Socioeconomic Determinants of Institutional Delivery in Punjab

By

Abdullah Farooq Qureshi

Reg No:PIDE2018FMPHILHE03

Supervised by

Dr. Muhammad Nasir

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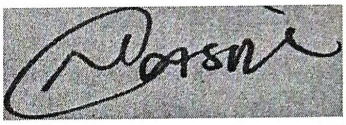
PIDE School of Public Policy

CERTIFICATE

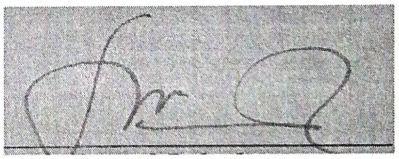
This is to certify that this thesis entitled: **"Socioeconomic Determinants of Institutional Delivery in Punjab"** submitted by Mr. Abdullah Farooq Qureshi accepted in its present form by the School of Public Policy, Pakistan Institute of Development Economics (PIDE), Islamabad as satisfying the requirements for partial fulfillment of the degree in Master of Philosophy in Health Economics.

Supervisor:



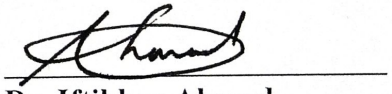
Dr. Muhammad Nasir,
Senior Research Economist,
Pakistan Institute of Development Economics,
(PIDE) Islamabad.

External Examiner:



Dr. Javed Iqbal
Assistant Professor,
School of Economics, Quaid-e-Azam
University, (QAU) Islamabad.

Head,
PIDE School of Public Policy:



Dr. Iftikhar Ahmad,
Assistant Professor,
Pakistan Institute of Development Economics,
(PIDE) Islamabad.

DEDICATED

TO MY FATHER & MOTHER

I am here because of your love and support

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Abdullah Farooq Qureshi

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

DHS	Demographic and Health Survey
WHO	World Health Organization
UNICEF	United Nations Children's Fund
MMR	Maternal Mortality Rate
MICS	MultipleIndicator Cluster Survey

Abstract

Institutional delivery is viewed as a key pointer of progress in decreasing maternal mortality. Arrangement of trained and well-prepared medical services experts during childbirth is important to avoid obstetric entanglements and maternal mortality. The healthcare facilities is where such arrangements are found and proof recommends that institutional delivery is one of the basic mediations expected to decrease maternal mortality. Maternal demise can happen whenever during pregnancy however delivery is by a wide margin the most perilous time for both mother and infant. Most of maternal passing's happen during delivery from intricacies that cannot be anticipated. Elements that keep mothers from getting or looking for medical care during pregnancy and child birth are deficient financial resources, distance to healthcare facility, lack of awareness, and social practices. Pakistani mothers decided to deliver at home due to their failure to pay the significant or high amount of expenses of delivery at a hospital facility.

The objective of this present study is to find the prevalence or frequency of institutional delivery and its socioeconomic determinants in Punjab using Multiple Indicator Cluster Survey (MICS) Punjab 2017-18 data. The result of this study shows that prevalence of institutional delivery among women in Punjab is 73% while 27 % women delivered in home. Study results of binary logistic regression (BLR) shows that households economic status, mother education and antenatal care visit are significantly correlated with institutional delivery. Mother age and place of residence are insignificantly correlated with institutional delivery. Therefore it is time to include strategies in the country health plans to increase rate of institutional delivery in Punjab this will be helpful to minimize maternal mortality andmorbidity …..

CHAPTER 1

INTRODUCTION

1.1 Background of the Study:

Institutional delivery is accepted as a fundamental indication of development in diminishing maternal mortality (Tey& Lai 2013). Arrangement of qualified and well-prepared medical care professionals during delivery is basic to keep away from obstetric impediments and maternal mortality. The healthcare facility is place, where such necessities are found and proof suggests that institutional delivery is amongst one of the most important contributions expected to decrease maternal sickness and mortality (Dogba& Fournier 2009).Using information on births from 2002 to 2007 investigates and analyzed that institutional delivery in Pakistan. These investigations discovered noteworthy connections between households income and institutional delivery and among education and formal delivery practices. Although, the two elements are significant the effect of income was astoundingly solid and visible. The authors concluded that numerous Pakistani women selected to deliver at home due to their inability to pay the significant expense of delivery at a healthcare service center (Javed et al 2013).Elements that deflect ladies from accepting or acquiring medical care during pregnancy and conceiving an offspring incorporate include poverty, poor quality of health services , distance to health service center, inaccessibility of data, and social practices (UNICEF 2018).

