but may not reduce gender *disparities* because males benefit at least as much, proportionally, as females do. An

[2]The cost to the household of distance may be higher for women than for men if, for example, women require an escort. However, this should not affect girls more than boys, as their care is arranged by an adult and need not depend on child gender.

important implication is that, although a large enough subsidy could reduce the gender gap, public spending would still be substantially male skewed and subsidizing a large number of inframarginal males.

The third key insight of our framework is that directly targeting the factors that lower household utilization of female care, such as gender bias and the specific care-seeking barriers women face, is an important complementary strategy for reducing gender disparities (and may be the only way to fully close them). In the final section of the paper, we look at whether mandated political reservations for females in village elected councils (Gram Panchayats), a gender-targeted policy that has been shown to reduce bias in perceptions of and investments in females (Beaman et al. 2009, 2012; Chattopadhyay and Duflo 2004), has an effect on gender disparities in BSBY utilization. Exploiting the randomized reservation of a third to half of Gram Panchayat (GP) leadership positions across 3 elections between 2005 and 2015, we find a 1.5 to 3 percent increase in the female share of BSBY visits among children and adults. However, there is no improvement among the elderly. Effects are not driven by reservation in 2015 alone but accumulate over ten or more years of exposure. We provide evidence that long-term changes in maternal and child health investments and gender norms that reduce women's care-seeking barriers are the primary mechanisms, consistent with reservations directly shifting the factors that affect female utilization. These results add to the growing literature on the effects of female political reservations (see Hessami and da Fonseca 2020 for a review) and demonstrate that interventions that attempt to counteract gender bias by strengthening the position of women can have downstream, complementary effects on the extent to which females benefit from seemingly unrelated policies. However, while this illustrates the importance of targeting women, the effects on BSBY utilization are small, exclude the elderly, and take years to manifest. Other gender-targeted policies that specifically lower or offset female care costs, such as transport assistance or female-specific care subsidies, could potentially reduce gender gaps more quickly.

Our paper contributes to a large literature on gender inequality in health care in India. Gender differences in health outcomes are summarized most strikingly in the estimated 63 million missing women in India in 2018 (Government of India 2019). Women who are alive have high rates of undernutrition and anemia, and female height has grown less rapidly than male height over the past decades of economic growth.[3] Gender discrimination in health-related inputs, including immunization, nutrition, breastfeeding, medical treatment, and health care expenditure, endures in India and contributes to worse female health outcomes.[4] Whereas much of this evidence comes from household surveys and focuses on early childhood primary care services, we provide large-scale state-level evidence using administrative insurance records for the full range of hospital care and across the age distribution.

Our finding of large gender disparities at older ages draws attention to the known but underemphasized fact that elderly women in India, particularly

[3] See IIPS (2017) and Deaton (2008).

[4] We do not attempt to summarize the vast literature, but Saikia and Bora (2016); Rajan and Morgan (2018); Khera et al. (2014); and Pande (2003) provide extensive summaries of the literature on differences spanning the last several decades.

widows, are socioeconomically disadvantaged and suffer substantial discrimination (Chen and Drèze 1992; Jensen 2007). Anderson and Ray (2010) and Datt, Liu, and Smyth (2022) show that a large and growing share of missing females in India are 50 years or older, but they remain agnostic about the factors driving this. Maharana and Ladusingh (2014) show large gender disparities in food and health expenditures among the elderly between 2000 and 2008. Calvi (2020) shows that older women are poorer than older men within the same household, reflecting their declining bargaining power, and links this to increased mortality but does not identify the role of differential health care. Studies of hospital use find larger gender differences at older ages (Kapoor et al. 2019; Shaikh et al. 2018; Pandey et al. 2017). We provide large-scale evidence of intrahousehold gender differences in health care inputs among the elderly and show that they are resistant to public subsidies and female political representation. Government health programs, particularly at the village level, focus heavily on maternal and child health. Gender empowerment efforts that work to build female aspirations and agency typically also leave out the elderly. Ensuring social policy takes into account the specific circumstances of elderly women will become only more important as the Indian population ages.

Our main contribution is to show that a massive public subsidy is not reaching women as effectively as it is men and that large gender disparities persist even when care is highly subsidized. Our results are consistent with raw gender differences observed in health insurance programs in other states (Kaur, Jain, and Kumar 2020). Qualitative work has documented the many gendered barriers to care seeking under these programs (RamPrakash and Lingam 2021). Shaikh et al. (2018) show that, between 2008 and 2012 under a similarly designed government health insurance program in Andhra Pradesh, the female share of hospitalizations for "sex-neutral" conditions is 42 percent, and the female share of program spending is 39 percent. By geocoding and linking our insurance claims data to other complementary datasets, we extend this work substantially, demonstrating that further increasing subsidies may not be sufficient to close gender gaps because males may continue to benefit as much as (or more than) females. This goes against the common assumption, implicit in much government policy in India, that expanding geographic access and reducing the cost of health care will automatically reduce inequalities (Reddy et al. 2011). We build on insights from studies that show that the relationship between increased household resources (Kanbur and Haddad 1994) or subsidized social services (Oster 2009) and intrahousehold inequality may be nonmonotonic and that disadvantaged members may not necessarily benefit as much as others. More generally, we provide empirical support for the view that gender-neutral health and development policies are insufficient to address gender inequity (Duflo 2012; Raj 2011). The implications for policy are critical and generalize to services beyond health care. In the presence of deep societal gender biases, increasing access and reducing the costs of social services may help increase utilization among vulnerable populations, including women. However, ensuring that females benefit as much as males from social programs and addressing gender disparities in outcomes will require strategies directly targeting the costs and barriers faced by females in the short run, alongside longer-term legal and social endeavors to strengthen the rights and bargaining power of females.

I. Gender Disparities in Utilization of Insured Care

A. *The BSBY Insurance Program*

The Bhamashah Swasthya Bima Yojana is a government health insurance program launched in December 2015 that entitles low-income households in Rajasthan to free secondary and tertiary care at public and impaneled private hospitals.[5] All public hospitals were automatically included in BSBY when the program was launched. Private hospitals that meet basic eligibility criteria (formally registered, minimum bed capacity, and equipped and staffed to provide key services) must be officially "impaneled," or registered in BSBY and authorized to file claims. Broadly, BSBY covers the cheapest hospitals (public) and the bottom half of the quality/price distribution of private hospitals, excluding very low-quality and nonhospital health facilities and the very high-end hospitals. Of the 1,024 hospitals participating in BSBY in its first year, 466 (45 percent) were public; by late 2019, the total had increased to just over 1,400 hospitals, two-thirds of which were private.[6]

All members of households that meet state poverty criteria are eligible and automatically enrolled in BSBY. To verify eligibility at the point of care, households must simply present their Bhamashah card, a biometrically linked card that is issued to all households in Rajasthan (in the name of the female head of household) and provides access to a range of social programs. Households face no premium or co-pay, and care is supposed to be entirely free. The program covers approximately 1,400 services. Hospitals are reimbursed at prespecified rates for each service that cover all visit costs, including hospital fees, diagnostics, and medicines, so that patients pay nothing. Households are entitled to care worth up to ₹130,000 (∼$1,900) per household per year (this increased to ∼$4,700 two years into the program).[7] The program has a single, semigovernmental insurer. The verification of patients and the filing, review, and reimbursement of hospital claims is managed through a central government IT system that generates the administrative data we use. Program spending through October 2019 was approximately ₹26 billion ($375 million).

[5] Primary care includes basic preventive and curative care delivered by doctors, clinics, and health centers. Secondary health care refers to basic hospital stays and uncomplicated child deliveries provided by community health centers and small hospitals. Tertiary health care refers to complex services, including inpatient intensive care and major surgeries, provided by the most specialized facilities.

[6] The supply of public facilities is administratively determined and largely fixed over time. Public and private hospitals are not perfect substitutes. While the largest government hospitals and medical colleges based in big cities and district headquarters provide a wide range of services, including complex tertiary care, most public hospitals are relatively small secondary care facilities that largely focus on basic maternal and child health services and cannot handle complex cases or surgeries. "Ob-Gyn," "General Medicine," and "General Surgery" (which cover nonspecific illness and basic procedures) account for over 80 percent of public hospital claims, while services like cardiology, urology, nephrology, and orthopedics are typically provided by private hospitals.

[7] While limits on financial coverage under insurance are unusual in contexts like the United States, all public and many private health insurance programs in India follow this design, in part to prevent egregious fraud. The annual limit does not bind or appear to affect the care-seeking decisions of most households (less than 1 percent of households come within 5 percent of their annual allowance), surveys show that households are mostly unaware of the limit, and there is no end-of-year bunching of hospital visits to suggest households anticipate and rush to exhaust their allowance.

B. *Insurance Claims Data*

We obtained access to administrative data on the universe of insurance claims filed under the BSBY program from its launch through October 2019. These data include information on the (i) hospital: ID, name, sector (public/private), and address; (ii) care provided: health service code (but no diagnostic or treatment details), medical specialty (e.g., urology or cardiology), reimbursement rate, claim filing date, and visit ID; and (iii) patient: age, sex, residence address, and household ID. The unit of observation for most of our analysis is the hospital visit, which may include more than one claim if multiple services were provided (results are not sensitive to this choice). Our main analysis excludes visits in 2016 (the first year), when administrative data quality were lower; childbirths, which have no male counterpart (though we show the results are robust to including them); and neonatal claims, which typically include the parent's demographic details rather than the child's. Appendix Table A1 provides summary statistics from the compiled dataset on hospital visits. We study 3.21 million hospital visits by 1.97 million unique patients from 1.67 million households between January 2017 and October 2019. Just over half (55 percent) of all BSBY visits were to private hospitals, 15 percent were for long-term chronic (repeat) care, and 26 percent were for more complex tertiary care.

C. *Large and Persistent Gender Gaps in BSBY Utilization*

We observe striking gender disparities in both the quantity and type of care received under BSBY. Figure 1 plots the female share of all hospital visits (excluding childbirths and neonatal care) under BSBY in ten-year age bins. Females account for 45 percent of all visits, and this share is lowest among children under 10 years (33 percent) and adults 50 years and older (43 percent). Figure 2 shows that these gaps do not decrease as the program expands over time. Total annual visits grow from just under 600,000 visits in 2016, the first year of the program, to almost 1.2 million in the first 10 months of 2019 (our data end in October 2019), reflecting increases in awareness of the program and the impanelment of additional hospitals. Over the same period, the female share of hospital visits *decreases* from 47 percent to 44 percent. Appendix Figure A1 shows that the gender gaps are larger for private than public hospital care and for tertiary than secondary care across the age distribution, including at ages where the female share is the highest. In other words, females are particularly underrepresented in more complex care and private facilities that are widely perceived to be higher quality and more expensive. Appendix Table A2, which presents the number of male and female visits and the female share of visits by age group for all the care specialties in BSBY, also shows that gender disparities are not restricted to a few types of health services.

As a result of these differences in the likelihood and type of utilization, program spending is male skewed: 57 percent of total BSBY reimbursements to hospitals and 60 percent of all nonchildbirth reimbursements are for male patients (Figure 2). Although cross-country comparisons are difficult due to differences in levels of development, population demographics, disease burden, and services covered by different health care programs, such gender disparities are not commonly observed. In the US Medicaid program and in the Netherlands, Korea, and the

Czech Republic, just under 45 percent of health care spending is on males, and in Morocco it is just under 41 percent.[8]

We rule out gender mismeasurement in the claims data as an explanation. Appendix Figure A2 shows that, in a sample of over 10,000 postvisit surveys with BSBY patients, the gender classification in the claims data was confirmed 97.1 percent of the time across a range of services.[9] Differences in enrollment are also unlikely to explain the gap, as all household members listed on the Bhamashah card, which is registered in the female head of household's name, are automatically enrolled in BSBY, and household surveys confirm that girls are no less likely than boys to be registered among children born after the household got its Bhamashah card.

D. *Gender Gap Unexplained by Lower Illness Prevalence*

To test whether the persistent gender gap in patient composition is driven by gender differences in the prevalence of health conditions, we obtain data on gender- and age-specific illness prevalence for India from the Global Burden of Disease Study (IHME 2019), henceforth "GBD," the most comprehensive available estimates of illness and causes of death.[10] We combine this with Rajasthan's demographics from the 2011 population census to compute the estimated female share of total prevalence for a condition given the current population demographic structure (including population sex imbalances).[11] We conduct this exercise for 7 broad categories of health conditions that can be mapped from the medical specialties recorded in BSBY claims to GBD classifications and which together comprise 26 percent of total nonchildbirth claims and 54 percent of claims for specialized services excluding general medicine and surgery.

