

## **Changing Structure of out of Pocket Expenditure in Institutional Delivery in India: An Analysis**

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### **ABSTRACT**

India is witnessing fast decline in maternal mortality rates and neo natal mortality rates. Maternal mortality rates has declined from 254 to 167 (per 100000 live births) from 2004-06 to 2011-13. Neo mortality rates neonatal mortality rates has also shown a decline from 21 in 2011 to 28 in 2013 (SRS Statistical Report). This decline in maternal and neo natal mortality rates can be associated with the increase in the institutional delivery rates in the country. The institutional delivery a rate which was 38.7% in India in 2005-2006 has up surged to 78.7% in 2015-2016. The disparity between rural and urban areas in the institutional delivery rates has also declined in the same time period. The institutional delivery rates was 28.9% and 67.5% in 2005-2006 for rural and urban areas which shot up to 88.7% and 75.1% in 2015-16. (NFHS 3 and NFHS 4). The role played by various national schemes and programs like national health mission and Janani Suraksha Yojana is commendable which resulted in increase in institutional delivery rates In India (Sanjeev K Gupta Etal 2012) But large differentials are noted across states and various socio economic groups.

### **1. INTRODUCTION**

The place of delivery is a crucial factor which affect the health and wellbeing of the mother and new born (Dasgupta A2009), One of the socio demographic goal mentioned in the national population policy which is to achieve 80% institutional delivery and 100% of deliveries be assisted by skilled health personnel by 2015 (National Population Policy, 2000) As noted, India was able to achieve 78.75% institutional delivery rates. Overall, there has been an increase in the proportion of institutional deliveries, yet regional variation remains within the country (Bajpai N, 2009) Disparity in the rates of utilization of various services will give an insight to the short falls in the existing services. A disturbing trend noted in this scenario the out of pocket expenditure on delivery is increasing in India. Among women who deliver at home cost occur as barrier for utilization. The relative share of deliveries in private health care facility has increased over time (Mohanthy SK etal 2013) Unlike developed countries health expenditure in India is largely met by the households (71%) followed by government (20%) business (6%) and external flows (2%) (MOFHW 2209). Often household health expenditure often termed as out of pocket expenditure is high for poor households and increase the level of poverty (garg and Karnan 2009). The increasing expenditure trend in maternal health services also. The poorest households are heavily burdened by spending on maternal care and often resort for borrowing to meet expenses (Skordis –Worrall etal 2011) Though research has identified socio economic demographic geographic barriers in the utilization of maternal care no much information is available in the cost differentials in delivery rates in India.

## **RATIONALE OF THE STUDY**

Two vital factors influencing maternal health is place of delivery and costs of delivery. In addition to professional attention it is important that mothers deliver their babies in an appropriate setting which help to reduce the risk of complications. (Kesterton, A. J., Cleland, J., Sloggett, A., & Ronsmans, C. (2010).) Here we try to investigate health services utilized in delivery episodes in various states of India. Research consistently shows that high cost is an important constraint to service utilization particularly for the poor [Timyan J1993]. In India studies show a very high out of pocket expenditure on delivery care, and, although the private sector is more expensive, the cost of public sector inpatient care services has increased since the 1990s [Balaji R2003]. Hence, income is a major determinant of care seeking [Das NP2001] The cost is an impediment in utilization of institutional delivery services.

## **2. OBJECTIVES OF THE STUDY**

- To investigate the pattern of utilization of public and private health services while childbirth across various states of India
- 2. To find out trends in out of pocket expenditure of delivery in various states of India and also to bring out rural urban differences.

## **3. METHODOLOGY**

After a gap of ten years the information regarding morbidity and health expenditure in Indian states were collected in detail National Sample Survey Organization (NSSO) and were published on June 30th 2015. In 71st round, for the first time, comprehensive information regarding institutional childbirth were collected. NSSO data from 71<sup>st</sup> round is utilized for the analysis Ratio analysis growth rate and simple percentage analysis are used for analysis

## **PREFERENCE OF HEALTH CARE SERVICE IN CHILD BIRTH INCIDENCE: AN ANALYSIS**

According to NFHS 4 data 52.1% child birth took place on public health facility. But dependence of urban areas on public health care facility is lower than rural areas. (46.2% in urban areas and 54.4% in rural areas). Significant difference existed in availing of delivery care services among various segments of population in India. Place of residence and economic status make a significant impact in the utilization of services (Abdul Salam S, A Siddique 2006)

In India while analyzing the place of child birth for various income groups, (Table 1) it is seen that as we move along from lower quintile class to higher quintile class dependency rate on public sector is declining and those of private sector is increasing in both rural and urban areas but the rate of increase is faster in urban areas compared to rural areas.