Poverty is one of the main considerations that clarify high rates of nursing home births in Africa and Asia. Mothers from poor families and marginalized backgrounds have not access to good

quality of maternity care and in areas where public sector services are accessible is hindered because of high financial expenses and mediocre nature of healthcare. The ruling against a limit birth capacity is likewise influenced by household decision making and availability of services, regardless of the wealth factor (Sarker et al 2016) (Montagu et al 2011). Community observations and positive experiences of pregnant women with conventional birth encourages them to pick a home based birth(Titaley et al 2010) despite the fact that there is proof that even availability of skilled traditional birth attendant is of a little assistance to mothers who experience issues during childbirth (Rosenfield et al 2007).

1.1 Background of Institutional deliveries in Pakistan

After 2007 a significant increase is observed in official deliveries in Pakistan from 28% to 59% in rural area and 59% to 81% in urban area (PDHS 2017-18). According to recent estimate Pakistan demographic and health survey 2017-18, 66% of birth delivered in health facilities with 44% in private and 22% in government facilities.

Table 1.2: Institutional Deliveries in Pakistan

Institutional Deliveries in provinces and federal unit	Percentage
Islamabad	84%
Punjab	69%
Sindh	72%
Khyber Pakhtunkhwa	62%
Baluchistan	35%
Gilgit Baltistan	62%

Azad Jammu and Kashmir	62%
Ex FATA	49%

Source: (PDHS 2017-18)

There are large variations between provinces, In Punjab, which is a large province comprising half of total population of country 69% of birth delivered in health facilities while Sindh is 72% , ICT Islamabad is 84% , Khyber Pakhtunkhwa, GilgitBaltistan and AJK is 62%, Ex FATA 49% while in Baluchistan birth delivered in health facilities is only 35% .

Multiple Indicator Cluster Survey (MICS 2017-18) for Punjab stated that 73% of birth delivered in health facility while 26% in home. (MICS KP 2016-17) indicate that 65% of birth delivered in health facilities while 34% in home and (MICS GB 2016-17) shows that 60% of birth delivered in health facilities while 26% in home.

1.2 Health Consequences of childbirth at home

WHO (World Health Organization) assessed that 300,000 mothers were deceased from pregnancy related cases in 2015. This imply that 830 women have died every day of these total deaths about 200,000 happened in Sub-Saharan Africa, while 66,000 happened in South Asia. The maternal mortality ratio (MMR characterized as the quantity of mothers who have died during pregnancy and delivery as per 100,000 live births) changes from 5 in Western Europe to 163 in South Asia and 533 in Sub-Saharan Africa (MMEIG 2019). Absence of contact to and utilization of medical care services for delivery are among the key purposes behind the significant level of maternal and neonatal death rates in these states [(Khatun et al 2012) (Alveraz et al 2009)].Maternal demise can show up at any instance during pregnancy however delivery is still very life threatening time period for both mother and infant. Most of maternal

deaths happen during child delivery from obstacles that can't be anticipated.(Medecins Sans Frontieres 2012). Among South Asian countries Pakistan performance is worst in reducing neonatal and maternal mortality (Agha & Williams 2016). Compare withBangladesh and Nepal which experienced decreases in maternal and child death after 1990 (Requejo&Bhutta 2015).

Table 1.1: Spatial-temporal comparison of MMR in South Asia

Maternal Mortality Rate	Year (1990)	Year (2017)
Pakistan	431	140
India	556	145
Afghanistan	1340	638
Bangladesh	569	173
Nepal	901	186
China	97	29

Source: (World Bank Data)

Socio economic barrier and provision of poor quality service are factor responsible for this slow development in improving parental and child health effects in Pakistan (Bhutta& Black 2013).