Figure 3 plots the female share of BSBY visits in bars and the estimated female share of prevalence in the population in squares for each medical specialty. The female share of hospital visits under BSBY is markedly below what would be expected based on GBD prevalence estimates for almost every age group and specialty we examine. For example, females account for 48 percent of people 15 years and older with chronic kidney disease in the population per GBD estimates but only 30 percent of BSBY visits for the same age group and condition. When we compare the condition-specific female share across all age groups in BSBY with that in the GBD (weighting each age group in the GBD by the age group share of total BSBY visits for that condition among males), we find deficits of 4 pp or more for 6 of the 7 specialties we study, and of 10 pp or more for 4 of the 7 (Appendix Table A3). In other words, the gender disparities in utilization of BSBY are not because women are less sick. In fact, for

[8] Medicaid figures are based on author's calculations from data obtained here: https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/AgeandGenderTables.zip (last accessed on February 6, 2020). Statistics for Morocco come from Cheikh et al. (2019). Data for the other countries were obtained from https://www.oecd.org/health/Expenditure-by-disease-age-and-gender-FOCUS-April2016.png.

[9] Accounting most conservatively for errors in both data sources and using the highest of the female confirmation and lowest of the male confirmation rate ranges, the adjusted female share of claims among children aged 0–9 would increase from 33 percent to $0.33 \times (0.98) + 0.67 \times (0.11) = 39.7$ percent.

[10] GBD prevalence estimates are modeled if directly measured data are unavailable. For our analysis, we use the female:male ratios, rather than prevalence levels, which are less subject to modeling error.

[11] Females comprise 47 percent of the under-10 population, 50.5 percent of the 50 and older population, and 48 percent of the total population in Rajasthan per the 2011 census.

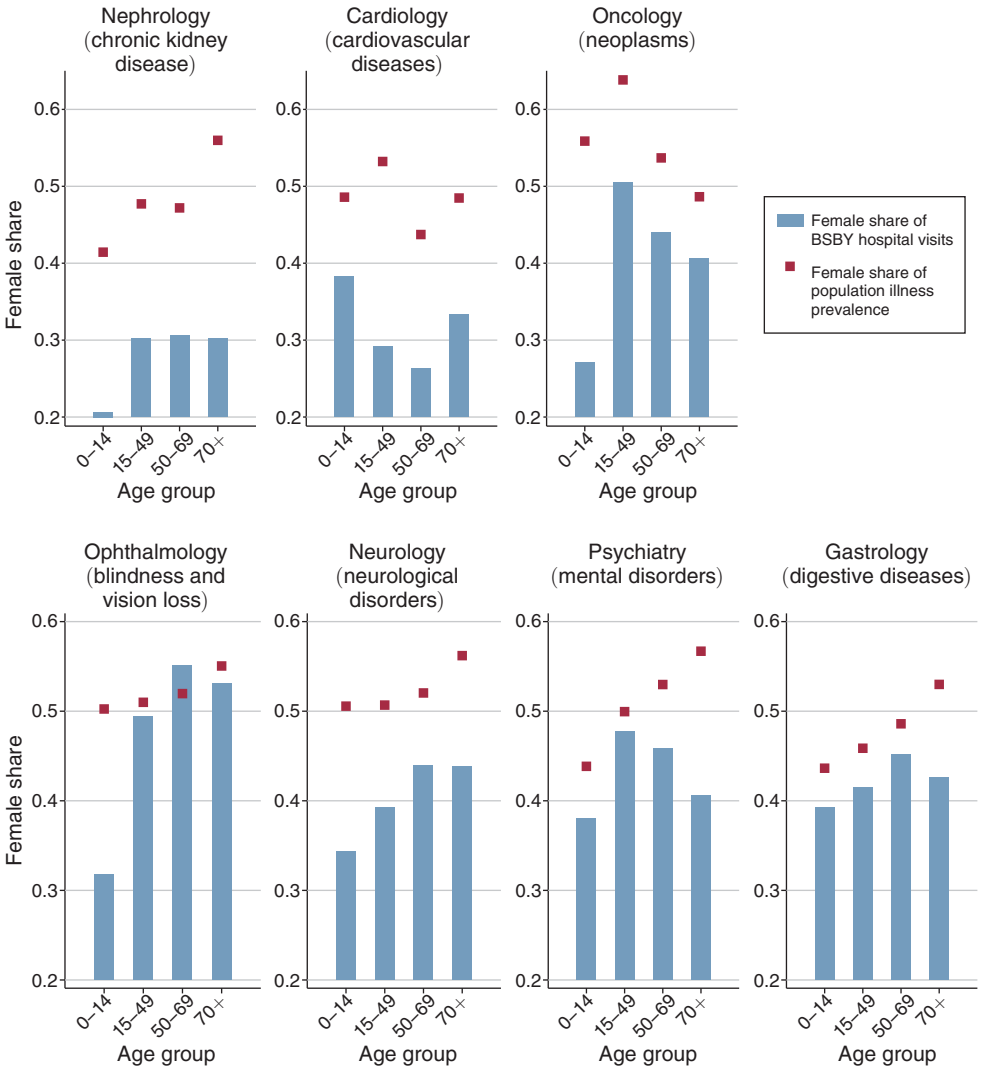

FIGURE 3. FEMALE SHARE OF BSBY HOSPITAL VISITS VERSUS ILLNESS PREVALENCE

Notes: The observed female share of BSBY hospital visits is based on program claims data in our study sample (January 2017–October 2019). The female share of illness for each condition is based on the age-sex specific estimates of illness prevalence from the Global Burden of Disease 2019 estimates for India, combined with Rajasthan's age-sex specific population from the 2011 population census. We match GBD health conditions to BSBY care specialties as follows: Chronic kidney disease = Nephrology; Cardiovascular diseases = Cardiology; Neoplasms = Oncology; Blindness and vision loss = Ophthamology; Neurological disorders = Neurology; Mental disorders = Psychiatry; Digestive diseases = Gastrology.

many conditions and age groups, females have higher illness prevalence than men and should account for a greater share of BSBY visits. Although the BSBY population may be different from the GBD population, it is unlikely that selection can explain differences of this magnitude across several medical specialties.

For a rough estimate of what these gaps mean in absolute numbers, we use male BSBY utilization as a benchmark and calculate the number of "missing" female visits for each medical specialty, that is, the additional female visits we would observe if

female utilization of BSBY, conditional on illness prevalence, was the same as for males. Appendix Table A3 shows that, while the numbers are small for low-prevalence conditions, we estimate over 230,000 missing female visits between 2017 and late 2019 for these 7 medical specialties, with nephrology, oncology, and cardiology accounting for most of them.[12] This is a ballpark estimate and does not account for uncertainty in the GBD estimates, differences in the overall and BSBY populations, or potential gender differences in the number of visits needed for the same condition. Nevertheless, it indicates the very large number of women who are not receiving the critical, life-saving health services under BSBY to the same degree men do. Because we use male utilization and not illness prevalence as the benchmark, this is an estimate of gender *differences* in BSBY utilization and not the full extent to which women in BSBY are not receiving the care they should, which may be higher.

One limitation of our administrative data is that we only observe care received under the BSBY program. If women disproportionately receive unsubsidized care at non-BSBY hospitals, the low BSBY utilization we observe may not reflect lower overall hospital utilization. It may also be the case that women are obtaining nonhospital care, including preventive primary care, that may both substitute for and reduce need for hospital care. While we do not have the data to conclusively rule this out, we provide several pieces of evidence to show it is highly unlikely. First, BSBY includes all public hospitals (including smaller community health centers), which are typically the cheapest available options for secondary and tertiary care; for women to be getting hospital care outside the program, they would have to pay to visit private hospitals. Second, the 2018 National Sample Survey (NSS) shows that the statewide female (reported) inpatient hospitalization rate excluding childbirths was lower than for males; the female share of hospitalizations was 44 percent (compared to 45 percent in BSBY in the same year), with disparities among children and the elderly driving these gaps, just as in our BSBY data; and this was slightly *lower* than the female share in the previous round conducted in 2014. Conditional on visiting a hospital, females are more likely to visit public facilities, which are captured in our data. Although the statewide NSS is not exactly comparable to the BSBY population, it strongly suggests that our analysis is not missing large numbers of women obtaining hospital care outside BSBY.[13] Third, as we show in Section IV, when BSBY expanded in 2018 to cover smaller private hospitals in more remote areas, female visits did not increase as much as male visits, suggesting the gender gaps we observe are not due to large numbers of missing female visits to smaller facilities. Differential primary care usage is unlikely to explain gaps in BSBY since the program largely covers complex conditions and services such cardiology, general surgery, orthopedics, nephrology, and oncology that

[12] One question is whether missing visits are explained by "missing women," where the sickest women who would need hospital care are already dead. However, GBD prevalence estimates are for the current population and thus already account for sex-specific premature mortality due to illness or other reasons. We also find large gender imbalances if we use GBD incidence (new annual cases) rather than prevalence estimates.

[13] The NSS is a series of nationally representative surveys. The 2014 and 2018 rounds collected data on reported illness and hospitalizations, the only available population-representative data on hospitalizations. However, NSS hospitalizations are not perfectly comparable to BSBY utilization because they are self-reported rather than observed from hospital records and cover the entire population rather than the specific set of BSBY-eligible services and households. Although the Demographic and Health Surveys conducted in 2015 and 2019 have a larger sample, they focus on reproductive and child health and do not provide sufficient details on general hospitalizations (in particular, they do not separate out private primary from hospital care).

cannot be treated at primary or very small facilities and are unlikely to be substantially reduced through preventive primary care (Appendix Table A2). Using data on care seeking for illness, including primary care, in the NSS, we also do not find that women are more likely to get primary care than males, indicating that they are not disproportionately substituting primary for hospital care or accessing preventive care at lower-level facilities.

II. Conceptual Framework

We lay out a simple framework for analyzing gender differences in household health investments (see the online Appendix for details). A household decides the levels of health investments in each member, which is a function of the returns to health investments, the costs of these investments, and household preferences. The returns to investments in the health input (a hospital visit) may be lower for females than for males due to factors such as patrilocality (girls leave the house at marriage, while boys support parents in old age) or low female labor force participation. They may also be lower if there are supply-side differences in the quality of care offered to females. The cost of the health input may also differ by gender if, in addition to the gender-neutral costs of a visit the household faces for any member, there are additional female-specific care-seeking costs. This may occur in our context if, for example, women need an escort or special transport provisions; the opportunity cost of their time is higher because they are uniquely responsible for household work and childcare; they prefer female doctors (which are relatively rare in India); they are less informed about BSBY, hence less able to obtain free care (Dupas and Jain 2023); they face additional discrimination at the hospital (at the extreme, if they are turned away by hospitals due to taste-based discrimination on the supply side or because female patients are less profitable, the female-specific cost would be infinite), etc. Finally, preferences for male and female health may differ due to taste-based discrimination in gender-biased households.

Therefore, the household invests less in female health if (i) the returns to health investments are lower for females, (ii) households are gender biased and value male health more, or (iii) there are additional female-specific costs to health care.

Figure 4 illustrates how these three wedges can lower a household's demand for, or utilization of, care for females relative to males. The horizontal distance between the curves for males and females is the gender difference in the quantity of care consumed by the household. The vertical axis represents the gender-neutral cost of care faced by the household for any member. As the figure shows, if any of the three wedges are present, a subsidy that lowers but does not eliminate care costs will not fully close the gender gap, and, if there are additional female-specific care costs, only negative prices (paying women to receive care) would achieve parity.[14] However, a (sufficiently large) subsidy can induce households to increase female usage and lower care inequality within the household.

[14] Such conditional cash transfers are not uncommon. In India, the Janani Suraksha Yojana program provides a cash incentive to women who give birth at a formal health care institution.

