

# DEMOCRATIZATION AND HEALTH CARE IN RURAL INDIA

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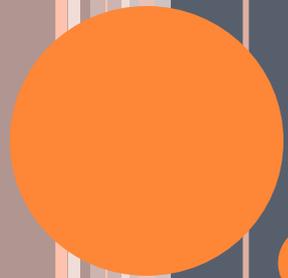
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# OUTLINE

- Introduction
- Literature Review and Background
- Overview of the Data
- Methodology
- Results
- Concluding Remarks and Lessons for Policy





# INTRODUCTION



# INTRODUCTION

- Service provision is a core function of local governments in rural India
- Efficient delivery of public goods like healthcare, drinking water, and schools can be a key strategy for poverty reduction (World Bank, 2000)
- If panchayats can provide services as well as enable access effectively, then it can significantly affect development outcomes
  - For example, increased earning capabilities from improved healthcare facilities)
- With effective decentralization, citizens can hold local governments accountable but more importantly be able to ascertain the method of provision and quality of public goods
- In addition decentralization enables citizens to determine information about accessing these public goods.



# INTRODUCTION

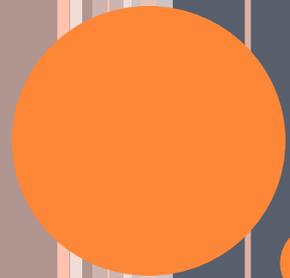
- Specifically Male and female members of households wish to know about the how health care is provided, its quality and the method of accessing the various health care provider. This they do by participating in the various processes associated with local governance.
  - However, the level of participation and access to information may be different for men and women, thereby implying gender-variegated effects of decentralisation for their economic well-being.
- We wish to show that improved access to health services can have significant gender-variegated income effects
- We show that deepening of democracy has an intermediating effect on choice of health services.
  - That is, being able to participate in the process of governance of health services is an important determinant of choice, particularly so for women.
- For a given likelihood of falling ill, members of households choose between different types of health care providers (broadly classified into private and public) and decide on a level of private health care expenditure



# INTRODUCTION

- Deepening of democracy through participation in local decision-making and improved grievance redressal related to public goods reduces the extent of information asymmetries associated with service quality and enables the members of households to make optimal choices.
- It is not only the supply of services and mechanisms associated with access and choice that are more important in increasing household welfare.





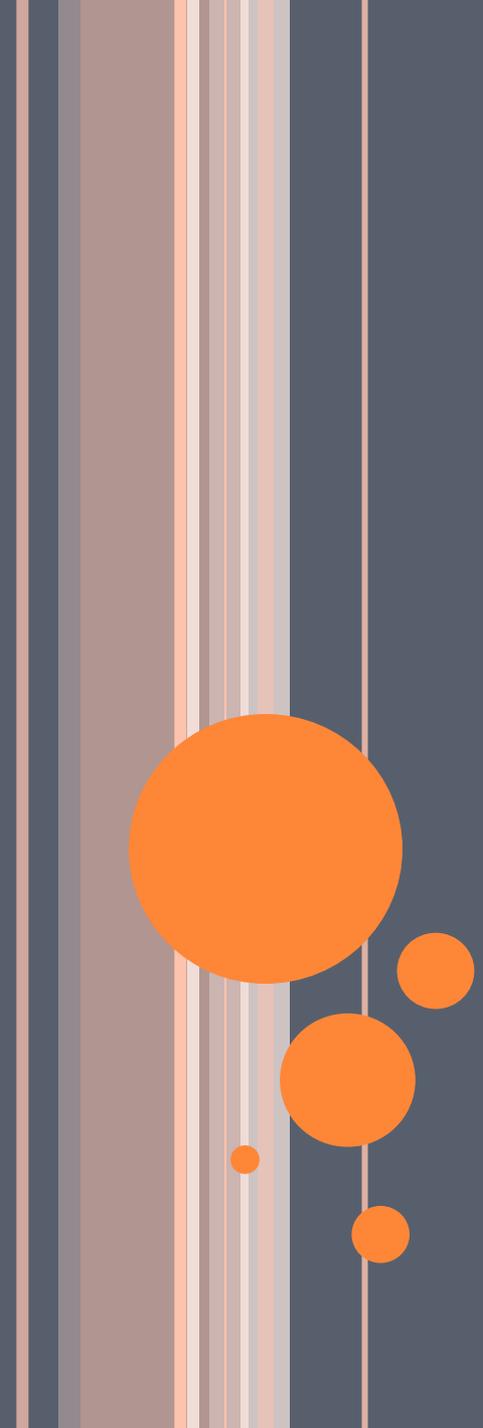
# WHAT DO WE INVESTIGATE?



# WHAT DO WE INVESTIGATE ?

- Does participation in local governance reduce the level of information asymmetry to improve access to health care?
  - Members of households are able to determine what types of health services are provided and the quality of these services.
  - They can also ascertain the optimal methods of accessing these service providers.
  - As a result, for a given level of health status, households will be able to determine how to access these health care services
- Can participating in local governance influence the choice of healthcare and the levels of private health expenditures?
  - Decentralization enables participation in local governance
- Can the choice of healthcare provider (public, private or informal) have gender-variegated income effects?
- What is the relationship between an increase in likelihood of choice of a health care provider and an increase in incomes?
  - It has been shown that if growth rate of private healthcare expenditure is faster than the growth rate of income, then optimal health investments are taking place.
  - Can optimal choice of health care provider have a similar interpretation?