1.3 Research Gap

Institutional delivery are substantially correlated with the survival of mother and baby during childbirth but this correlation with different Socio-economic backgrounds is neglected in research in Pakistan. No single study is conducted earlier in Punjab which undertook institutional delivery with household economic status relationship using provisionally representative data. Current study will estimate this relationship to fill this research gap in Punjab Pakistan.

1.4 Research Questions

After exploring the literature on institutional delivery in Pakistan a number of questions gain attention that needs clarification in the societal context.

- Why MMR is relatively high in Pakistan compared to neighboring countries?
- Why delivery at home is still highly prevalent in society?
- Why governments pay less attention to it?
- How low resource Sindh is showing more progress in Institutional delivery than Punjab, having better health resources?

This study will seek to address the following queries:

- How much prevalent institutional delivery in Punjab is and what are some of the major determinants of it?

1.5 Research Objective

The study aim to investigate the prevalence of institutional delivery and its socioeconomic determinants in Punjab.

1.6 Significance of the study

Maternal mortality is important public health issue effecting, Sub Saharan Africa and South Asia badly. Parental mortality rate in Pakistan is very high that is 140 deaths/100,000 live birth while, institutional delivery negatively correlated with maternal mortality. This study will uses provisional representative data of large sample of women of Punjab which comprise 52% of total population of Pakistan. This study will be helpful for health sector to manage their limited resource by identifying most vulnerable women.

Chapter 2:

LITERATURE REVIEW

Maternal mortality is a global problem almost every developing nation have suffered but South Asian and Sub Saharan Countries suffered a lot. Maternal mortality occurred due to many reason but most one is the time of childbirth because this is crucial time for both mother and her baby. This chapter provides a rich literature about institutional delivery which helps us for getting insight to this subject which is the most essential aspects of health amongst women.

2.1 Theoretical Framework

Behavioral theory stresses the importance of defining context for behavior precisely since the "substantive factors influencing one behavior are often very different to those influencing another behavior" and "the most effective interventions will be those directed at changing specific behaviors". For instance, the determinants of condom use with a regular partner differ from the determinants of condom use with a casual partner (Fishbein, 2000). Similarly, we would anticipate that the determinants of preventive care-seeking for delivery (i.e. precautionary seeking of a skilled attendant as women go into labour for anticipated normal delivery) are not necessarily the same as those for emergency care-seeking in reaction to a developing complication.

2.2National Studies

These studies were comprised who met the given criteria,

- Participants: Women who gave birth at home or at health facility in last five years.
- Barriers/promoters to Institutional delivery in Pakistan.
- Year: Published from 2005 onwards.

Parveen et al. (2017) analyzed three chapters data of health survey and Pakistan demographic from 1990-91, 2006-07 and 2012-13. To assess correlation between hospital and home delivery in Pakistan. Data was analyzed with the help of descriptive analysis and probabilities that pregnant women will be delivering at healthcare facility using the logistic regression analysis (LRA). Traditional delivery was 4 times advanced in 1990-1991 comparative to institutional delivery (85.3%) vs(13.3%), and around 2 times higher in 2006-07 (64.7%) vs(34.3%). But, in 2012-2013, the proportion of mothers delivering at the health facility and home was almost similar, i.e. (51%) at home and (48%) at healthcare institute. There were large differences in the rates of institutional delivery between various subdivisions, and they are highlighted by the difference in financial resources and socio-economic wellbeing, as well as high illiteracy rates.

Javed et al. (2013) analyzed the elements of place of delivery in Pakistan by using data of PDHS 2006-07. Multivariate and bivariate logistic regression is recommended for analysis bivariate results revealed that 72% mothers from the backward areas and 81% mothers living in Balochistan gave child birth at home. Moreover, 75% mothers with no proper schooling, 81% mothers who work in agriculture sector, 75% of mother who had 5 or above than 5 offspring's and around 77% who don't discuss pregnancy associated problems with their spouses are mostly delivering offspring's (at the home) by traditional delivery method. Multivariate study shows that women having lower levels of schooling, economic wellbeing and empowerment, belongs to the rural areas, living in other provinces of Pakistan other than the Punjab, women connected to agricultural sector and women who are younger in age are more likely to give birth by traditional home based delivery method.