As income increases dependency on private sector increases both in rural and urban areas. More than 50% depended on public sector in lowest quintile. But as a whole only 38% depended on public sector in highest quintiles In rural areas home deliveries is also high for all income groups. Dependency of private sector of higher quintiles class is twice higher in urban areas than in rural areas. One reason for less dependence on private sector in rural areas is because of non-availability issue. Since 2000s tremendous growth rate of private health care sector is seen in India private sector has failed in amending deficiency gaps in health services provisions across states districts

and rural urban regions. Private sector was largely urban centric and in developed regions (Shailendra Kumar 2015)

### **PLACE OF CHILD BIRTH IN VARIOUS STATES OF INDIA: RURAL URBAN COMPARISON**

Another interesting factor is that dependency of private sector is higher in urban areas than in rural areas. The table below gives the description of place of child birth in rural and urban areas it is seen that 56% of childbirths took place in public hospital and 24% in private hospital in rural area. In urban area, however, the corresponding figures were 42% and 48% respectively. (Table 3) Indian health care system exhibits a mixed picture inclusive of public and private health care system providers. However most of the private health care providers are concentrated in Urban India so rate of utilization of private health services are higher in urban India than in rural India (Sheikh K, Saligram PS, Hort K 2015)

The usage of PHCS is also higher in rural areas than in urban areas. The PHCS are mainly concentrated in rural areas and PHCS has a very dominant role in health care in rural areas than in urban areas. While analyzing the dependency ratio of private sector for child birth in India and various states following trend reveals

Private sector utilization rate is 1.2 for urban India and .5 for rural India clearly showing urban areas depends more on private sector. A rural urban comparison of utilization rate reveals. Urban areas are more prone to depend on private sector than rural area in all states except Kerala. Both rural and urban areas depend more on private sector in child birth in following states

Andhra Pradesh, Haryana, Kerala, Maharashtra and Telungana. The rural and urban areas of Assam, Bihar, Madhya Pradesh, Odisha, Chhattisgarh Rajasthan and West Bengal uses more public health services than private sector. In Jharkhand Karnataka Punjab Tamilnadu and Uttar Pradesh rural areas depend more on public health services and urban areas are more prone to depend on private health care services

### **EXPENDITURE PATTERN IN PUBLIC AND PRIVATE HEALTH CARE SERVICES ON CHILD BIRTH**

It is evident that high out of pocket expenditure are pushing a considerable proportion of households below poverty line. Many studies suggest that costs of ANC and delivery care could be catastrophic in low income settings (Bonu S 2009) Considerable difference is noticed in expenditure on childbirth in the rural and urban areas as well as between the treatment at public and private hospitals. An average of Rs5544 was spent per childbirth in rural area and Rs11685 in urban area nearly double of the rural expenditure. On the other hand it may be noted that an average amount spent per childbirth as an in-patient of private hospital was more than nine times of that spent in public hospital in both rural and urban area. (Nss71 Round) According to Rangarajan committee 29.5% of Indian Population are lying below poverty line who are having less than Rs 32 in a day in rural areas and Rs 47 in urban areas. Given the above cost structure it is sure that Child birth will be a financial burden for majority of Indians especially those lying below poverty line

**EXPENDITURE ON DELIVERY IN INDIA: RURAL URBAN COMPARISON**

The out of pocket expenditure for delivery is 1587 in public sector and 14778 in private sector.(NSSO 71 round).Utilization of private sector or hospital delivery is reflected on their high expenditure for hospital delivery in urban areas(JayaKrishnan T 2016).The DLHS 3 data reported that out of pocket expenditure for delivery in private hospitals was three times higher than in public hospital. The increased rate of delivery care was partially attributed to increased cesarian rates which accounts for six times costs than a normal delivery(Mazumdar S (2015).

A wide variation of out of pocket expenditure on delivery across different socio economic groups regardless of place of delivery. It is a tendency of rich women to pay more for delivery care services in a quest to obtain quality services(Prinja S, Bahuguna P, Gupta R, Sharma A, Rana SK, Kumar R (2015)

**EXPENDITURE ON DELIVERY IN INDIA :RURAL URBAN COMPARISON**

| RURAL    |        |              |         |              |       |              |
|----------|--------|--------------|---------|--------------|-------|--------------|
| QUINTILE | PUBLIC | %GROWTH RATE | PRIVATE | %GROWTH RATE | ALL   | %GROWTH RATE |
| 1        | 1225   |              | 13082   |              | 3062  |              |
| 2        | 1359   | 10.93878     | 14239   | 8.844213     | 4294  | 40.23514     |
| 3        | 1623   | 19.42605     | 13123   | -7.83763     | 4646  | 8.197485     |
| 4        | 1924   | 18.5459      | 13085   | -0.81791     | 5870  | 26.34524     |
| 5        | 2097   | 8.991684     | 17743   | 35.59801     | 10113 | 72.28279     |
| All      | 1587   |              | 14778   |              | 5544  |              |