# LITERATURE REVIEW AND BACKGROUND

# LITERATURE REVIEW

- The extant literature has shown that improved provision and access to services and public goods have significant welfare effects on households (Dinkleman, 2011; Devoto et al., 2012; Sekhri, 2014).
- The literature provides evidence of links between deepening of the democratic processes and reduction in moral hazard; i.e., with increased democratisation, the actions of the elected representatives become observable to the households (Joanis, 2014) and, under certain conditions, this may enable greater accountability and lead to improved provision of services with potential positive effects on economic welfare.



# LITERATURE REVIEW

- **Goncalves (2013)** finds that community involvement in local government expenditure decisions (or participatory budgeting) successfully matched local preferences for spending in health and sanitation, and, reducing infant mortality.
- **Bjorkman and Svensson (2009)** show that making local health care providers in Uganda accountable to the community lowered absenteeism rates of health workers and doctors, and increased uptake of public health care services



# LITERATURE ON HEALTH CARE

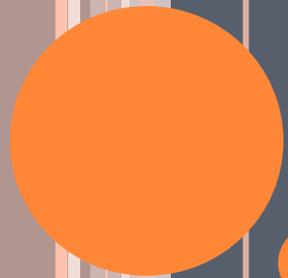
- **Bhalotra and Clots-Figueras (2011)** investigate whether women elected to state legislative assemblies are more effective than their male counterparts in providing public health services in India.
  - Women's political representation results in a 1.5 percentage point reduction in neonatal mortality.
- **Banerjee et al. (2008)** study randomized evaluation of an incentives program to improve Assistant Nurse Midwife (ANM) attendance at rural sub-centers
  - Despite the initial outcomes showing improvement in nurse attendance, 16 months after program inception, there was no difference between the absence rates in treatment and comparison centers
- **Das et al. (2015)** use data from a unique audit study conducted in rural areas of the Indian state of Madhya Pradesh (MP).
  - They find significant differences in quality of health care provision, particularly related to the effort exerted in ensuring that the treatment is optimal.



# LITERATURE ON HEALTH CARE

- Following **Grossman (1972)** many authors have related levels and growth of private health expenditures to welfare outcomes.
  - For India, Sarma (2009) finds that the demand for healthcare was price-and income-inelastic.
  - Borah (2006) uses data from the National Sample Survey (NSS) to show that demand for healthcare in rural areas is price-inelastic and low income households are more sensitive to the price of healthcare
- We take this line of analysis and estimate the impacts of illness, choice of health provider and levels private health expenditures of men and women on their individual incomes.





# BACKGROUND

# BACKGROUND: HEALTH POLICY IN INDIA

- Only 57.7% of all births are attended by skilled health personnel, and despite the steady decline of the maternal mortality rate (from 280 in 2005 to 190 in 2013), more than half of all new born infants (and their mothers) do not receive adequate post-natal care during the first two days after their birth (WHO, 2014).
- The reasons for poor health (particularly in rural India) are usually attributed to deficiencies in the healthcare and prevention system, lack of significant financial resources to enhance the system, poverty, and corruption



# NATIONAL RURAL HEALTH MISSION (NRHM)

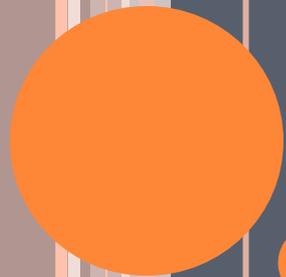
- In order to rectify existing pathologies with the rural health care system, the Government of India launched the National Rural Health Mission (NRHM) in 2005.
- NRHM seeks to improve access to health facilities, enable community ownership of services, strengthen public health systems, enhance the equity and accountability of the providers, and most importantly, strengthen and deepen the levels of decentralization by increasing the resources available to the Panchayats.
- While the responsibility of implementation of this program rests with the state governments, the NRHM seeks to empower the Panchayats to manage, control and be accountable for health services through Block-level Panchayat Samitis, the Zilla Parishads, which will lead and co-ordinate the work of Panchayats within their jurisdiction.
  - Panchayats are also critical to the planning, implementation, and monitoring of the NRHM.
  - Thus, the success and efficacy of NRHM depends on Panchayat-level community ownership steered through village-level health committees, and a strong public sector health system with support from the private sector



# NATIONAL RURAL HEALTH MISSION (NRHM): PROGRESS

- While female health workers and *dais* (traditional birth attendants) are present in most villages, others such as ASHA, ANM, and Anganwadi workers — crucial to spreading awareness about health — are relatively scarce.
  - Such scarcity is likely to induce households to access information about key health-related problems from informal sources such as social networks
  - The village health committees that have been formed under the mandates of the NRHM act as significant mechanism for engendering inclusiveness in health planning.