Agha & Williams. (2016) applied a cross section household survey of 4,000 families presently married who had given birth to the baby in the two years earlier before the study was conducted in the province of sindh in year 2013. This survey has given information on segments like financial factors, the nature of pregnancy care given during a mothers last pregnancy and whether she delivered at a healthcare facility. Logistic Regression Model (LRM) is used to know balanced probabilities proportions and 95 % certainty spans round autonomous factors for institutional delivery's the multivariate investigation, a variable estimating nature of pregnancy care indicated the most grounded relationship with the institutional delivery. Moreover, there was a dose response relation between the number of the elements of quality of care delivered and the chances of institutional delivery: receiving the one component of quality in excess, the odds of institutional delivery 1.7 times, having the three excess increased the probabilities 3.8 times and having seven components raised the chances 10.6 times. Families wealth also had a significant important connection with institutional delivery, therefore, conclusion was weak than that of the nature of care. Urban rural differentials in institutional delivery didn't remain the critical after adjusted for education and family's wealth.

Agha & Carton. (2011) collect primary household survey data in the rustic regions of Jhang area, Pakistan, to discover the impact of economic, demographical and program factors on the utilization of maternal wellbeing facilities. Mothers who had offspring's younger than 12 or of 12 months were included. Information was gathered from 2,022 mothers on social and demographical attributes and the consumption of health services. Logistic regression analysis was explored to identify the correlates of health facility use. Insignificant impacts determine the effect of several elements on service utilization. Uniformity and schooling had the highest influence on institutional delivery: mothers were significantly less likely to deliver at a hospital

service after their first delivery; women with basic schooling were much more prospective to have a delivery at healthcare unit. Family's wealth, age, autonomy, Access to a healthcare unit and disclosure to print and electronic media were also the significant impetus of institutional delivery. The use of family planning methods within a year of women's delivery was low, education, and husband's consent as the basic determining factors..

Tey&Lai. (2013) lead an examination to discover associates of and Hindrances to the Utilization of healthcare assistance for institutional delivery in Sub-Saharan Africa and South Asia. Information from the health and demographic study directed in Pakistan, Bangladesh, Nigeria, India, Kenyaand Tanzania shows that more than the half of the births in these nations were delivered away from a hospital facility. Institutional delivery is firmly related with schooling level, place of residence, family financial position and mother's media disclosure status, however it was not affected by the mothers work status and their parts in decision making process (except for Nigeria). Controlling for different factors, more youthful ladies and higher equity were more averse to utilize a special care unit for delivery. Inside every nation, the less fortunate, rural women and less educated had higher neglected requirement for maternal healthcare assistance. Services related elements (approachability regarding distance and cost) and social and cultural perspectives (e.g., didn't comment the requirement for the offices and complaints from spouse and family) additionally displayed as hindrances to institutional delivery.

2.3 International Literature

Johnson et al. (2013) had used Demographical and Health Survey (DHS) information from 45 nations, the point of the examination to explore the movements and patterns in Child birth areas and to decide if these movements are in the courtesy of health or home settings or not. The examinations gathered the information of 107,776 mothers who had in any case two births in

the half decade going before the most current DHS over the time 2001–10. The huge larger part of mothers picked similar spot of labor for their succeeding births. Nonetheless, about 14% shifted their place and not every one of these choices supported special health units over the home based delivery. In 25 out of the 45 nations examined, a higher level of mothers changed to home from hospital settings. Multiple regressions analyze essentially higher probabilities of changing to a hospital from home for high equality ladies, those with incessant pre-birth visits and more financial resources. Be that as it may, in nations with high infant death rates, low parity ladies had an augmented likelihood of changing from home to special healthcare units for delivery.