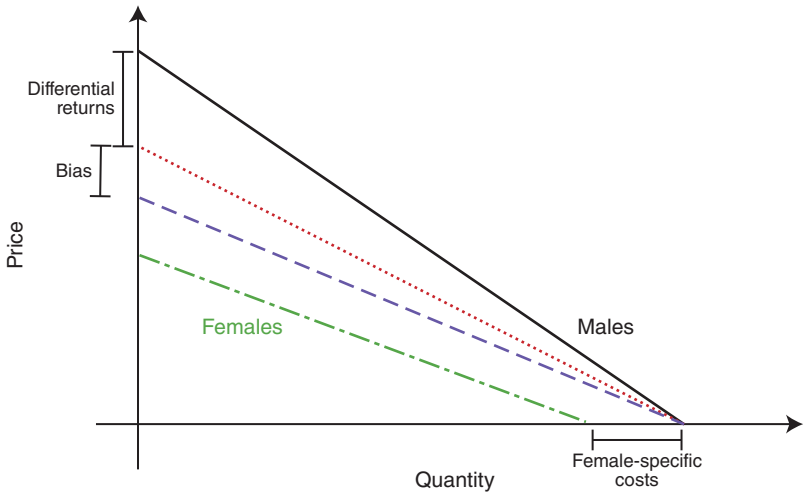

FIGURE 4. SOURCES OF GENDER DISPARITIES IN DEMAND FOR CARE

Notes: The figure is illustrative. We draw one demand curve for males and three potential demand curves for females. The dotted red line shows the health care demand for females if the only wedge is because the returns are lower for females (differential returns). The dashed purple line shows health care demand for females when there is also a preference for males (bias). The thick dot-dash green line shows health care demand for females when there are also female-specific costs in addition to the other two wedges. The y-axis reflects the total gender-neutral financial and nonfinancial costs of care seeking ("common costs").

This does not necessarily imply that the subsidy will lower the *overall* program-level gender gap in care seeking. We illustrate this in Figure 5. Assume, for illustration purposes, that BSBY-eligible households within a village are heterogeneous in income, which affects their budget constraint and, therefore, their demand for care: there are less poor (Type 1) and more poor (Type 2) households. A small subsidy from c_0 to c_1 lowers the cost enough to induce Type 1 households to participate, but they seek BSBY care only for males. A larger subsidy that reduces the cost to c_2 reduces inequalities in these households, as they now also choose to use BSBY for females. However, this also induces Type 2 households to participate, but only for males. The somewhat counterintuitive implication is that, even though female usage is more sensitive to costs than male usage, reducing c through subsidy expansions may not necessarily reduce gender inequality in total BSBY usage, as its impact depends on the relative share of each household type induced to participate. We use heterogeneity in income for illustration, but the insight is more general. Heterogeneity across households in the magnitude of the wedges (for example, if some women face a great opportunity cost of time because no one else in the household can cook or if the strength of gender norms varies across castes or communities) has the same implication that the impact of subsidy expansions on the gender gap will not be monotonic due to composition effects.

This framework generates three key insights:

(i) In the presence of one or more of the three wedges, female utilization will be lower than for males at any nonzero care-seeking (common) cost, and gender disparities will be positively associated with costs.

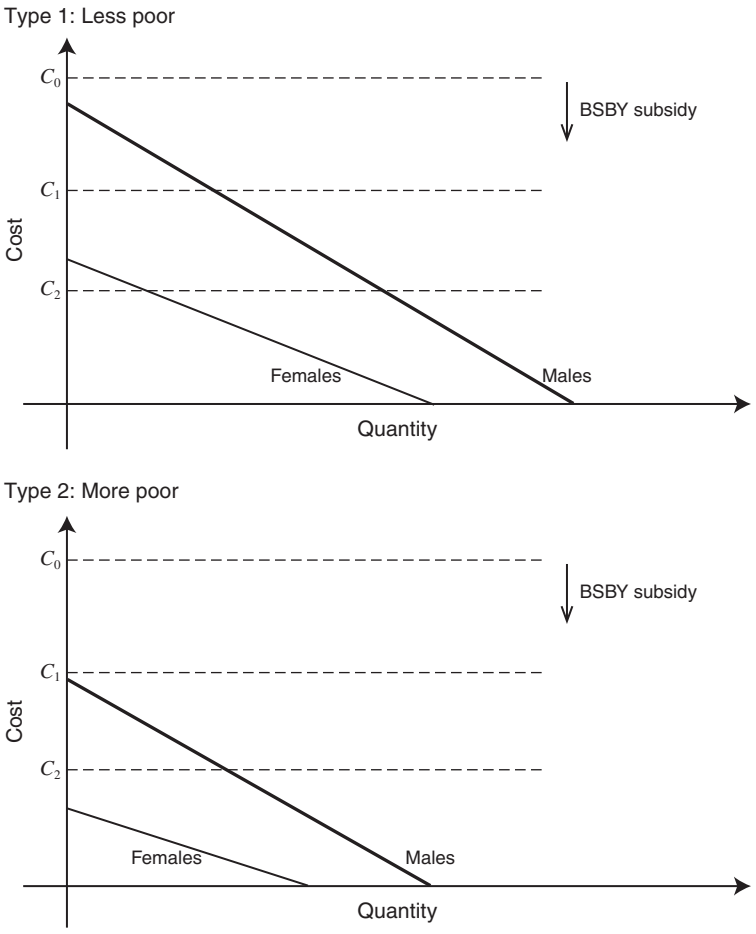

FIGURE 5. POTENTIAL IMPACTS OF THE BSBY SUBSIDY

Notes: The figure presents the demand for male and female care separately for less poor (Type 1) and more poor (Type 2) households. The x- and y-axes are the same in both graphs. The demand curves in Type 2 are lower because the household has lower income, but all other factors that determine male and female demand are the same as in Type 1. The horizontal dashed lines represent the effect on each type of household of increasing the BSBY subsidy and thus lowering the common care cost from c_0 to c_1 and then further to c_2.

(ii) Reducing costs may not reduce inequalities because marginal beneficiaries may be as likely to be male as inframarginals (males may benefit at least as much, proportionally, as females). Substantially closing the gender gap is likely to require very large subsidies, but this will result in public spending being heavily male skewed and subsidizing a large number of inframarginal males.

(iii) Directly targeting the three wedges lowering demand for female care, alongside subsidies, can reduce gender inequalities. In fact, achieving gender parity will require eliminating them or else offsetting them with female-specific subsidies.

Consistent with this framework, in Section III we show that common care costs (unauthorized charges by hospitals and the distance to the nearest BSBY hospital, a proxy for travel costs that would arise even if care were free) are positively associated with gender gaps. In Section IV we study the effect of decreasing distance costs through hospital impanelment and find this increases female visits but does not reduce the gender gap because it increases male visits at least proportionally. Finally, Section V looks at the impact of village-level female political representation, which has previously been shown to change gender attitudes, investments in female human capital, and female agency—factors determining all three wedges in our framework. We find that this reduces gender gaps in BSBY and show that this is due to shifts in the wedges lowering demand rather than a decrease in common care costs.

III. Care Costs and Gender Gaps

The implication of the gender differential in demand for care in our framework is that if BSBY is not costless, female utilization of BSBY will be lower than for males, and care-seeking costs within the program will be associated with larger gender disparities. This section provides evidence that BSBY is not free in practice and examines how female (relative to male) utilization changes with two types of care-seeking costs: hospital out-of-pocket charges and distance to the nearest hospital.

A. *Hospital Out-of-Pocket Charges*

Although hospitals are not supposed to charge patients for services under BSBY, there is little oversight by the government to ensure they comply. To quantify the extent to which hospitals are charging patients for care against program rules, we conducted approximately 20,000 "audit" surveys with BSBY patients between June 2017 and July 2018. Using regularly updated claims data, we sampled a random subset of hospital visits every two weeks and conducted phone surveys with patients within three weeks of the hospital visit to collect information on OOP payments services received, care quality, demographics, and socioeconomic status (see Jain 2021 for details on the survey instrument). The sample covered private hospital visits across 13 services and public hospital visits for childbirths and hemodialysis. Appendix Figure A3 shows that OOP charges are widespread: 37 percent of patients had to pay something for the care supposed to be entirely free (this may be for tests or medication procured outside but that are supposed to be provided for free at the hospital), and average payments were about ₹1,600 (∼$25) for patients at private hospitals, though this varies substantially by service, and ₹1,100 for patients at public hospitals.[15] We find no evidence of differential hospital charges for males versus females (see online Appendix Table B1).

To examine the relationship between hospital charges and care seeking for females relative to males, we calculate the mean OOP charge for each service

[15] The OOP charges for childbirths ("deliveries") are particularly surprising, as childbirths at public hospitals are supposed to be free even without insurance and are additionally compensated under government conditional cash transfer programs. Hospitals charging for this service means that a key opportunity to inform women about free care under BSBY is lost.

Table 1—Out-of-Pocket Charges and Female BSBY Utilization

	Patient is female			
	All (1)	Under 15 years old (2)	15–45 years old (3)	46+ years old (4)
Average charge (₹000s)	−0.0132	0.0048	−0.0120	−0.0138
	(0.0010)	(0.0074)	(0.0018)	(0.0013)
	{<0.0001}	{0.5151}	{<0.0001}	{<0.0001}
Age group fixed effects	Yes	Yes	Yes	Yes
Month fixed effects	Yes	Yes	Yes	Yes
Hospital district fixed effects	Yes	Yes	Yes	Yes
Service fixed effects	Yes	Yes	Yes	Yes
Observations	368,897	17,345	175,441	176,110
Female share | OOP charges subsample	0.406	0.381	0.415	0.399
Female share | Average OOP charge = 0	0.552	0.452	0.586	0.520

Notes: The table presents results from regressions of a dummy for whether a BSBY hospital visit is for a female on the average out-of-pocket charge faced by males for the same type of care in the same facility. The unit of observation is a hospital visit. Regressions include fixed effects for hospital district, ten-year age group bins, service, and month. Survey data on OOP charges were used to compute the hospital-specific average OOP charge paid by males for each service, for the 126 private hospital-service combinations with at least 10 completed audit surveys with male patients. The regression analysis is restricted to hospital visits in the BSBY claims data for these 126 private hospital-service combinations. The female share (with sampling weights) of visits overall for this subsample and at hospitals with zero average OOP charges are reported at the bottom of the table for reference (Appendix Table A1 reports the female share in the study sample overall). Monetary values are expressed in thousands of rupees. Standard errors in parentheses, *p*-values in curly brackets.

at each hospital, using only surveys for male visits (to avoid endogeneity) and hospital services with at least ten male visits (to increase the reliability of estimates). Table 1 presents the results of regressions of a dummy for the visit being for a female patient on this hospital-service measure of OOP charges, with hospital district, service, age group, and month fixed effects. Overall, the female share of visits for a service decreases by 1.32 pp (about 3.3 percent of the overall female share) with every ₹1,000 (∼$14) increase in the average charge for that service. This relationship is most pronounced among elderly patients (1.38 pp, column 4) and is not found among children (column 2), where females are already heavily underrepresented (38 percent overall and 45 percent at hospitals with 0 average charge).

B. *Distance to the Hospital*

We conduct a similar analysis to examine the relationship between distance to health facilities, another type of care-seeking cost, and gender disparities in BSBY usage. We geocode the exact location of 1,601 of the 1,639 hospitals that filed any claim in our dataset through the Google Maps API and match patient addresses in the claims data to villages/towns in the 2011 population census and the corresponding GPS polygons (all residents of a census location are assigned the coordinates of the centroid of the polygon). Match accuracy is high: using patient surveys, we confirmed the matched residence locations in 98.2 percent of cases. This allows us to calculate the distance traveled in kilometers for a hospital visit as well as each patient residence location's proximity to BSBY hospitals. Patient residence

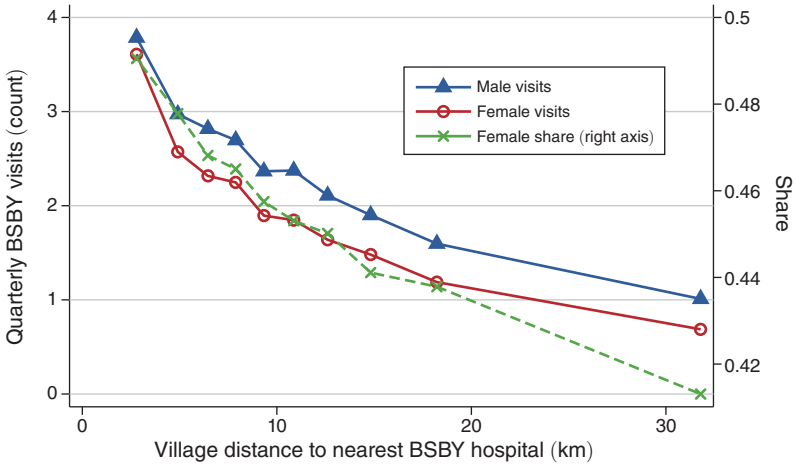

FIGURE 6. VISIT COUNTS BY GENDER AND DISTANCE TO NEAREST BSBY HOSPITAL

Notes: The figure is a binscatter plot showing quarterly male and female visits from census village/town locations against the distance to the nearest participating BSBY hospital in that quarter. It uses administrative claims data for January 2017 to October 2019 collapsed to the location-quarter level. Each bin includes one-tenth of the observations. The x-axis shows the average distance within the bin, and the y-axis shows the average count for the bin. The count includes only BSBY hospital visits for which the patient residence location is successfully matched to census locations (see Appendix Table A1). Census-locations with zero BSBY visits are included.

locations were successfully geocoded for 71 percent of all observations, or 2.29 million visits from 38,000 locations (Appendix Table A1).[16]

Figure 6 plots mean quarterly male and female visits from a location against that location's distance to the nearest BSBY hospital at the time. The differences are striking: the number of female visits is lower at every distance and decreases more rapidly.