# OVERVIEW OF THE DATA

# DATA

- We use data from the ARIS/REDS (Additional Rural Income Survey and the Rural Economic and Demography Survey) of NCAER.
- These surveys have been conducted since 1969 currently consist of 241 villages across 17 states
  - These include Tamil Nadu, Kerala, Karnataka, Maharashtra, Gujarat, Rajasthan, Punjab, Haryana, Uttar Pradesh, Bihar, Jharkhand, West Bengal, Orissa, Chhattisgarh, Madhya Pradesh, and Andhra Pradesh
- The current round (2006) surveyed 8,659 households, out of which we use the data for 5,885 households that represent a panel (across the 2006 and 1999 rounds)



# TABLE 1: INDIVIDUAL HEALTH STATUS AND HEALTH OUTCOMES

Variable	Male	Female	Differences (t-test)
Private healthcare expenditure (REDS-2006, in rupees of 1999)	636.97 (88.76)	522.86 (29.67)	114.11
Private healthcare expenditure (REDS-1999)	277.22 (3.55)	282.89 (3.75)	-5.67
Awareness of health campaign (%)	78.31 (0.32)	78.9 (0.33)	-0.6
Incidence of illness in past year (%)	55.37 (0.39)	52.8 (0.4)	2.5***
Days absent from work due to illness	11.16 (0.295)	10.71 (0.273)	0.45
Use of private health care provider (%)	26.13 (0.34)	24.64 (0.35)	1.5***
Use of public health care provider (%)	21.76 (0.32)	20.8 (0.33)	0.9**
Use of other (informal) health care provider (%)	3 (0.13)	3.07 (0.14)	-0.07
Participation in health-related issues in Gram Sabha meetings (number attended in a year)	4.71 (0.02)	5.71 (0.011)	-1***
Average score on health satisfaction index	1.59 (0.014)	1.51 (0.015)	0.08***
Existence of problems related to functioning of health center in reserved Panchayats	55.98 (0.50)	56.53 (0.50)	0.55
Existence of problems related to functioning of health center in unreserved Panchayats	60.22 (0.49)	61.18 (0.49)	-0.96
Resolution of problems related to functioning of health center in reserved Panchayats	22.49 (0.42)	24.18 (0.42)	-1.69
Resolution of problems related to functioning of health center in unreserved Panchayats	19.31 (0.39)	19.97 (0.40)	-0.66



# TABLE 2: AVAILABILITY OF HEALTHCARE FOR HOUSEHOLDS IN THE VILLAGES

Healthcare centers	One-way distance from the village in km	Number of patients treated per day	Number of days open per week	Number of hours open per day
Health sub-center (Pub)	5.29 (5.68)	20.60 (29.37)	5.24 (1.93)	6.84 (3.77)
Subsidiary health center (Pub)	10.41 (9.58)	39.35 (51.80)	6.23 (0.71)	8.95 (5.84)
Primary health center (Pub)	7.99 (6.86)	55.87(58.00)	6.30(0.59)	8.75(6.67)
Hospital (Pub)	25.87 (24.62)	205.05 (156.22)	6.52 (0.51)	13.74 (9.23)
Family planning clinic (Pub)	11.15 (13.18)	18.41 (24.69)	5.92 (1.22)	8.99 (6.83)
Anganwadi (pub)	1.78 (1.11)	23.79 (63.64)	6.01 (0.44)	5.22 (2.51)
Allopathic doctor (Pvt)	8.64 (8.77)	37.32 (46.23)	6.75 (0.70)	11.27 (5.80)
Unani doctor (Inf)	11.24 (8.15)	19.05 (32.59)	6.44 (0.66)	8.43 (2.04)
Ayurvedic doctor (Inf)	10.78 (13.48)	19.42 (29.28)	6.48 (0.99)	8.44(2.90)
Traditional healer (Inf)	6.24 (5.73)	8.09 (9.68)	6.67 (1.03)	11.68 (6.32)



# TABLE 3: EVALUATION OF MEDICAL FACILITIES

Institution	All			Male			Female		
	Pub.	Pvt.	Other	Pub.	Pvt.	Other	Pub.	Pvt.	Other
<b>1. Was the facility functional when visited?</b>									
Always	63	76.2	62.1	63.3	75.9	63	62.6	76.5	61.2
Most of the time	30.3	21.7	27.3	29.6	21	26.8	31.1	22.3	27.8
Sometimes	5.6	1.6	8.9	5.9	2.6	8.8	5.4	0.7	8.9
Rarely	1.1	0.4	1.7	1.2	0.4	1.4	1	0.4	2.1
Never	0	0.1	0	0	0.1	0	0	0.1	0
<b>2. Availability of trained staff (doctor, nurses, dais, etc.)</b>									
Always	47.05	72.35	62	47.60	73.4	59.4	46.5	71.3	64.6
Most of the times	43.7	25.5	27.1	44.20	24.8	28.7	43.2	26.2	25.5
Sometimes	6.9	1.5	7.5	4.70	1.3	9.1	9.1	1.7	5.9
Rarely	1.4	0.65	2.95	1.60	0.5	1.9	1.2	0.8	4
Never	0.95	0	0.45	1.90	0	0.9	0	0	0
<b>3. Waiting time during the visit (hours)</b>									
No waiting time	20.49	42.11	41.60	22.81	43.38	42.66	40.84	18.17	40.54
Less than ½ hour	46.58	41.88	41.16	47.84	43.23	40.17	40.52	45.31	42.15
½–1 hour	18.75	11.91	10.96	16.96	11.24	13.3	12.58	20.54	8.62
1 – 2 hours	12.37	3.68	5.87	10.61	1.72	3.05	5.64	14.13	8.69
2 – 5 hours	1.82	0.43	0.42	1.78	0.44	0.83	0.42	1.85	0