Exavery et al. (2014) directed an examination to investigated accessibility to institutionalized delivery care and the explanations behind home based delivery in three regions of Tanzania. Cross-sectional study of random families on health practices and service use patterns among ladies and youngsters under 5 years was led for information assortment. The study was led in 2011 in Rufiji, Kilombero, and Ulanga regions of Tanzania, close ended polls was given for this reason. This examination done on 918 mothers of conceptive age who had conceived an offspring in the two years going before to this overview. Chi-square test is applied to test for relationship in the bivariate investigation and multivariate logistic regression was utilized to assess the components that impact or persuade institutional delivery. By and large, 74% of the 918 women delivered at the special care units in the two years going before to the overview. Multivariate examination demonstrated that the better nature of antenatal consideration (ANC)/pregnancy care the higher the odds of institutionalized delivery. Similarly, better financial status was connected with an expansion in the odds of institutional delivery. Mothers from Sukuma ethnicity were less convincible to deliver at hospital settings than the

others women. Presence of the couple conversations on the family planning issues was connected with higher chances of institutionalized delivery.

Kamal et al. (2013) This examination inspects the highlights that influence institutional delivery among mothers in Bangladesh acquiring information from the 2008 Bangladesh Demographic and Health Survey(DHS) investigating both bivariate and multivariate investigations in this exploration. Discoveries uncovered that, solitary 14% of the mothers went for the institutional delivery and 28% births were delivery by professional birth attendant. The multivariate logistic regression created quantitatively significant and solid assessments of hospital delivery. The probability of institutional delivery was expressively higher for first-one pregnancy, couples, the most wealthy, advance , educated, highly autonomous, television possession, non-Muslims, pregnancy complications, who got antenatal consideration services, and metropolitan populaces. The legislature ought to guarantee great nature of care, simple openness, and accessibility of all services liberated from cost in the public clinical organizations. Mothers ought to be educated concerning the drawn out advantage of institutional delivery through training, awareness, and correspondence programs.

Aremu et al. (2011) this examination investigates the impact of neighborhood and individual financial situation on the utilization of various types of the place of delivery among the mothers of regenerative age in Nigeria. A populace based multistage discrete decision examination was investigated utilizing the latest populace based 2009 Nigerian Demographic and Health Survey (DHS) information of mothers of ages somewhere in the range of 16 and 50 years. The after effects of the multistage discrete decision models determine that with each other element controlled for, the family’s wealth status, women’s and spouse's significant level of schooling, mothers' occupation and ownership of medical coverage were connected with the

utilization of private and government institutional delivery for labor near to home based delivery. The outcomes additionally exhibit that higher birth order and youthful maternal age were connected with utilization of home based delivery. Living in an exceptionally financial hindered neighborhood is connected with home birth contrasted to the support of government hospitals.

Teferra et al. (2012)the study aimed to assess features affecting institutional delivery package utilization among the mothers who gave birth in the last 12 months in the Sekela District, Amhara Region, Ethiopia. Multistage sampling technique was utilized to select 371 participants. Data was collected by a pre tested and structured questionnaire. Bivariate and multivariate data analysis was explored. The study indicated that 12.1% of the mothers delivered in health amenities. Of 87.9% mothers who gave birth at home, 80.0% of them were supported by family members and relatives. The common causes for home delivery were closer attention from relatives and family members (60.9%), home delivery is typical practice (57.7%), unexpected labor (33.4%), not being sick or no problem at the time of delivery (21.6%) and the family influence (14.4%). Being urban living, ANC visit during last pregnancy, parental education level and knowledge of mothers on pregnancy and delivery facilities had significant relations with institutional delivery service consumption.

Feyissa&Genemo. (2014) the investigation was to gauge factors for institutional delivery in Ethiopia Reflective unparalleled case control study configuration was utilized to survey components of institutional delivery in Ethiopia from august to October 2012. An aggregate of 330 respondents were of five different regions of the Wollega zone, Ethiopia. Pretested and organized polls were utilized for information assortment. Training, size of the family and habitation were significant forecasters of place of delivery. At least four antenatal care visits [(ANC), birth order, birth readiness, age at delivery, term of work were essentially connected

with institutional delivery. Besides service related factors, for example, distance from hospital, expertise of medical services experts, respondent's awareness and the method of transportations were altogether connected with the institutionalized delivery.