Using administrative data collapsed to the location-quarter level, Table 2 shows that the female share of quarterly visits from a census location decreases in the location's distance to the nearest BSBY hospital at the time by 1.8 pp (about 3.5 percent) with every 10 km; this is robust to a rich set of location controls and district and quarter fixed effects, and it is significant in every age group, including children, among whom the female share is only 37.3 percent even when the nearest hospital is in the same location.

To address the possibility that other differences across locations besides distance explain the gender differentials we observe, in Table 3 we use visit-level data to show that there are systematic gender differences in the distance households travel for care *even within the same residence location and within the same household*. Each cell corresponds to a separate regression, with the variable in the left-hand column as the outcome, and shows the coefficient on a dummy for whether a hospital visit

[16] There are no meaningful differences in patient age, sex, or whether the hospital was private across BSBY visits that were and were not geocoded, but visits for more complex tertiary services were slightly more likely to be geocoded (online Appendix Table B2). We also link geocoded residences to other administrative data on public health facilities and poverty using the SHRUG data platform (Asher et al. 2021).

Table 2—Distance to the Nearest BSBY Hospital and Female BSBY Utilization

	Female share of BSBY visits					
	All (1)	All (2)	Under 15 years old (3)	15–45 years old (4)	46+ years old (5)	15–45 years old, including childbirths (6)
Distance to nearest hospital (km/10)	−0.0176 (0.0010) {<0.0001}	−0.0190 (0.0011) {<0.0001}	−0.0108 (0.0029) {0.0002}	−0.0256 (0.0015) {<0.0001}	−0.0134 (0.0015) {<0.0001}	−0.0282 (0.0014) {<0.0001}
District fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Population female share	Yes	Yes	Yes	Yes	Yes	Yes
Full location controls	No	Yes	Yes	Yes	Yes	Yes
Observations	324,039	324,039	88,044	253,468	242,140	263,621
Unique locations	43,626	43,626	43,626	43,626	43,626	43,626
Female share | Hospital within vill/town	0.511	0.511	0.373	0.569	0.470	0.617

Notes: The unit of observation is a location-quarter. The table presents the relationship between the distance from a location to the nearest BSBY hospital and the female share of visits by age group. Using administrative data collapsed to the census location-quarter level, we regress the female share of quarterly BSBY hospital visits from a location on its distance (in tens of kilometers) to the nearest public or private BSBY-impaneled hospital at the time. District and quarter fixed effects are included in all specifications; columns 2–6 include controls for whether the location is urban; distance to the nearest town and administrative headquarters; totals and female shares of the scheduled caste, scheduled tribe, under six, and overall populations; poverty rate; male and female literacy and labor force participation rates; irrigated share of land (for villages); a range of amenities (road, transport access, bank, electricity, etc.); and public primary health facilities (not covered under BSBY). The sample is restricted to BSBY hospital visits where the patient residence location is successfully matched to census locations (see Appendix Table A1). Columns 1–5 focus on the main study sample (exclude 2016, neonatal, and childbirth claims); column 6 includes childbirths. Regressions are estimated on the unbalanced panel of location-quarters with nonzero BSBY visits, as female share is otherwise undefined. Regressions are unweighted to give each location equal importance. The female share of visits from locations that have a hospital within the location boundary (i.e., where the distance to the hospital is considered 0 km) is reported at the bottom of the table for reference. Standard errors are in parentheses, *p*-values in curly brackets.

was for a female patient. Each column represents a different specification or sample. Controlling for month, patient age group, and residence location, females are 4.28 pp more likely to get care at the hospital nearest their homes, and households travel about 7.5 km less for female care, almost 15 percent less than the male average of 54 km (column 2). Strikingly, gender differences persist even when we include household, rather than location, fixed effects (column 3): households that sought care for both males and females travel 5 km less (about 10 percent) for females. In column 4 we present the same specification as in column 1 but on the subsample included in column 3 (households that sought care for at least one male and one female due to the household fixed effects). The coefficients are similar to those in column 1, suggesting that these households are not substantially different from the full sample.

In sum, (i) care seeking within BSBY is not costless ($c > 0$ in our conceptual framework), and (ii) both monetary charges at the hospital and distance to the hospital are associated with lower BSBY utilization among females compared to males, consistent with take-up of care for females being lower and more sensitive to costs. It is likely that all three wedges in our framework—differential returns on female health inputs, female-specific care-seeking costs, and male preference—are contributing to this relationship. We do not attempt to disentangle them, as their

Table 3—Gender Differences in Distance Traveled for BSBY Care

	Coefficient on female			
	(1)	(2)	(3)	(4)
Distance to hospital visited (km)	−8.9087	−7.4339	−5.1155	−8.0815
	(0.0742)	(0.0701)	(0.1061)	(0.0909)
	{<0.001}	{<0.001}	{<0.001}	{<0.001}
Bypassed hospital nearest residence	−0.0623	−0.0428	−0.0293	−0.0732
	(0.0005)	(0.0005)	(0.0007)	(0.0007)
	{<0.001}	{<0.001}	{<0.001}	{<0.001}
Visited hospital in different district from residence	−0.07	−0.06	−0.04	−0.06
	(0.00)	(0.00)	(0.00)	(0.00)
	{<0.001}	{<0.001}	{<0.001}	{<0.001}
Age group fixed effects	Yes	Yes	Yes	Yes
Month fixed effects	Yes	Yes	Yes	Yes
District fixed effects	Yes	No	No	Yes
Residence location fixed effects	No	Yes	No	No
Household fixed effects	No	No	Yes	No
Household fixed effects sample			Yes	Yes
Observations	2,262,729	2,261,194	1,415,801	1,415,801
Unique locations	37,986	37,986	37,986	37,986
Distance to hospital visited (km) | Male	53.733	53.733	51.240	51.240
Bypassed hospital nearest patient residence | Male	0.838	0.838	0.819	0.819
Visited hospital in different district | Male	0.361	0.361	0.350	0.350

Notes: The table presents gender differences in the distance traveled for BSBY hospital visits. Each cell corresponds to a separate regression and shows the coefficient on a dummy for whether a BSBY hospital visit was for a female patient, in a fixed effects regression with the variable in the left-hand column as the outcome. The unit of observation is a hospital visit. Regressions include fixed effects for ten-year age group bins and month. Column 1 includes patient residence district fixed effects, column 2 includes patient residence census location fixed effects, and column 3 includes household fixed effects instead. Column 4 repeats the regression from column 1 but on the subsample from the household fixed effects regressions in column 3 (i.e., households with at least one BSBY claim). Data are at the hospital-visit level, and the sample is restricted to BSBY hospital visits where the patient residence location and the hospital location in the claims data were both successfully geocoded (see Appendix Table A1 notes on geocoded observations). Mean values of each of the outcomes for males are reported at the bottom of the table for comparison. Standard errors in parentheses, *p*-values in curly brackets.

implications for the effects of BSBY subsidies on gender gaps are broadly similar. However, it is highly unlikely that female-specific costs are the *only* factor driving gender differences. Factors such as limited mobility and agency, household duties, lower BSBY awareness, etc., may increase care costs (and particularly those associated with distance) for adult and elderly women but should not affect *young girls* more than young boys, given that children's care is arranged by an adult in the household and need not depend on the child's gender (i.e., men can equally take boys and girls to the hospital even if women cannot). Yet we find very large gaps in the likelihood of getting care among children under ten years. This suggests that part of the gender gap in BSBY is due to households' willingness to allocate fewer resources to female than male health, either due to biased preferences or differential returns on these investments.

IV. Impacts of Hospital Impanelment

Now that we have shown that care-seeking costs are positively associated with gender disparities, a natural question that follows is whether *decreasing* these costs

reduces gender gaps in BSBY utilization. To examine this, we study the effect of the expansion of BSBY in 2018 to impanel more hospitals in the program, which effectively reduced the cost of available care options near locations that did not previously have a BSBY hospital nearby.

In December 2017, the government relaxed eligibility requirements to allow smaller hospitals to participate and conducted a major impanelment drive to enroll private hospitals in areas underserved by the program. The number of private hospitals in BSBY increased from under 600 in 2017 to almost 800 in early 2018.[17] Impanelment may reduce the costs of receiving care at a private hospital for locations that previously did not have one participating nearby both by reducing the distance to the nearest private BSBY hospital and by reducing the monetary cost paid for private care for those previously seeking care outside BSBY (i.e., it may affect both types of costs examined in the previous section). Because the supply of public facilities is largely fixed and most locations already have one nearby, the impanelment shock should be understood as a reduction in the cost of private care.[18]

We study the impacts of the 2018 impanelment drive as follows. We calculate the distance from every census village/town location to the nearest hospital for each quarter using location and BSBY hospital coordinates and the date that the hospital was first impaneled in and started filing claims under the program. We restrict attention to all census locations where the closest participating private BSBY hospital is 25–50 km away in 2017 (approximately the fiftieth to ninetieth percentile; Table 4 shows the average distance in this sample was about 34 km) and create a balanced panel of location-quarters (including those with 0 BSBY visits) for January 2017 to December 2018. We then compare changes in BSBY utilization over time between (i) locations that saw impanelment of a private hospital within 25 km in 2018:I (treatment) and (ii) locations that did not see any impanelment within 25 km by December 2018 (control).[19]

We focus on impanelments in the first quarter of 2018, as their timing was more likely to be driven by the sudden administrative change in eligibility criteria rather than factors that may be correlated with BSBY utilization. Nevertheless, locations that did not get a newly impaneled hospital nearby by the end of 2018 are significantly different from those that did. We use entropy balancing to reweight observations so that treatment and control observations have similar distributions of a wide range of location characteristics from the census, including demographics, poverty, village amenities, and connectivity, as well as distance to nearest public BSBY hospital in 2017.[20] Online Appendix Table B3 presents means for all variables used in the balancing across the treatment and control groups before

[17] These are almost exclusively existing hospitals joining BSBY rather than new hospitals entering the market.

[18] Since most public health facilities (outside the major hospitals in the big cities) are small and focus on basic maternal and general health services, they are not simply cheaper substitutes for private hospitals, which typically provide the full range of services.

[19] In Appendix Figure A5, discussed below, we show results are not sensitive to these distance choices. Additionally, an alternative strategy would be to compare locations with a 2018 impanelment to those that already had a private hospital impaneled nearby. Results using this control group are qualitatively unchanged—there is no detectable impact of the impanelment on the female share of visits. Results available upon request.

[20] Entropy balancing is an increasingly popular method of achieving covariate balance with a binary treatment because it directly adjusts weights to balance the first or higher moments of covariate distributions, thus obviating the need to manually check balance and identify the right propensity score model (Hainmueller 2012; Athey and Imbens 2017). For recent applications, see Basri et al. (2021) and Guriev, Melnikov, and Zhuravskaya (2021).