# TABLE 4: EVALUATION OF MEDICAL FACILITIES

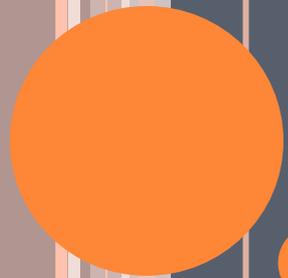
## 4. Need for bribe for appointment, referral, and bed

	All			Male			Female		
	Pub.	Pvt.	Other	Pub.	Pvt.	Other	Pub.	Pvt.	Other
Always	4.55	2.45	13.2	3.3	1.8	12.2	5.8	3.1	14.2
Most of the times	11.15	3.7	12.15	12.6	3.4	11.6	9.7	4	12.7
Sometimes	10.4	2.9	10.65	9.4	1.3	9.1	11.4	4.5	12.2
Rarely	5.9	0.65	4	6.3	0.7	4.4	5.5	0.6	3.6
Never	68	90.3	60	68.4	92.8	62.7	67.6	87.8	57.3

## 5. Availability of recommended medicines

Always	34.45	45.55	39.55	41.2	47.3	40.1	27.7	43.8	39
Most of the times	43.8	35.35	32.1	39.9	40	35.7	47.7	30.7	28.5
Sometimes	14.65	15.1	19.75	12.3	10.6	18.5	17	19.6	21
Rarely	4.1	1.7	4.55	3.2	1.4	1.9	5	2	7.2
Never	3	2.3	4.05	3.4	0.7	3.8	2.6	3.9	4.3
Total	100	100	100	100	100	100	100	100	100





# METHODOLOGY

# METHODOLOGY

- We estimate the contemporaneous impact of choices of health care provider, probability of falling ill, and the choice of the level of private health care on gendered contribution to household incomes using a two stage simultaneous instrumental variables strategy
  - Individual choice of health care provider can be of three types: (a) public; (b) private; and (c) informal health care providers
- The empirical structure explains an underlying process where choice of health care providers and private health expenditures, and the probability of falling ill mediated by governance and other instruments, affects the income generating process

- $$Y_{kiv} = \gamma + \gamma_2 X_{kiv} + \gamma_2 \widetilde{W}_{iv} + \gamma_3 V_{kiv} + \varepsilon_{kiv}$$



# IDENTIFICATION STRATEGY

- Where,  $Y$  is Individual income (normalized using natural logarithm);  $X$  is a vector of individual health status, healthcare expenditure, and provider choice variables,  $W$  is predicted household wealth (Foster & Rosenzweig, 2002) and  $V$  denotes the vector of household and village control variables. The subscripts are for the  $k^{\text{th}}$  individual, the  $i^{\text{th}}$  household, and  $v^{\text{th}}$  village.
- However, the variables of interest in vector  $\mathbf{X}$  may be endogenous to an individual's contribution to household income.
- We instrument these using variables germane to local governance that do not directly affect income but affect  $\mathbf{X}$ 
  - $X_{kiv} = \alpha_0 + \alpha_1 Z_{kiv} + \alpha_2 V_v + \varepsilon_{kiv}$
- We estimate the impact of governance variables  $Z$  on a vector  $X$  of individual variables that includes probability of falling ill in the past year, private health care expenditures and the choice of the type of health care provider.
  - Where,  $X$  is a vector of  $K$  individual health status, private health care expenditure, and provider choice variables,  $Z$  is a vector of governance variables of the village



# INSTRUMENTS USED

- $Z$  consists of measures germane to local governance and improved agency:
  - Political reservations (ever reserved for women)
  - Proportion of village expenditures allocated to health,
  - Whether decisions taken at the GS related to health,
  - (predicted) Individual participation in GS meetings where health was discussed
- We assume that (i) all instruments are relevant to the vector  $X$  and,  $Z_{kiv}$  affects  $X$  and, (ii) the instruments used are valid and uncorrelated with  $\varepsilon$ .
- The identification strategy to achieve these conditions are as follows: The Panchayat governance variables  $Z$  are exogenous to the individuals' choices, but they do not influence the outcomes (i.e. incomes) directly
  - However, participation of household members in the Gram Sabha meetings that can be influenced by their health status and individual fixed effects
- We use the Anderson canonical correlation Lagrange-multiplier test under the null hypothesis that equations are under-identified. If our specification is identified then we wish to test whether the identification is strong or weak, using the Cragg–Donald's F-statistic under the null of weak identification. The Sargan test has been used for testing over-identification.