Sahoo et al. (2015) The examination was done to decide the event of home delivery and distinctive socio demographic factors related to them. This examination was a cross-sectional network based investigation. Mothers who delivered an infant in the previous 1 year were associated with this investigation. A sum of 300 mothers reacted (94%) and offered consent to partake in the examination. Event of home delivery was 36%. Bivariate examination indicated that religion, schooling of mother, caste, their spouse, month to month family pay, occupation of the life partner and financial status had a critical connection with the decision of the spot of delivery. Be that as it may, multivariate regression examination demonstrated just religion, rank, schooling of the companion and month to month salary to be critical angles in deciding the place of delivery.

Chapter 3

DATA DESCRIPTION AND RESEARCH METHODOLOGY

A sound methodology is required for the attainment of study objectives along with understanding of the different factors affecting institutional delivery and socio-economic practices. Also, some important cultural and religious beliefs

3.1 Data Source

The present study uses the data of Multiple Indicator Cluster Survey (MICS) Punjab 2017-18 which is part of the global MICS program. This survey is conducted by the Bureau of Statistics, Planning and Development Board, Government of Punjab with collaboration of United Nation Children Fund (UNICEF). The (MICS Punjab 2017-18) is district based survey covering all 36 district. Total sample of 53,840 households were selected for interview out of which 52,765 households were occupied at the time of survey. Of these occupied households 15,656 women were identified as eligible for interview yielding a response rate of 97.9%.

3.1.1 Survey Sampling Frame

The sample for the MICS Punjab 2017-18 is designed to provide estimates for a number of indicators on the situation of children and women at the Punjab level for urban and rural areas and for all 36 districts of Punjab. The urban and rural areas within each district were identified as the main sampling strata and the sample of households was selected in two stages. Within each stratum specified number of census enumeration areas was selected with probability proportional to size. Using the listing of households from the Census 2017 for each sample enumeration area provided by Pakistan Bureau of Statistics a sample of 20 households were drawn in each sample enumeration area the total sample size was 53,840 households in 2,692 sample clusters.

3.2 Ethical Consideration

The term ethical procedures are defined as the set of norms and procedures that help the researchers analyze complex problems and phenomena in the field of research to comply with standard ethical procedures and norms [Resnik et al (2015)].

The survey protocol was permitted by Steering Committee in October 2017. The procedure included a Protection Procedure which outlines the potential hazards during the life cycle of the inspection and management approaches to moderate these. Verbal consensus was obtained for every respondent contributing and adult consensus was obtained in advance of the child's concurrence. All the respondents were informed of the intentional nature of participation and the confidentiality and secrecy of information. Moreover respondents were informed of their right to refuse answering to all or particular questions or they can stop the interview at any time if they do not wanted to answer the questions.

3.3. Independent Variable

i. **Economic Status:** Household wealth status was connected with the use of health facilities for childbirth comparative to home delivery (Aremu et al, 2011) to know this connection wealth index segments are given in the study that who are needy, poor, average, and wealthiest.

ii. **Age of Women:** Younger women have low probability for having birth in healthcare service facility than older ladies. (Tey& Lai 2013).We transformed this variable to different age group for bivariate and multivariate analysis.

iii. **Mother Education:** Educational level of women significant variable in predicting institutional delivery (Tey & Lai 2013). Years of education is taken for multivariate as well as for bivariate analysis, and also education level is converted into categories i.e.

non formal and formal education, incase formal education then it is further dissected into primary, lower secondary, upper secondary and higher education.

iv. **Number of Antenatal care visit:**

Four are more antenatal delivery is strongly associated with institutional delivery (Feyissa & Genemo 2014) we take it as one of independent variable and further classify it by deferent categories

v. **Place of residence:**

Mothers who were urban residence are ordinarily more likely to conceive an offspring in healthcare centers than the mothers living on country side. (Teferra et al, 2012) Institutional delivery rates varies as place of residence changes because of socio-cultural changes. Nine division, and area (metropolitan and provincial) are considered as pointers of the place of living.

vi. **Number of living children:**

NUMBER of the living children's is another important independent variable we categorized as 0 children, 1-2 children,3-5 and 5 + children.