**TABLE NO 1**

| URBAN    |        |              |         |              |       |              |
|----------|--------|--------------|---------|--------------|-------|--------------|
| QUINTILE | PUBLIC |              | PRIVATE |              | ALL   |              |
| 1        | 1484   | Growth rate% | 12985   | Growth rate% | 5156  | Growth rate% |
| 2        | 1962   | 32.21024     | 14859   | 14.43204     | 8161  | 58.2816      |
| 3        | 2389   | 21.76351     | 17739   | 19.38219     | 10447 | 28.0113      |
| 4        | 3205   | 34.15655     | 22964   | 29.45487     | 16398 | 56.9637      |
| 5        | 3443   | 7.425897     | 31681   | 37.95941     | 26143 | 59.428       |
| All      | 2117   |              | 20328   |              | 11685 |              |

**TABLE NO 2**

Data from NSSO 71<sup>st</sup> round also support the findings. The average expenditure of public sector is lower in both urban and rural area than in private sector. Both public and private sector incur more expenditure in urban area than in rural areas .Public sector in urban area incurs an expenditure of about Re 530 more than rural areas and this difference is Rs 5550 for private sector in India

As evident from table above as income increases expenditure on delivery also increases regardless of place of delivery. The rate of increase of delivery costs for higher income group is higher in urban areas than rural areas. While analyzing growth rate of expenditure as move above the income

ladder In rural areas the maximum growth rate of 19% in expenditure in public sector is recorded as we move from Ist quintile to second quintile. In Private sector in rural areas growth rate of expenditure for delivery is less pronounced than public sector .Highest growth rate is recorded as we move from 4<sup>th</sup> to fifth quintile an enormous 72% growth rate in expenditure is recorded compared to expenditure 4<sup>th</sup> quintile.

Expenditure in urban areas is higher than rural areas for both public and private sector. As we go up the income ladder expenditure also increases especially in private sector. Highest growth rate of 34% is recorded as we move from 3<sup>rd</sup> to 4<sup>th</sup> quintile. Though a positive progression of growth rate can be seen as income increases. The highest growth rate of 59% is recorded as we move from 4<sup>th</sup> to fifth quintile in case of private sector. The growth rate maintains a505 growth in expenditure as move from form one quintile to other

While analyzing the cost difference between public and private sector across quintiles in rural and urban areas, In rural areas the difference is lowest in fourth quintile and highest in fifth quintile. The difference ranges from Rs. 11161to 15646 across quintiles. In Urban areas the lowest difference between public and private sector is noted in Ist quintile and greatest difference is noted in 5<sup>th</sup> quintile. The minimum difference is Rs 11501(1st quintile) and maximum difference is Rs28238(5<sup>th</sup> quintile) is noted in urban areas. So private sector is more expensive than urban areas and records a minimum of Rs 10000 difference across quintiles.

**OUT OF POCKET EXPENDITURE FOR INSTITUTIONAL DELIVERY IN DIFFERENT STATES OF INDIA**

A wide variation of expenditure difference exists between various states in India. The Picture is presented in table below

**OUT OF POCKETEXPENDITURE ON INSTITUTIONAL DELIVERY ACROSS STATES OF INDIA**

|                | RURAL  |         |                | URBAN  |         |                |
|----------------|--------|---------|----------------|--------|---------|----------------|
|                | PUBLIC | PRIVATE | COSTDIFFERENCE | PUBLIC | PRIVATE | COSTDIFFERENCE |
| Andhra Pradesh | 1471   | 13626   | 1471           | 1232   | 17767   | 16535          |
| Assam          | 3599   | 12502   | 3599           | 6949   | 30031   | 23082          |
| Bihar          | 2197   | 16322   | 2197           | 2584   | 13795   | 11211          |
| Chhattisgarh   | 1551   | 10675   | 1551           | 3399   | 15875   | 12476          |
| Gujarat        | 780    | 7502    | 780            | 1495   | 13551   | 12056          |
| Haryana        | 1530   | 16206   | 1530           | 1674   | 19264   | 17590          |
| Jharkhand      | 1275   | 10573   | 1275           | 1857   | 13413   | 11556          |
| Karnataka      | 1762   | 15762   | 1762           | 2635   | 21353   | 18718          |
| Kerala         | 1662   | 19443   | 1662           | 1534   | 21578   | 20044          |
| Madhya Pradesh | 882    | 13818   | 882            | 672    | 16288   | 15616          |
| Maharashtra    | 1147   | 15537   | 1147           | 2480   | 22752   | 20272          |
| Odisha         | 2598   | 16569   | 2598           | 3008   | 18550   | 15542          |
| Punjab         | 2220   | 18064   | 2220           | 3153   | 22015   | 18862          |
| Rajasthan      | 464    | 12751   | 464            | 972    | 13811   | 12839          |
| Tamil Nadu     | 325    | 28862   | 325            | 661    | 30132   | 29471          |
| Telangana      | 1511   | 20054   | 1511           | 2433   | 23443   | 21010          |
| Uttar Pradesh  | 1296   | 11965   | 1296           | 2147   | 16717   | 14570          |
| West Bengal    | 2061   | 14821   | 2061           | 3208   | 22829   | 19621          |
| All            | 1587   | 14778   | 1587           | 2117   | 20328   | 18211          |