# ENDOGENEITY: PARTICIPATION IN GS MEETINGS

- Participation in GS meetings must be conditioned on existing perceptions of service delivery at healthcare providers. We use a health satisfaction index to predict individual participation in Gram Sabhas:
- $\ln GS_{ijk} = \alpha_v HS_{ijk} + \delta_m V_k + \phi_{ijk}$  (i)
  - Where,  $HS_{ijk} = \beta_s Z_{ijk} + \omega_{ijk}$  (ii)
- The health satisfaction index ( $HS_{ijk}$ ) combines the elements of access, availability, and quality and is constructed using the responses of individual respondents as follows:  $f(h_i) = \log(h_i + \sqrt{h_i + 1})$
- Where  $h_i$  is the score of individuals with respect to five attributes (availability of service, medicines, staff, efficiency of services, and whether a bribe was required; see tables 3 and 4) on which members rated the health services.
- $HS_{ijk}$  is the composite health satisfaction index that is predicted for the  $i^{th}$  individual of the  $j^{th}$  gender in the  $k^{th}$  village
  - Participation in GS meetings will therefore serve as a tool of democratized management of healthcare services, conditioned on perceived satisfaction of health care providers.
  - When they participate, members of households are ascertaining which services to access, and how to access health care services via participation in these meetings.



# ENDOGENEITY: HOUSEHOLD WEALTH

- Inheritance of wealth will affect the intra-household dynamics and outcomes.
  - Household wealth and household splits could be endogenous to choice and income and hence are predicted using the following specification in line with Foster & Rosenzweig (2002).

$$○ W_{iv} = \beta_0 + \beta_1 \mathbf{S}_{iv} + \beta_2 V_v + \varepsilon_{iv}$$

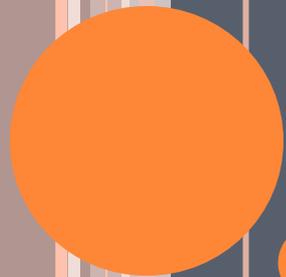
- We predict household wealth,  $W_{ijk}$  by the likelihood of household splits (Foster & Rosenzweig, 2002)
- **S** is a vector that measures likelihood of household splits, such as age of head of the household, change in variance and mean of education of members of household, number of children whose age is less than 15 years, inherited wealth at the beginning of the period (1999), dummies for whether father is co-resident at beginning and at end of the periods (1999 and 2006), dummies for whether both brothers and sisters are co-resident at the beginning and end of the period (1999 and 2006) and an error term.



# IMPACT OF LOCAL GOVERNANCE

- We test individually the impact of various governance measures on the choice of health care provider and compute their income effects via changes in these choices conditioned on a level of private health care expenditure and health status
- *Health Care Management*: Political reservations for women in the current and past period, and predicted participation in Gram Sabha meetings when health was on the agenda
- *Panchayat Health Expenditure*: Proportion of total expenditure allocated to health by the Panchayat
- In line with the literature, we also use distance to the nearest health centre, losses due to covariate shocks (such as drought or floods) to identify the system of equations.
- These variables capture the idea that it is not just improvements in health care infrastructure that bring about better outcomes, but also improved decision-making related to health facilities by local governments
  - We also compute their total (composite) impact on health care choice, expenditure, and incidence of illness separately for males and females.





# RESULTS

First Stage and Second Stage



# TABLE 5: IMPACT OF GOVERNANCE ON HEALTH OUTCOMES (FIRST STAGE) (MALES)

VARIABLES	Male				
	Illness	Private healthcare expenditure	Choice of private healthcare provider	Choice of public healthcare provider	Choice of other (informal) healthcare provider
Ever reserved	-0.0662*** (0.0173)	-0.263** (0.110)	-0.0354* (0.0205)	-0.0506*** (0.0195)	0.0139* (0.00811)
Proportion of village expenditures allocated to health	0.0147 (0.0495)	-1.405*** (0.314)	0.0196 (0.0585)	0.102* (0.0558)	-0.0179 (0.0232)
Whether decision related to health was taken in any GS meeting	-0.0547** (0.0227)	-0.111 (0.144)	-0.162*** (0.0268)	0.305*** (0.0256)	-0.195*** (0.0106)
Predicted participation in health-related issues in GS meetings	-0.0352*** (0.000610)	-0.200*** (0.00387)	-0.0173*** (0.000721)	-0.0227*** (0.000688)	-0.00158*** (0.000286)
<b>Combined impact of governance</b>	<b>-0.134** (0.0555)</b>	<b>-1.943*** (0.349)</b>	<b>-0.176*** (0.065)</b>	<b>0.324*** (0.0621)</b>	<b>-0.219*** (0.0266)</b>
Is the availability of drinking water adequate	-0.00748 (0.0150)	-0.351*** (0.0953)	-0.00445 (0.0178)	0.0248 (0.0170)	-0.0220*** (0.00704)
ln (Distance to primary health centre)	0.0175** (0.00684)	0.0723* (0.0434)	0.0128 (0.00808)	-0.0218*** (0.00771)	0.0128*** (0.00320)
ln (Losses due to village shocks)	0.00371** (0.00155)	0.0208** (0.00984)	0.00439** (0.00183)	-0.00296* (0.00175)	-0.000763 (0.000727)
Observations	4,442	4,442	4,442	4,442	4,442