Table 4—Effect of Hospital Impanelment on BSBY Utilization

	Distance to nearest private BSBY hospital (1)	Distance to nearest BSBY hospital (2)	Male visits (3)	Female visits (4)	Female visits including childbirths (5)
Treatment × Post-impanelment	−19.8298	−0.3677	0.4270	0.2791	0.3332
	(0.2886)	(0.0555)	(0.1255)	(0.0996)	(0.0602)
	{0.0000}	{0.0000}	{0.0007}	{0.0051}	{0.0000}
Location fixed effects	Yes	Yes	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	94,929	94,929	94,929	94,929	94,929
Unique locations	11,907	11,907	11,907	11,907	11,907
Treatment locations	1,085	1,085	1,085	1,085	1,085
Pre-impanelment mean (treated)	33.929	10.409	2.344	1.794	1.345
Pre-impanelment mean (control)	33.652	10.405	2.133	1.948	1.633

Notes: The table presents results from a difference-in-differences analysis of the effect of the impanelment (registration to participate in BSBY) of a private hospital near a location on BSBY utilization in that location. See Figure 7 notes. The unit of observation is a census location-quarter. We use a two-way fixed effects specification with a Treatment × Post-impanelment dummy and quarter and location fixed effects, and errors clustered at the location level. Column 1 reports the first stage, or the change in the distance (in km) to the nearest private BSBY hospital for Treatment locations compared to Control induced by impanelment; column 2 reports distance to the nearest hospital, including public facilities; columns 3 and 4 report quarterly male and female hospital visits (excluding childbirths, as with most of our analysis) from a location. Column 5 includes female visits for childbirths. Standard errors are in parentheses, *p*-values in curly brackets.

and after reweighting, and online Appendix Figure B1 shows that the outcomes of interest are on parallel trends in 2017 after reweighting. Using the reweighted location-quarter panel, we use a standard two-way fixed effects event study specification with Treatment × Quarter interaction dummies, 2017:IV as the excluded reference group, quarter and location fixed effects, and errors clustered at the location level. We also report difference-in-differences (DID) estimates from similar regressions with a single Treatment × Post-impanelment dummy.[21] Total quarterly visits for males and for females residing in a location are the key outcomes of interest.

Figure 7 presents the event study results: visits in the treatment and control groups are on parallel trends in 2017 but diverge in 2018:I and continue to do so (for men) over the year. Online Appendix Figure B1 shows that results would be qualitatively similar in the absence of entropy balancing.

Section IV reports the DID regression results. Impanelment reduces the distance to the closest private hospital in Treatment locations by about 20 km, or almost two-thirds the average 2017 distance (but the distance to the closest hospital changes very little because most locations already have a nearby public hospital). On average over the year after impanelment, female quarterly BSBY visits increase by about 15.5 percent (0.28 visits, p-value $=$ 0.005), but male visits increase as well

[21] Because treatment rollout is onetime, we need not be concerned with the issues in the recent literature around staggered rollout designs when effects are heterogeneous (Roth et al. 2022).

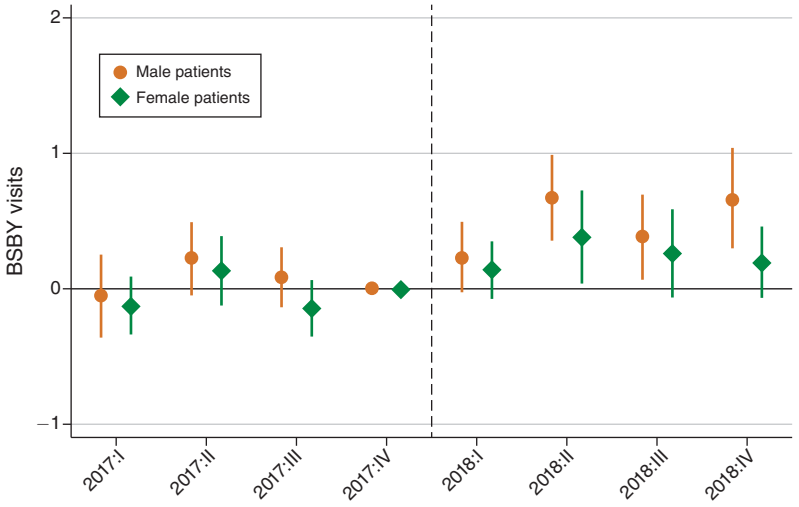

FIGURE 7. EFFECT OF HOSPITAL IMPANELMENT ON BSBY UTILIZATION

Notes: The figure presents an event study analysis of the effect of the impanelment (registration to participate in BSBY) of a private hospital near a census village/town location on BSBY utilization in that location. The analysis covers the period January 2017 to December 2018. The BSBY claims data are collapsed to generate a balanced census location-quarter panel (including those with 0 visits), and the sample is restricted to locations where the closest private BSBY hospital in 2017 is 25–50 km away. The analysis compares locations that saw impanelment of a private hospital within 25 km in the first quarter of 2018 (Treatment) with locations with no similar impanelment by December 2018 (Control), using an event study specification with Treatment × Quarter interaction dummies, 2017 Quarter 4 as the excluded reference group, quarter and location fixed effects, and errors clustered at the location level. The outcomes are quarterly male and female hospital visits.

(0.43 visits or 19 percent, p-value < 0.001). Since the female share is undefined for location-quarters with 0 BSBY visits, we do not report it as an outcome, but note that the female share of marginal visits induced by impanelment is only 39 percent $(0.279/(0.279 + 0.427))$ compared to 43 percent $(1.794/(1.794 + 2.344))$ of inframarginal visits (see pre-impanelment mean row in Table 4), confirming that impanelment did not decrease the gender gap in BSBY utilization.

Column 5 of Table 4 shows that even including visits for childbirths (excluded from column 4, as in most of our analysis), the increase in female visits is lower than for males.

Panel A of Appendix Figure A4 confirms that these effects are driven by increases in private hospital visits. There is a small reduction in female visits at public hospitals in 2018:II, though it is not significant, suggesting some households may have shifted female care from public to the newly participating private facilities. To examine whether effects change over the very long run, panel B of Appendix Figure A4 presents results from a similar analysis but where the control group is locations with no hospital entry through 2019:III (when our data end). Both male and female visits increase over time. The gender gap decreases but remains substantial almost two years after impanelment. Appendix Figure A5 shows that results are qualitatively similar if we use different control (25–35, 25–40, or 25–50 km to nearest private hospital) and treatment (0/5–20/25 km) groups, but female visits only increase when the distance reduction is substantial.

One concern, since we do not observe care outside BSBY, is that impanelment may be reducing the gender gap in overall hospital usage, even if not within BSBY, if it induces women who would otherwise forgo hospital care to use BSBY, while for males it simply shifts their care from outside the program into it. However, if the increase in male BSBY visits were entirely from patients who were already visiting the newly impaneled hospital and now show up in our data, we should see an increase in visits in the first quarter that is sustained thereafter but no additional increase over time. Instead, the coefficients on male visits continue to increase after the first quarter, and Appendix Figure A4 shows that this is also true in the longer run. Panel A of Appendix Figure A4 suggests that some of the increase in female private hospital visits is a shift from public hospitals within BSBY and not entirely new care. To bound the impact of impanelment on the gender gap in hospital care (including non-BSBY care), if we make the extremely conservative assumption that the *entire* female increase was from new patients, while the *entire* male increase was from existing patients, impanelment of a private hospital within 25 km increased the female share of total hospital visits from 39 percent to at most 43 percent.[22]

Overall, these results show that substantially lowering care costs increased female utilization but increased male utilization by as much or more and did not meaningfully reduce the gender gap. This seems counterintuitive, given that in Section III we find that higher care costs, in terms of both hospital charges and distance, are associated with larger gender disparities. However, it is consistent with the descriptive fact from Figure 2 that gender disparities widened, even as the program expanded its reach over four years of implementation. Our conceptual framework helps reconcile these results: even if a subsidy expansion decreases gender inequality within some households by inducing them to obtain care for females in addition to males, it may not reduce overall gender inequality in BSBY usage if it induces more households to participate for whom the marginal beneficiary is male. Thus, we may see increasing female levels of BSBY usage but no decrease in the gender gap.

V. Impacts of Female Political Reservations

Prior studies have found that female leaders are more likely to focus on health, particularly of females, and that long-term exposure to female political leaders can shift deep-seated perceptions of women and raise the aspirations of and investments in females.[23] This could affect all three wedges highlighted in our conceptual framework—differential returns on health investments, female-specific care-seeking costs/barriers, and biased preferences—and shift demand for female care closer to that of males. This section examines whether such exposure to village-level female political leaders reduces the gender gap in BSBY utilization.

[22] $1.794/(1.794 + 2.344 + 0.427) = 39$ percent pre-impanelment and $(1.794 + 0.279)/(1.794 + 0.279 + 2.344 + 0.427) = 43$ percent post-impanelment.

[23] Beaman et al. (2009) find that GP reservations changed voter perceptions of female leaders and increased the likelihood of running for and winning office; Beaman et al. (2012) find reservations shifted parental attitudes toward their daughters and girls' career aspirations and educational attainment; both studies find effects manifest only after two electoral terms. Chattopadhyay and Duflo (2004) show that female Sarpanches shift investments toward women voters' preferences. Bhalotra and Clots-Figueras (2014) and Bhalotra et al. (2023) show that state-level female politicians invest more in health infrastructure that lowers maternal and neonatal mortality.

A. *The Panchayat System and Female Reservations*

A Gram Panchayat is a village council covering 1 to 15 villages (1,000 to 10,000 population). It is comprised of five directly elected council members and is headed by a Sarpanch (also known as a Pradhan or President) elected directly by citizens or indirectly by other council members. In 1992, the Seventy-Third Constitutional Amendment devolved local governance to GPs, including provision and maintenance of local public goods such as roads, irrigation, sanitation, and drinking water; oversight of government education and health services; and delivery of public benefits such as subsidized food. The amendment also required that one-third of all council member and Sarpanch seats be reserved for women in each five-year term, as well as reservations for historically marginalized scheduled castes and tribes (SCs and STs) in proportion to their population. While rules for selection of seats reserved for women vary across states, the Rajasthan Panchayati (Election) Rules, 1994, specifically stipulate that they be randomly selected, stating that "The Officer authorised by the Government shall determine by draw of lots the offices of Sarpanchas and Pradhans to be reserved in the district for women" (Rajasthan Panchayati Election Rules 1994). In other words, seats are selected randomly (with partial replacement) in each five-year term.[24] The share of reserved seats in Rajasthan was increased to 50 percent in 2009, and a requirement that candidates have completed at least secondary education was introduced in 2014; the state also added population share-based reservations for other backward castes (OBC).

B. *Gram Panchayat Reservations Data*

We link data on the 2005, 2010, and 2015 GP elections and match these with BSBY patient residence locations using 2011 population census identifiers.[25] We successfully matched patient residence locations to complete reservations histories for 86.2 percent of the BSBY hospital visits that were successfully geocoded, or 61.4 percent of all BSBY hospital visits in the study sample (about 2 million visits).[26] Of these, 12.3 percent were from locations that were never reserved, 51.9 percent reserved once, 31.2 percent reserved twice, and 4.7 percent reserved in all 3 elections (Appendix Table A1). Compliance with the policy has been high, and the reservations have been highly successful at increasing female leadership: of the 8,818 GPs in the matched sample, less than 10 percent of Sarpanches are female in unreserved GPs, while 92–100 percent are female in reserved GPs over the 3 elections (online Appendix Table B4). We test whether female reservation status is orthogonal to characteristics

[24] In 2010, the draw was done with complete replacement, while in 2015 the reservation rate was $1/3$ in places reserved in 2010 and $2/3$ in places unreserved in 2015.

[25] Electoral data were downloaded in March 2020 from the Rajasthan State Election Commission (http://sec.rajasthan.gov.in/StatisticsArchiveNew.aspx), and the list of GPs and villages was downloaded from the Local Government Directory (https://lgdirectory.gov.in/). Electoral data for the 1995 and 2000 elections were unavailable.

[26] The matching process was limited by several factors. (i) Because GPs only govern rural areas, BSBY patients residing in urban locations will correctly not be matched, but we cannot distinguish these from villages with "missing" matches. (ii) Because the GP lists do not include a unique numeric location identifier, we had to use "fuzzy" name matching. (iii) Because GPs and villages can split over time, new units that do not share the name with the parent unit may not be matched. Online Appendix Table B2 shows the characteristics of matched claims are not substantially different, but tertiary is slightly overrepresented.