**TABLE NO 3**

A large degree of difference existed between states and regions. Private sector is more expensive than public sector in both rural and urban areas. Both public and private sector are more expensive in urban areas compared to rural areas. In rural sector across states lowest expenditure is noted in Tamilnadu and highest at Assam in public sector. In private sector lowest expense is incurred in Gujarat and highest is at Tamilnadu. While analyzing The cost difference between private sector and public sector exhibits a picture of high in equality. Private sector is Rs 10000 more expensive than public sector in child birth episode for almost all states except Gujarat Assam Chhattisgarh and Jharkhand. Expenditure difference is highest in Tamilnadu and lowest In Jharkhand. Though out of pocket expenditure in public sector is low in Tamilnadu utilization rate is less than many other states

In urban sector almost the similar picture emerges. Tamilnadu has the lowest out of pocket expenditure in child birth in public sector, but in private sector it has the highest out of pocket expenditure. The highest out of pocket in public sector is at Assam and lowest expenditure in Private sector is at Jharkhand. While analyzing the cost difference between private and private sector the highest difference is at Tamilnadu and lowest difference in Bihar. An average of Rs 17330.63 cost difference is noted between private and public sector in urban area where as this average is rs13706.72 in Urban area.

#### **4. FINDINGS OF THE STUDY**

India is the major contributor to maternal deaths across world.(WHO 2000). Since 2000, with the launching of many flagship programmes like Janni Surksha Yojana maternal mortality rates has declined in India and rate of institutional delivery has increased(Bharat Randive 2013). Here we try to depict the utilization of various services in the event of institutional delivery and out of pocket expenditure on delivery in India and across states

In India 52.1% delivery took place in public sector in India. But utilization rate of public sector is less in urban India compared to rural India. Dependency rate on private sector increases as income increases. Across states eight states have high utilization rate of private sector for all other states more dependency on public sector is seen. Rural urban differences in noted. Rural areas depend more on public sector an exception being Kerala. In five states both rural and urban area depends more on private health services and rate of utilization of public health services are more for other states. urban areas are more prone to depend on private sector than rural area in all states except Kerala. Both rural and urban areas depend more on private sector in child birth in following states Andhra Pradesh Haryana Kerala Maharashtra and Telungana. The rural and urban areas of Assam Bihar Madhya Pradesh Odisha Chhattisgarh Rajasthan and West Bengal uses more public health services than private sector. In Jharkhand Karnataka Punjab Tamilnadu and Uttar Pradesh rural areas depend more on public health services and urban areas are more prone to depend on private health care services. The average expenditure of public sector is lower in both urban and rural area than in private sector. Both public and private sector incur more expenditure in urban area than in rural areas. Public sector in urban area incurs an expenditure of about Re 530 more than rural areas and this difference is Rs 5550 for private sector in India

As income increases expenditure on delivery also increases regardless of place of delivery. The rate of increase of delivery costs for higher income group is higher in urban areas than rural areas. The out of pocket expenditure for delivery is 1587 in public sector and 14778 in private sector. As we move from lower quintile class to higher quintile class growth rate of expenditure is high in

public sector than in private sector. In Urban areas reverse trend of growth rate is seen. A large degree of difference existed between states and regions. Private sector is more expensive than public sector in both rural and urban areas. Both public and private sector are more expensive in urban areas compared to rural areas

## **5. CONCLUSION**

The complementing fact was that the utilization of health facilities for delivering the newborn had increased in the past. But Inequality, access to institutional delivery care persists; Still India has to go a long way to reach 100% institutional births. Rural areas are down trodden compared to urban areas. But problems pertain in urban sector. So pointed different policies has to be implemented for rural and urban areas. Measures to control the expenditure has to be ensued otherwise it will be catastrophic for the household. Provision of quality health services and improved targeting of disadvantaged sections is essential. The influence of cultural and social factors in utilization of health services cannot be undermined. There are substantial inter - state and inter -regional differences in maternal mortality ratio. This might be partly due to socio -demographic factors and partly due to variations in access to essential antenatal, natal and post - natal care. We have to go a long way in order to achieve the universalization of institutional deliveries.

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