# TABLE 5: IMPACT OF GOVERNANCE ON HEALTH OUTCOMES (FIRST STAGE) (FEMALES)

VARIABLES	Female				
	Illness	Private healthcare expenditure	Choice of private healthcare provider	Choice of public healthcare provider	Choice of other (informal) healthcare provider
Ever reserved	-0.0767*** (0.0182)	-0.207* (0.118)	-0.0517** (0.0211)	-0.0710*** (0.0204)	0.0189** (0.00925)
Proportion of village expenditures allocated to health	0.0207 (0.0511)	-1.266*** (0.331)	-0.0706 (0.0592)	0.202*** (0.0571)	0.0515** (0.0259)
Whether decision related to health was taken in any GS meeting	-0.0599*** (0.0225)	0.0410 (0.146)	-0.160*** (0.0261)	0.293*** (0.0251)	-0.180*** (0.0114)
Predicted participation in health-related issues in GS meetings	-0.0372*** (0.000618)	-0.213*** (0.00401)	-0.0181*** (0.000716)	-0.0235*** (0.000691)	-0.000889*** (0.000313)
<b>Combined impact of governance</b>	<b>-0.124** (0.0549)</b>	<b>-1.652*** (0.353)</b>	<b>-0.293*** (0.063)</b>	<b>0.397*** (0.0605)</b>	<b>-0.105*** (0.0281)</b>
Is the availability of drinking water adequate	0.00215 (0.0157)	-0.272*** (0.102)	-0.0201 (0.0182)	0.0231 (0.0176)	-0.00666 (0.00798)
ln (Distance to primary health centre)	0.0142** (0.00693)	0.137*** (0.0449)	0.0122 (0.00804)	-0.0250*** (0.00775)	0.0193*** (0.00352)
ln (Losses due to village shocks)	0.000474 (0.00161)	-0.00667 (0.0104)	-0.00262 (0.00186)	0.000948 (0.00179)	0.000779 (0.000814)
Observations	4,126	4,126	4,126	4,126	4,126

# DETERMINANTS OF HEALTH CARE CHOICE

- Public policy on health should be able to bring about improvements in household welfare
- The usual discussion is that this takes place via improved financial allocations toward health care delivery.
  - However, financial allocations by themselves do not necessarily lead to welfare.
  - How households make choices determine welfare.
  - In the context of decentralization, discussions about impact of improved governance or increased allocations of finances towards health by themselves will yield perverse results.
  - For example any discussion on impact of increases in village health expenditure should exist alongside discussions on increases in Gram Sabha decisions related to health or household participation in Gram Sabhas.
- In of itself, each component may have limited or even perverse outcomes.
- Jointly improving financial allocation with management of health care services has strong impacts on health care choice and subsequently income.



# COMBINED IMPACT OF LOCAL GOVERNANCE – WHY GOVERNANCE MATTERS

- We see a strong reduction in likelihood of falling ill, and a shift in choice from private and other health care providers to publicly-managed health care
  - We calculated the linear combination of the coefficients of reservations, decisions taken in Gram Sabha, participation in Gram Sabha and proportion of the village expenditures allocated to health.
  - E.g. a 12.4% reduction in illness for females is derived from the joint impact of reservations and other variables that affect governance.
- We observe that the combined effects are not significantly different across genders, except to the extent that governance influences choice of private and informal health care providers
  - When taken together, improvements in local governance provide more information to males and females, which in turn leads them to choose the public health care provider over others.
  - However, the optimality of this choice is conditioned on the impact of choosing to visit a public health care provider on income-earning abilities. We explore this in detail in the second stage.
- Individually, effects of governance variables are either not statistically significant or tend to provide perverse results, but collectively we obtain strong effects for healthcare choice, and health status.
  - This indicates that when taken together, both effective management of publicly provided healthcare services and more expenditure allocations towards improving quality of these services affects choice, rather than using any one specific tool of local governance.



# IMPACT OF POLITICAL RESERVATIONS

- We find that any change in agency over the past two Panchayat periods (approximately 10 years) leads to a 6.6% reduction in likelihood of illness for men and 7.6% reduction for women.
  - Given this reduced likelihood of falling ill (on account of lower agency costs associated with governance), there is also a reduced likelihood of choosing a public or private healthcare provider.
  - Consequently, for the existing (reduced) incidence of illness, we see a small increase (1-2%) in the likelihood of visiting traditional healers
- If the Panchayat ever had political reservations of the post of Pradhan for women in the past two periods, there is a reduced likelihood of illness for both genders (more so for women), and reduces the choice of private and public providers, and has a small positive effect on choice of other providers.
  - In line with Bhalotra and Clots-Figueras (2014), we are able to show substantive benefits from reserving the position of head of the Panchayat for women.