Table 5—Effect of Political Reservations on Female BSBY Utilization

	Patient is female				
	All claims (1)	Under 15 years old (2)	15–45 years old (3)	46+ years old (4)	15–45 years old, including childbirths (5)
Number of times GP reserved	0.0030	0.0102	0.0087	−0.0045	0.0085
	(0.0021)	(0.0029)	(0.0031)	(0.0028)	(0.0027)
	{0.151}	{0.001}	{0.005}	{0.107}	{0.002}
Age group fixed effects	Yes	Yes	Yes	Yes	Yes
Month fixed effects	Yes	Yes	Yes	Yes	Yes
Patient district fixed effects	Yes	Yes	Yes	Yes	Yes
Specialty fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	1,969,980	149,553	970,391	850,036	1,130,974
Female share | Never reserved	0.492	0.326	0.549	0.445	0.549

Notes: The table presents regressions of a dummy for whether a BSBY hospital visit was for a female on a categorical measure of whether the patient resided in a location with a female-reserved Sarpanch seat zero, one, two, or three times between 2005 and 2015. The unit of observation is a hospital visit. The sample is restricted to BSBY hospital visits where the patient residence location is successfully matched to GP reservations history (see Appendix Table A1). Childbirths are additionally included in column 5 (included within the "general medicine" specialty). All regressions include location-level controls for the 2001 and 2011 population census variables listed in online Appendix Table B4, distances to district and subdistrict headquarters in the 2011 census, and distances to the nearest public and private BSBY hospitals, as well as fixed effects for patient district, ten-year age group bins, service, and month. The female share of visits in locations with Sarpanch seats that were never reserved for a female between 2005 and the full 2015 effect size are reported at the bottom of the table for reference. Standard errors are clustered at the GP level in parentheses, *p*-values in curly brackets.

among locations with complete reservation history in online Appendix Table B5. We find some imbalance in SC share of population (and, mechanically, prior SC/ST reservations), and availability of a banking facility, but the differences are economically very small, and, overall, the results suggest the randomization protocol was adhered to and that attrition due to incomplete matching is uncorrelated with reservation status. We control for all characteristics shown in online Appendix Table B5 in our analysis of the effects of reservations, but excluding controls does not substantially change results.

C. *Long-Term Exposure to Female Leaders Reduces Gender Gap*

To examine the effect of female reservations on the gender gap in BSBY utilization, in Table 5, we regress a dummy for whether a hospital visit was for a female on a categorical measure of whether the patient's residence location was reserved zero, one, two, or three times between 2005 and 2015.

Each reserved election cycle increased the female share of hospital visits among children under 15 years old by 1.02 pp (3.1 percent; p-value < 0.001) and among women of childbearing age by 0.87 pp (1.6 percent; p-value $= 0.005$), while it reduced it among the elderly by 0.45 pp, but this is not significant at conventional levels (1.0 percent; p-value $= 0.107$). Including childbirths in column 5 barely changes the effect among women 15 to 45 years, suggesting that reservations do not only increase formal care seeking for childbirths. Effects are not driven by being reserved in 2015 alone but require long-term exposure. To distinguish the impact of current from historical and cumulative exposure, online Appendix Table B6

separately reports the effect of being reserved in 2015, the number of prior reserved elections (up to two), and the interaction of the two. The "Reserved 2015" coefficients are small and not significant. Although the effect of reservations on absolute levels of male and female BSBY utilization at the location-quarter level is imprecisely estimated, online Appendix Table B7 suggests that the positive effect on the female share among children is driven by an increase in visits for girls with no change among boys.

D. *Mechanisms for Reservations Effects*

We find no evidence that reservations reduced the common (i.e., gender-neutral) cost of care seeking under BSBY ("common costs" in our framework). First, reservations have no effect on the supply of nearby health facilities either within or outside BSBY that would indicate a reduction in distance costs (Appendix Table A4). Second, there is no increase in health worker contacts or BSBY awareness among males, as we discuss below.

Reservations may, instead, work through channels that lower the care-seeking costs/barriers women face and increase households' willingness to use BSBY for females. For example, female leaders may prioritize and invest more resources in village health activities that target women and encourage them to obtain formal care.[27] They may change women's own aspirations and self-efficacy through role model effects, which could enable them to overcome barriers such as limited mobility or bargaining power and more effectively obtain care for themselves and their children. Exposure to women in positions of power could also shift gender norms and households' perceptions of the value of investing in females. Although we do not attempt to isolate the various causal channels, we provide survey evidence that exposure to female leaders induces changes consistent with shifts in one or more of the three wedges that lower demand for female care.

In Appendix Table A5, we use surveys with BSBY-eligible households to look at the effect of reservations on health care contacts, gender attitudes, and female empowerment.[28] First, we find that village health workers (ASHAs) are a key point of contact with the health system for women and that female leaders strengthen these interactions substantially. In unreserved areas, only 12.5 percent of men have talked to the ASHA in the last month, but this increases by 27.6 pp (to 40.1 percent) for women. Exposure to each female-reserved GP election further increases

[27] Sarpanches are supposed to monitor and support government-appointed village health workers, facilitate their contacts with residents (e.g., through village meetings and home visits), and coordinate local health spending and activities with them. There are three types of village health workers. Accredited social health activists (ASHAs) reside in the village and are responsible for mobilizing children for immunizations, helping women use formal health care for childbirth, and connecting households to the health system. Auxiliary nurse midwives (ANMs) manage the public primary health centers and provide basic maternal and child health services. Anganwadi workers (AWWs) run maternal and young child feeding programs.

[28] We sampled households with a BSBY-covered childbirth in 2017 (since childbirth is less prone to selection than other services, this is as close to a representative sample of BSBY-eligible households as we could get without enrollment data) and conducted phone surveys with them from November 2019 to January 2020. Surveys were randomly administered to either a male or female adult, permitting us to study responses by gender. Compliance with the gender assignment was high (83 percent and 97 percent among female- and male-assigned households, respectively). We surveyed 1,164 rural households with a 2017 childbirth and matched 835 (72 percent) to the GP reservations history. We report the interaction of respondent gender and the number of times their residence location was reserved.

the likelihood of ASHA contact by 7.7 pp for women (p-value $=$ 0.061) but has no significant effect for men (3 pp, p-value $=$ 0.291). This does not translate into awareness gains: although women score 0.37 standard deviations lower than men on an index of awareness of BSBY coverage, we find no significant effect of reservations on awareness among females. We also do not find evidence of a significant shift in an index of "progressive" attitudes about women's societal position and opportunities, though the coefficients are positive (around 0.05 SD for males and females), but women in reserved villages report a substantial increase in an index of female agency that measures their involvement in decision-making and independence (0.157 SD increase per time reserved; p-value $=$ 0.107).[29]

Consistent with this, surveys with Sarpanches in office in 2015 also indicate that female leaders engaged more actively with their constituents and village health staff.[30] Appendix Table A6 shows that Sarpanches in female-reserved seats in 2015 were 8.4 pp more likely to organize village meetings at least once a month compared to an unreserved mean of 35.5 percent (p-value $=$ 0.084). They were also 7.8 pp more likely to meet ASHAs at least weekly compared to an unreserved mean of 21.4 percent (p-value $=$ 0.059), which is consistent with household reports of greater ASHA contacts in Appendix Table A5. However, contacts with other types of village health workers did not increase, and health care is not significantly more likely to be a top spending priority for female than male leaders (6.5 pp over an unreserved mean of 23 percent; p-value $=$ 0.141). Finally, female Sarpanches are not better informed about BSBY than males ($-$0.15 SD, p-value $=$ 0.202), though we note that awareness levels are fairly high in both groups (both groups got just under four of five questions correct on average).

Taken together, our findings that the effects of reservations manifest after long-term exposure, are concentrated among children and women of child-bearing age, and include increases in women's agency and health worker contacts suggest that their impacts on BSBY utilization work through longer-term changes in maternal and child health investments and gender dynamics. These effects are consistent with shifts in the factors specifically lowering care utilization for females (potentially through changes in all three wedges in our conceptual framework), rather than gender-neutral reductions in BSBY care costs or barriers, being the primary explanation for the reduction in gender disparities in BSBY utilization in locations with female leaders. Although effects are modest (unsurprising, given that reservations were unrelated to BSBY and Sarpanches were not specifically tasked with spreading BSBY awareness), they demonstrate that interventions that target women

[29] Splitting the index into its components indicates that the effect is driven by increases in women's involvement in health decisions, likelihood of having an independent source of earnings, and mobility within the same village/town. Interestingly, male reports of female agency do not increase (females were asked about themselves, and males were asked about their spouses), which could reflect differences in reporting or changes in women's behaviors that are unobserved by men.

[30] We randomly sampled 1,332 GPs, stratifying by GP district and whether it was reserved for a female Sarpanch, and conducted phone surveys with the Sarpanch from the 2015–2020 term in November 2020 (after the 2020 GP elections; most Sarpanches were not reelected). Due to incorrect phone numbers in the government directory, we only reached 561 Sarpanches (42 percent). We had to talk to a male proxy in about 15 percent of interviews for female-reserved seats (typically because the husband or another male relative refused permission).

and counteract the effects of societal gender biases can increase the extent to which women benefit from subsidies for social services such as health care.[31]

If reservations are working through changes in broader health investments and gender dynamics, this could also explain why elderly females do not benefit from them. Village-level health activities overseen by Sarpanches and health workers largely focus on maternal and child health services but not on the conditions that typically afflict the elderly. To the extent that reservations work by shifting aspirations or the returns on human capital investments in females, they are most likely to affect younger females rather than the elderly. Elderly women have low bargaining power within the household (Calvi 2020); they may not be able to advocate for health care for themselves as effectively as elderly males, and, if budget-constrained households allocate more resources to younger females, this may come at the cost of care for elderly women.

VI. Conclusion

Pro-male gender bias has been well documented in India and shown to contribute to worse female health outcomes. Programs that increase geographic access to health facilities and subsidize health services have been the primary policy interventions to decrease inequalities in health, including by gender. Studying the universe of hospital visits under a health insurance program that entitles poor households in Rajasthan to free hospital care, we show that females benefit far less than males from these programs and large gender inequalities in usage persist despite massive program expansion over several years of implementation. Reducing care-seeking costs by enrolling additional hospitals in more remote areas in the program increases both female and male usage of BSBY but doesn't close gaps meaningfully almost two years later. Female local political representation reduces the gender gap by shifting the factors that lower female relative to male utilization, but effects are small and require over a decade of exposure. Nevertheless, this demonstrates the potential for more directly targeting women, in addition to universal subsidies, to reduce gender inequality in health.

Gender-neutral policies that reduce the cost of accessing social benefits increase utilization among females but may fail to reduce disparities in the presence of gender bias because males benefit as much or more than females. Ensuring social programs reach females and addressing gender disparities in outcomes will require strategies directly targeting the specific costs and barriers faced by females in the short run, coupled with longer-term legal and social endeavors to strengthen their rights and bargaining power.

[31] While we have a limited sample size to study impanelment effects in locations with repeated exposure to reservations, point estimates suggest that the marginal beneficiaries of a reduction in distance to subsidized private care are slightly more likely to be female in areas reserved two or more times than in the average impanelment results, implying that health care subsidies and policies that target women may be complements. Online Appendix Table B8 shows that in areas reserved two or more times, the marginal beneficiary is $0.43/(0.43 + 0.53) = 45$ percent female, while the marginal beneficiary of impanelment overall is $0.28/(0.28 + 0.43) = 39$ percent female.

Appendix A. Figures and Tables

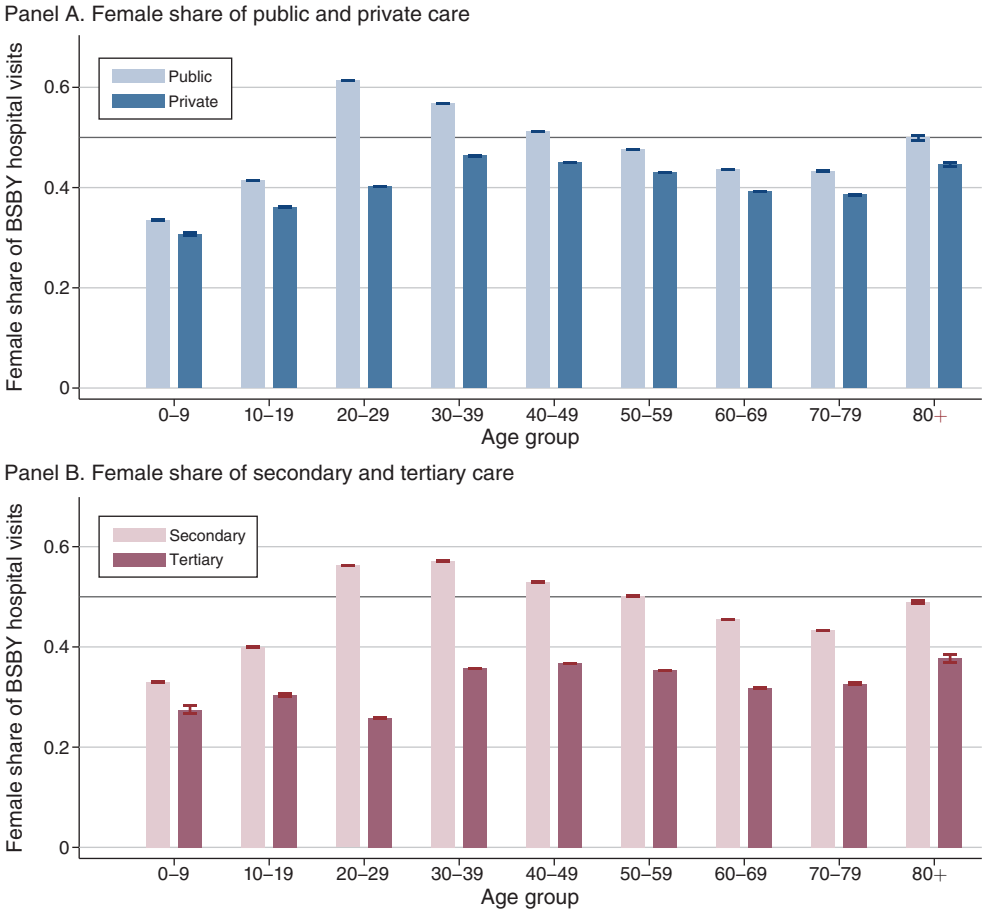

Figure A1. Gender Differences in Type of BSBY Care

Notes: The figure presents the female share of total BSBY visits within each age group at public versus private hospitals in panel A and for secondary versus tertiary care in panel B, using program administrative claims data. Secondary care refers to basic hospital stays and uncomplicated minor surgeries provided at community health centers and small hospitals. Tertiary care refers to complex inpatient intensive care and major surgeries provided at large, specialized facilities. Claims data are restricted to the study sample: they exclude 2016, childbirth, and neonatal care claims (see Appendix Table A1 notes). Capped spikes represent 95 percent confidence intervals.

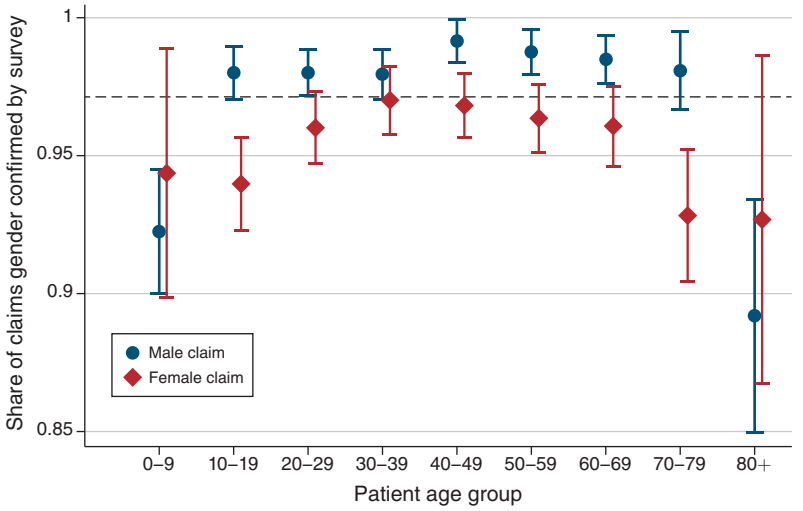

FIGURE A2. RELIABILITY OF GENDER INFORMATION IN CLAIMS DATA

Notes: The figure presents the share of observations in each age group where the patient gender classified in the BSBY claims data was confirmed in postvisit patient surveys. Claims for a range of services were randomly sampled for postvisit surveys to collect data on patient spending and care details (see Section IIIA); 10,489 of these were for nonchildbirth claims and were used to confirm patient gender. Whiskers represent 95 percent confidence intervals. The gray dashed line represents the overall mean confirmation rate (97 percent). There are only 41 (37) surveys for female (male) patients 80+, and 71 (129) surveys for female (male) patients under 10, which is why confidence intervals for these groups are larger.

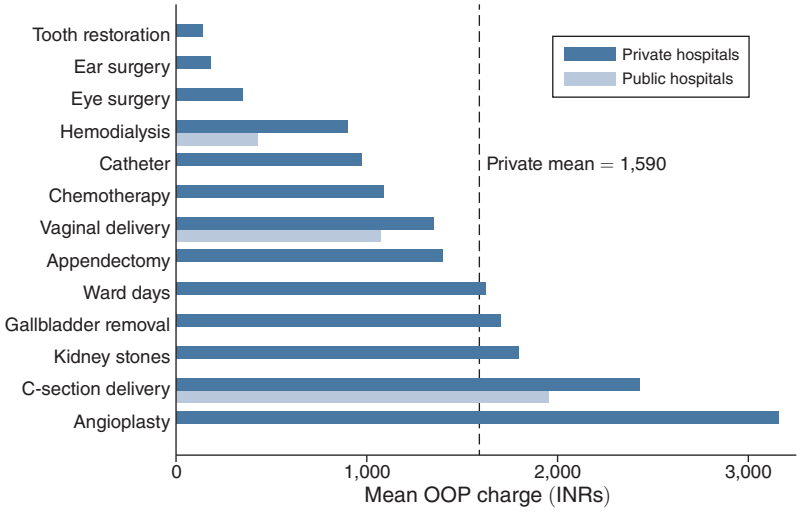

FIGURE A3. OUT-OF-POCKET CHARGES AT BSBY HOSPITALS

Notes: The figure shows average out-of-pocket charges for BSBY hospital visits across a range of services from approximately 20,000 postvisit audit surveys conducted with BSBY patients (or their relatives) between July 2017 and July 2018. BSBY claims were stratified by service and hospital sector and randomly sampled for survey. The survey focused largely on patients visiting private hospitals, but deliveries and hemodialysis visits at public hospitals were also sampled. The vertical lines report the weighted means at public and private hospitals across all services shown. Monetary values are expressed in Indian rupees (₹).

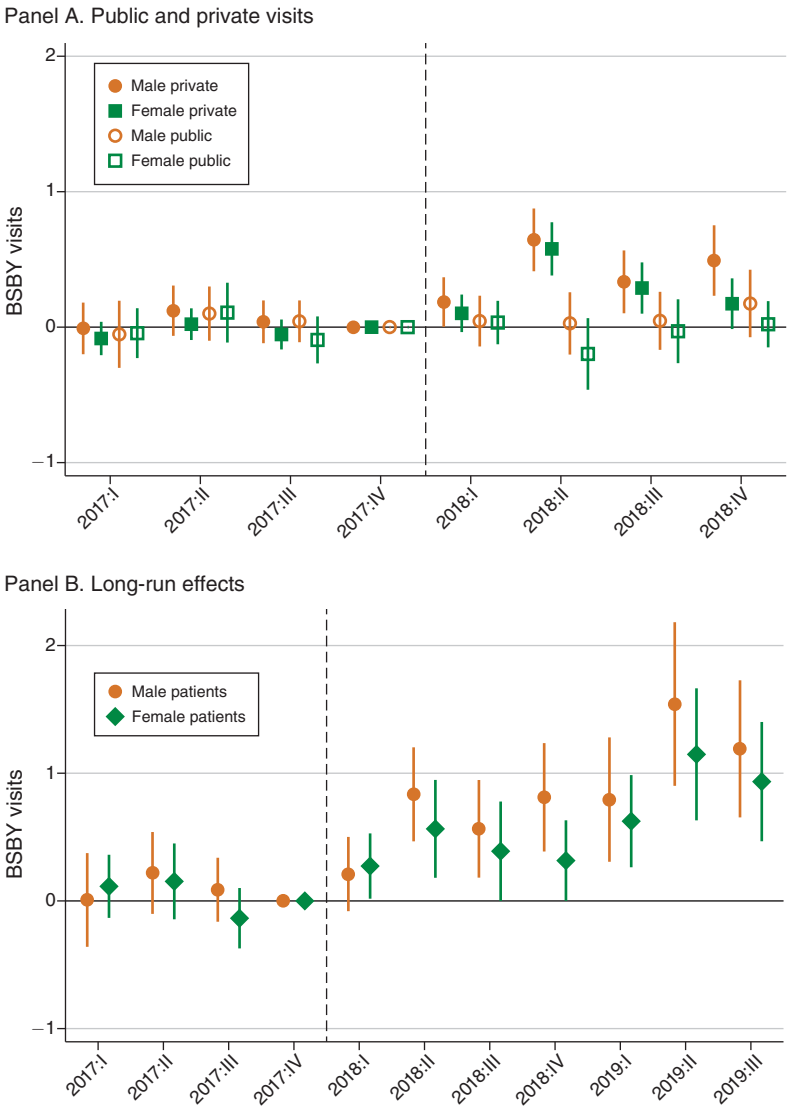

FIGURE A4. EFFECT OF HOSPITAL IMPANELMENT: ADDITIONAL RESULTS

Notes: The figure presents event study analyses of the effect of the impanelment of a private hospital near a location on BSBY utilization in that location, similar to Figure 7 except that in panel A, the outcomes are quarterly male and female BSBY visits split into those at public and at private hospitals and in panel B, the control group is locations with no hospital entry through 2019: III (when our data end) rather than through 2018:IV. All other notes are as in Figure 7.

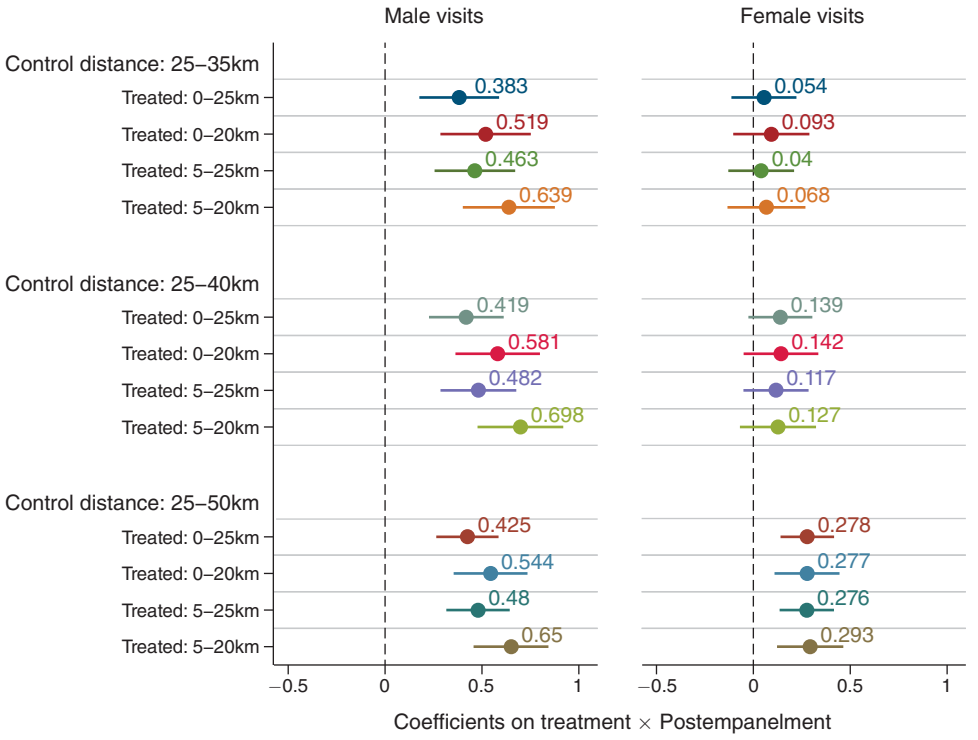

FIGURE A5. EFFECT OF HOSPITAL IMPANELMENT: ROBUSTNESS TO DIFFERENT DISTANCE BANDWIDTHS

Notes: The figure tests the sensitivity of the impanelment results to different definitions of the treatment and control groups. It reports coefficients from a series of DID regressions following the specification in Table 4 and where the control group (and the pre-impanelment treatment group) includes locations where the nearest private hospital in 2017 is 25–35 km away, 25–40 km away, and 25–50 km away, and where the post-impanelment distance to the nearest private hospital in the treatment group is from 0 km or 5 km to 20 km or 25 km away. Our preferred comparison is of locations with the nearest private hospital 25–50 km away to those with entry of a hospital 0–25 km away. The outcomes are quarterly male and female BSBY visits. All other notes are as in Table 4. Standard errors are in parentheses, p-values in curly brackets.