# DECISIONS TAKEN IN GRAM SABHA MEETINGS

- On average, an increase in the likelihood of decisions on health taken in the Gram Sabha reduces illness by nearly 6% for both genders, as well as the choice of private health care private and other health care providers
- Decisions are more likely to be about public health are providers, to the extent that decision-making related to health care facilities becomes more proactive, citizens shift their preferences towards public providers.
  - In line with the theory in Munshi & Rosenzweig (2008), increased discussions on healthcare in Gram Sabha meetings signal greater commitment of the elected representatives towards not only the provision of quality healthcare but also towards empowering the households to ensure that there is an improvement in both allocation as well as the management of these resources



# VILLAGE EXPENDITURE ON HEALTHCARE

- A unit increase in the proportion of expenditure on healthcare reduces choice of private health care providers and increases likelihood of choosing public providers, an effect that is significantly larger for women.
- However, an increase in expenditure does not affect individuals' likelihood of falling ill.
  - Therefore, while greater allocations may be beneficial in shifting preference toward public providers, they must be complemented by an increase in their observed efficiency and management, so that individuals are aware of the improvements made to public health care provision
  - As seen previously, the combined effect of local governance is much larger than that of the expenditures alone, and suggest that it is not the expenditures alone that matter to improving health care delivery.



# PARTICIPATION IN GS MEETINGS

- When health is on the agenda at the GS and households participate (conditioned in their satisfaction with health services), they reduce their likelihood of illness, level of private health care expenditures, and choice of all health care providers
  - This impact is gender variegated, where women experience a larger reduction in likelihood of falling ill when they participate more in GS meetings.
  - Individuals that are more likely to participate in GS meetings (conditioned on their perceptions of quality of service delivery) obtain more information about healthcare services, leading them to choose to not visit any healthcare provider (rather than one of poor quality) while also less likely to fall ill.
  - Thus, increased community-level monitoring (via participation in the Gram Sabha) may bring about accountability and therefore raise the overall quality of service provision (and keep it that way) but will not necessarily improve the ability of households and members to make optimal choices
- Thus, in of itself, participation in GS meetings may not bring about positive changes in health status or choice of healthcare provider. It is important to take it in the context of other tools of local governance.



# OTHER DETERMINANTS OF HEALTH CARE CHOICE

- We see that when the nearest health facility is farther away, individuals are at greater risk of falling ill, and have to spend more out-of-pocket expenses to ensure treatment (possibly due to more travel).
  - Rather than opt for private health care providers (who may be relatively expensive), individuals shift preferences toward other (informal) health care providers since they may be economic and conveniently located
  - It is important to note however, that alternative medicines such as homeopathy may not be effective in reducing incidence of illness (Ernst 2002), and hence not constitute an optimal choice.



# TABLE 6: IMPACT OF HEALTH OUTCOMES ON INCOME (SECOND STAGE)

VARIABLES	ln (Income)	
	Male	Female
Illness	-1.033*	-3.215**
	(0.618)	(1.252)
Private healthcare expenditure	-0.0810*	0.166*
	(0.0640)	(0.108)
Choice of private healthcare provider ( $R_1$ )	1.480***	1.860**
	(0.495)	(0.855)
Choice of public healthcare provider ( $R_2$ )	1.281***	2.220***
	(0.437)	(0.803)
Choice of other (informal) healthcare provider ( $R_3$ )	0.823	2.923**
	(0.813)	(1.310)
Predicted household wealth	0.369***	0.378***
	(0.0211)	(0.0270)
<b>Marginal effects</b>		
Illness	-0.074*	-0.231**
	(0.045)	(0.0937)
Private healthcare provider	0.044***	0.0546**
	(0.0139)	(0.0242)
Public healthcare provider	0.042***	0.0730***
	(0.0142)	(0.0263)
Other (informal) healthcare provider	0.0029	0.011**
	(0.002)	(0.0041)
Observations	4,442	4,126



# IMPACT OF HEALTHCARE CHOICE ON INCOME

- How does public policy affect private outcomes? To the extent that it affects their choices via local governance, there is scope for healthcare policies to improve private outcomes such as choice of provider as well as health status.
  - However, governance effects are cumulative in nature and need to be in concordance with the overall effect of improving healthcare choice and subsequently economic welfare.
  - We note that in addition to existing positive growth in incomes resulting from private healthcare expenditures, there is also a need for optimal choice of healthcare provider.
- We observe gender-variegated effects: The preventive care for women (as seen with the private healthcare expenditure) increases their income by 16.6%. Taken together with their choice of healthcare provider, the losses from illness are offset.
- In the case of men, this is not necessarily the case. This is perhaps on account of the differences in existing stock of health, which are unobservable but explored in the impacts on choice and expenditures separately.
  - For men, the way to offset losses from illness is to enable them to make optimal choice of healthcare provider.



## IMPACT OF ILLNESS AND CHOICE OF HEALTH CARE PROVIDER ON INDIVIDUAL INCOME

- Table 6 shows that a 1% increase in the likelihood of falling ill reduces the individual income of men by 7.4% for men, while the reduction for women is much larger at 23%
  - Although women lose about the same number of days of work to illness in the last year than men, our results show that they suffer a larger proportional income loss
  - This implies that poor health is detrimental to income-earning opportunities, particularly so for women.
- An increase in the probability of choice of public health care providers increases women's income by 7.3%, while the corresponding impact for men's income is only 4.2%.