TABLE A1—DESCRIPTIVE STATISTICS ON BSBY HOSPITAL VISITS

Panel A. Study sample	
Full sample	
Total hospital visits	4,161,487
Unique patients	2,518,184
Main analysis sample (excluding 2016, childbirths, and neonatal visits)	
Hospital visits	
Total hospital visits	3,209,675
Unique patients	1,973,878
Unique households	1,671,255
Unique BSBY hospitals	1,639
Observations geocoded	
Patient residence geocoded (%)	71.2
Patient residence geocoded (#)	2,286,001
Patient residence geocoded and hospital geocoded (#)	2,262,729
Unique patient residence locations (village/town)	38,015
Observations with GP reservations information	
Patient residence merged with GP reservations (%)	61.4
Patient residence merged with GP reservations (#)	1,969,980
Never reserved (%)	12.3
Reserved once (%)	51.9
Reserved twice (%)	31.2
Reserved thrice (%)	4.7
Unique patient residence locations (village/town)	30,826
Panel B. Descriptive statistics (*main analysis sample*)	
Patient and care characteristics	
Female (%)	45.4
Age (years)	41.7
Chronic care (%)	15.0
Tertiary care (%)	26.4
Claims filed per hospital visit (#)	1.6
Claimed value per visit (Rs)	8,757.4
Characteristics of hospital visited	
Private hospital (%)	54.7
Hospital nearest to patient's residence (%)	19.3
Hospital outside patient's district (%)	29.4
Distance traveled to hospital (km)	49.2
Observations (hospital visits)	3,209,675

Notes: The table presents descriptive statistics on the BSBY program administrative data. The full sample includes all available claims data—i.e., data on all BSBY visits between program launch in December 2015 and October 2019. The main analysis sample excludes visits in 2016 (when the demographic and address data were of lower quality), for childbirth (since we focus on female-male comparisons), and for neonatal care (which record parent rather than child demographics). Patient residence locations from the claims data were (i) geocoded by linking them to the 2011 population census and (ii) matched to Gram Panchayat female reservation status for the 2005, 2010, and 2015 elections (locations with data for all three rounds are considered matched). The locations of BSBY hospitals were also geocoded. Chronic is a dummy for care requiring repeat visits (versus one-time), and tertiary is complex, specialized care (versus secondary). Monetary values are expressed in Indian rupees (₹) with a conversion rate of ₹70 = $1.

Table A2—BSBY Visits by Care Specialty and Age Group

	Under 15			15–45 years			46+ years		
Specialty	Male visits (1)	Female visits (2)	Female share (3)	Male visits (4)	Female visits (5)	Female share (6)	Male visits (7)	Female visits (8)	Female share (9)
General surgery	67.15	27.07	0.29	157.17	108.19	0.41	99.49	71.97	0.42
Otolaryngology	11.59	7.58	0.40	44.22	39.90	0.47	25.61	20.04	0.44
Orthopedics	18.76	6.10	0.25	78.76	19.46	0.20	49.37	42.16	0.46
Ob-gyn	0.00	0.45	1.00	0.00	70.11	1.00	0.00	18.74	1.00
Neurology	1.50	0.79	0.34	11.54	7.22	0.38	12.53	9.80	0.44
Ophthalmology	0.91	0.42	0.32	12.89	11.63	0.47	35.80	43.25	0.55
Pediatrics	2.16	0.33	0.13	0.00	0.00	.	0.00	0.00	.
General medicine	46.22	32.47	0.41	210.11	354.45	0.63	240.38	222.31	0.48
Dentistry	3.39	2.31	0.40	30.70	38.24	0.55	23.07	25.06	0.52
Plastic surgery	0.68	0.32	0.32	4.67	1.18	0.20	2.36	1.08	0.31
Oncology	2.94	1.09	0.27	23.29	23.18	0.50	57.48	46.76	0.45
Psychiatry	0.03	0.02	0.38	0.80	0.66	0.45	0.46	0.46	0.50
Gastrology	0.03	0.02	0.39	0.47	0.35	0.43	0.56	0.42	0.43
Nephrology	2.49	0.65	0.21	161.96	70.37	0.30	140.52	61.10	0.30
Urology	3.72	0.92	0.20	47.28	23.76	0.33	48.47	18.41	0.28
Cardiology	1.30	0.81	0.38	12.71	5.85	0.32	55.43	20.95	0.27

Notes: The table reports total male and female BSBY visits (in thousands) and the female share of visits by age group for every care specialty covered under BSBY. Claims data are restricted to the study sample: they exclude 2016, childbirth, and neonatal care claims (see Appendix Table A1 notes).

TABLE A3—MISSING FEMALE BSBY VISITS

Specialty	Total visits (1)	Female share of BSBY visits (2)	Female share of GBD illness prevalence (3)	Missing female BSBY visits (4)
Nephrology	437,091	0.30	0.48	147,320
Oncology	154,734	0.46	0.58	43,350
Cardiology	97,054	0.28	0.47	35,149
Neurology	43,390	0.41	0.52	9,502
Psychiatry	2,428	0.47	0.51	202
Gastrology	1,850	0.43	0.48	167
Ophthalmology	104,902	0.53	0.52	−826

Notes: The table aggregates results from Figure 3 and presents the observed female share of BSBY hospital visits across all ages for a given medical specialty (column 1), and the female share of illness prevalence is based on India's 2019 Global Burden of Disease sex-specific prevalence estimates and population sex ratio (column 2). Missing female visits are the additional female visits we would observe under BSBY between January 2017 and October 2019 (the study period) if, given observed male BSBY utilization levels, the female share of BSBY utilization was the same as the female share of illness prevalence in column 2 (instead of as in column 1). The analysis is restricted to the 7 medical specialties that could be matched from BSBY to the GBD, which account for 54 percent of all hospital visits under BSBY excluding general medicine/surgery. The calculation for each specialty and age group g is as follows:

$$\begin{aligned} Missing_g &= \left(GBDFemaleShare_g \times BSBYExpectedTotalVisits_g\right) - BSBYFemaleVisits_g \\ &= \left(GBDFemaleShare_g \times \left(\frac{BSBYMaleVisits_g}{1 - GBDFemaleShare_g}\right)\right) \\ &\quad - BSBYFemaleVisits_g, \end{aligned}$$

where $GBDFemaleShare_g$ is the female share of illness prevalence per the GBD, $BSBYExpectedTotalVisits_g$ is the total expected BSBY visits given the volume of observed male BSBY visits $BSBYMaleVisits_g$ and the prevalence-based expected male share $\left(1 - GBDFemaleShare_g\right)$, and $BSBYFemaleVisits_g$ is the volume of observed female BSBY visits.

TABLE A4—EFFECT OF POLITICAL RESERVATIONS ON LOCATION-LEVEL HEALTH FACILITY SUPPLY

	Has public health center (1)	Has public hospital (2)	Distance to public BSBY hospital (3)	Distance to private BSBY hospital (4)
Nbr of times reserved	0.0035	−0.0003	−0.0732	0.0774
	(0.0021)	(0.0009)	(0.0972)	(0.2161)
	{0.103}	{0.728}	{0.452}	{0.720}
Location-level controls	Yes	Yes	Yes	Yes
District fixed effects	Yes	Yes	Yes	Yes
Observations	35,033	35,033	34,616	35,041
Mean	0.099	0.009	12.508	23.578
Mean | Never reserved	0.094	0.013	12.717	22.455

Notes: Regressions are at the village/town location level. Data on 2020 health facilities were obtained in March 2021 from the PMGSY Rural Facilites Dataset (https://omms.nic.in/Home/PMGSYRuralDataset/). The sample is restricted to locations successfully matched to GP reservations history (see Appendix Table A1). All regressions include location-level controls for the 2001 and 2011 population census variables listed in online Appendix Table B5, caste reservations (number of times reserved for each category: OBC, SC, and ST), and for the distances to district and subdistrict headquarters in the 2011 census. Columns 3 and 4: Distances are expressed in kilometers. Mean values of each of the outcomes in locations with Sarpanch seats that were never reserved for a female between 2005 and 2015 are reported at the bottom of the table for comparison. Standard errors are clustered at the GP level in parentheses, p-values in curly brackets.

Table A5—Effect of Political Reservations on Household Awareness and Attitudes

	Talked with ASHA in last month (1)	BSBY Awareness Index (2)	Gender Attitudes Index (3)	Female Agency Index (4)
Female respondent	0.276	−0.367	−0.111	−0.353
	(0.114)	(0.326)	(0.385)	(0.292)
	{0.016}	{0.261}	{0.773}	{0.226}
Female × Number times reserved	0.077	−0.102	0.053	0.157
	(0.041)	(0.100)	(0.117)	(0.097)
	{0.061}	{0.308}	{0.652}	{0.107}
Male × Number times reserved	0.030	0.040	0.057	−0.080
	(0.028)	(0.099)	(0.096)	(0.086)
	{0.291}	{0.689}	{0.552}	{0.356}
Strata fixed effects	Yes	Yes	Yes	Yes
Claim type fixed effects	Yes	Yes	Yes	Yes
Surveyor fixed effects	Yes	Yes	Yes	Yes
District fixed effects	Yes	Yes	Yes	Yes
Observations	835	835	810	822
Mean | Male resp, never reserved	0.125	0.000	0.000	0.000

Notes: The unit of observation is a surveyed individual. The table presents the effect of reservations on the attitudes and awareness of residents using data from phone surveys conducted between November 2018 and January 2020 with a sample of households who had given birth at a BSBY facility between January and May 2017. Standard errors clustered at the GP level in parentheses, *p*-values in curly brackets. Mean values of each of the outcomes for male patients in locations with Sarpanch seats that were never reserved for a female between 2005 and 2015 are reported at the bottom of the table for comparison. All specifications include sampling weights and controls for whether the patient is of scheduled tribe, whether the household was randomly assigned to have a female respondent, as well as age, education, and assets bins, in addition to location-level caste reservations (number of times reserved for each category: OBC, SC, and ST). "Claim type" refers to whether the household had no child visit, only male child visit(s), or at least one female child visit in the BSBY claim data subsequent to the childbirth. ASHAs are village-level government health workers who are responsible for immunizations, pregnant woman care, and basic health activities. All indexes have been normalized over the male respondent group in never-reserved locations. The BSBY awareness index combines dummies for whether the respondent is aware that BSBY covers hospital, doctor, tests, medicines, and not transport costs; that it covers childbirths, broken bones, extreme fevers, but not vaccinations; and awareness of the closest BSBY hospital, annual household financial coverage, and whether the household has used BSBY. The gender attitudes index combines dummies for "progressive" views (either agree or disagree, depending on the statement) on four statements: "A woman's most important role is being a good homemaker," "A man should have the final word about decisions in the home," "If there is not enough money for all the children in a family to go to school, the boys should get to go instead of the girls," "A woman should be able to travel outside her village alone." The female agency index combines dummies for whether the woman was involved in major purchase decisions and in health care decisions for children in the household; whether she traveled to shops within the same village alone, another village alone, and another village with someone else in the last year (for urban residents, we asked about the same urban neighborhood); and whether she has any source of her own earnings and owns her own mobile phone. Females were asked about their own agency and males about their spouses.

Table A6—Differences in Sarpanch Priorities by Reservation Status

	Resp was female Sarpanch (1)	Organized monthly village meetings (2)	Met weekly with ASHAs (3)	Met weekly with all VHWs (4)	Health among top 3 spending items (5)	Knowledge of BSBY coverage index (6)
Female-reserved 2015	0.836	0.084	0.078	0.037	0.065	−0.140
	(0.020)	(0.049)	(0.041)	(0.033)	(0.044)	(0.105)
	{0.000}	{0.084}	{0.059}	{0.250}	{0.141}	{0.184}
District fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Surveyor fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	547	527	546	546	527	512
Mean | Never reserved	0.014	0.355	0.214	0.124	0.230	−0.002

Notes: The unit of observation is a surveyed Sarpanch. The table presents differences in Sarpanch priorities and actions by Gram Panchayat female reservation status using data from phone surveys conducted between November 2020 and January 2021 with Sarpanches from the 2015 election cycle. All regressions include controls for whether the survey respondent is the Sarpanch or a proxy and whether the Sarpanch seat was caste reserved (separately from female reserved). ASHAs are village-level government health workers who are responsible for immunizations, pregnant woman care, and basic health activities. VHWs are village health workers, including ASHAs, Anganwadi workers (who manage child feeding programs), and ANMs (nurses who deliver immunizations and staff public health centers). Health spending includes spending on health care and maternal and child nutrition services. Knowledge of BSBY coverage is an index of dummies for correct identification of the types of costs and conditions BSBY covers, standardized over the group that was unreserved in 2015. Standard errors in parentheses, *p*-values in curly brackets. Mean values of each of the outcomes in locations with Sarpanch seats that were never reserved for a female in 2015 are reported at the bottom of the table for comparison.

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