# IMPACT OF LOCAL GOVERNANCE ON INCOME VIA CHOICE

- We also compute the partial effect of the impact of local governance on incomes via the choice of health care provider and private healthcare expenditure.
- Improvements in local governance bring about a 1.36% increase in incomes for males via increasing their likelihood of choosing a public health care provider, and by 2.9% for women
  - The significant income effects suggest that households are choosing public health care providers when they are better able to observe their management and governance
- Similarly, local governance has a 1% positive impact on incomes via reductions in illness for males, while this is much higher at 2.9% for females.



# OFFSETTING DETRIMENTAL IMPACTS OF ILLNESS

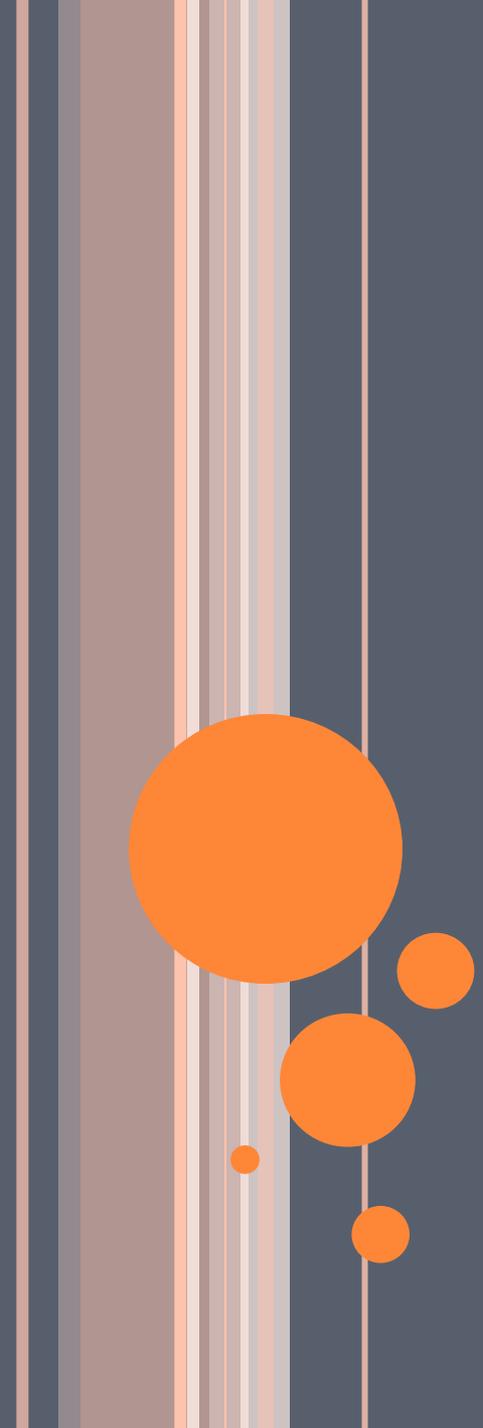
- We observe that members of households are able to offset the detrimental impacts of illness on income (higher for women than men) by choosing a healthcare provider or a level of private healthcare expenditure
  - For example, females by choosing either public (7.3%), private (5.4%), or informal providers (1.1%), and private healthcare expenditure increase (16.6%) can offset the detrimental impact of illness (23.1%).
- These effects are conditioned on their participation in local governance as well as Panchayat expenditure toward public health care services.
  - Thus optimal choice works along the same lines as private health care expenditures
  - Impact of private health care expenditures on incomes can be better explained only after conditioning on choice. Else the estimates are likely to be biased.



# IMPACT OF ILLNESS AND CHOICE OF HEALTH CARE PROVIDER ON INDIVIDUAL INCOME

- The impacts of choosing a private health care provider for men is almost the same as that for public providers, but higher for women (5.5%). The impact of choosing other (informal) providers is much smaller at 1.1%, and only statistically significant for women.
  - Women suffer harsher income consequences for having been ill than men, but their income gains to visiting any of the health care providers is also larger.
  - However, these gains from optimal choice of healthcare provider are large enough to offset adverse effects of falling ill only in the case of men.
- It is also notable that the gain for women from attending a public health care provider is significantly larger than for private providers.
  - Public facilities provide more maternal support and care, in particular because they include the *anganwadis* and therefore during the period of pregnancy have a higher impact than the private providers, despite the objective and subjective quality differential in favour of private providers.





# CONCLUDING REMARKS AND LESSONS FOR POLICY

# CONCLUDING REMARKS

- The structure, design, and management of the health care system in rural India is crucial for economic welfare of households
  - Discussions and participation in the Gram Sabha and greater village expenditures on public health care tend to induce individuals to prefer public health care providers over others
  - However, the impacts of such choice of health care providers are gender-variegated and therefore important for policy
- The findings show that increasing accountability in health via democratic citizen participation in the Panchayat government is a powerful means to improve the rural public health care system in India and results in reduced probability of falling ill and reduced private health care expenditures, and greater access to publicly-managed health services.
  - Policy should therefore focus both on strengthening direct accountability of health care providers to citizens and indirect accountability via democracy.