3.4 Econometric Model

$$Yi=f(X1, X2, X3, X4 ,X5\ldots).$$

Where Yi denote institutional delivery and binary in nature, the variable Institutional delivery is coded "1" if mother has given a birth in medical facilities and"0" if a woman has given birth in home. X1, X2, X3, X4 are the various independent variable (as described in section 3.3) that affect the institutional delivery positively or negatively. Following model are constructed in our research:

3.4.1 Model for institutional delivery

$$ID = \beta_0 + \beta_1 ESij + \beta_2 MAij + \beta_3 MEij + \beta_4 ACVij + \beta_5 PORij + Ɛij \text{----- (I)}$$

Where ID represents institutional delivery, which is equal to 1, if a women gives birth at a health facility and 0 otherwise. ES represent Economic Status of family, MA represent Mather Age, ME mean Mather Education level, AVC mean Antenatal Care Visit, POR represent Place of Residents (Urban vs Rural and Nine division of Punjab separately).

Chapter 4

ECONOMETRIC RESULTS

Chapter 4 here highlights the findings of the data analysis concerning with objective of a study i.e. the prevalence of intuitional delivery and its Scio economic determinant in Punjab.

4.1 Prevalence of place of delivery in Punjab

The research finding shows the prevalence of institutionalized delivery in mothers in Punjab is 73% while 27 % women delivered in home (Figure 1.1). These results show that one out of four women are at risk at time of delivery.

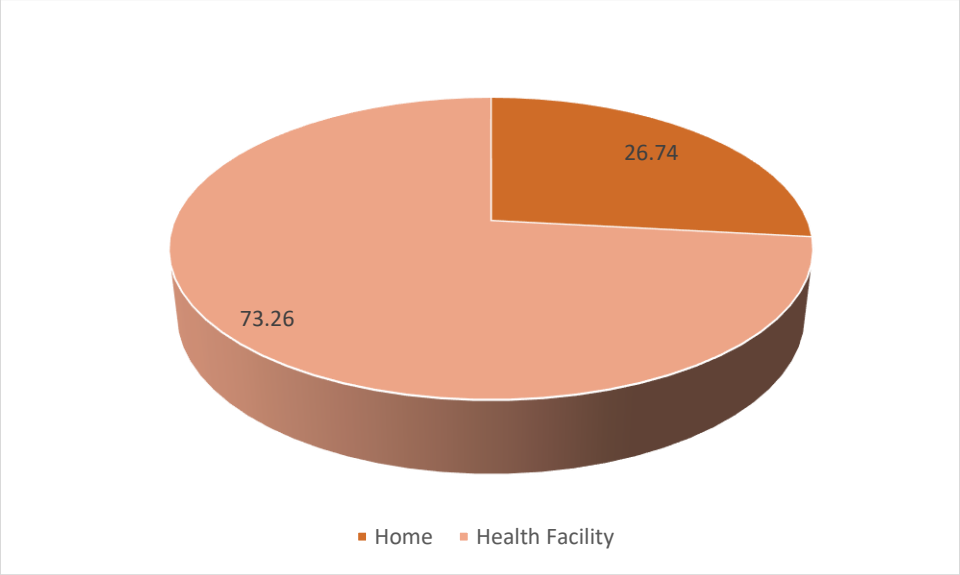

Fig 4.1: Place of Delivery

4.2 Institutional Delivery by Household Economic Status

Household economic status and Institutional delivery shows a positive association as income quintile went upward from poorest to second middle fourth and fifth Institutional delivery also increases from 49% to 66%, 78%, 84% and 93% respectively (figure 1.2).

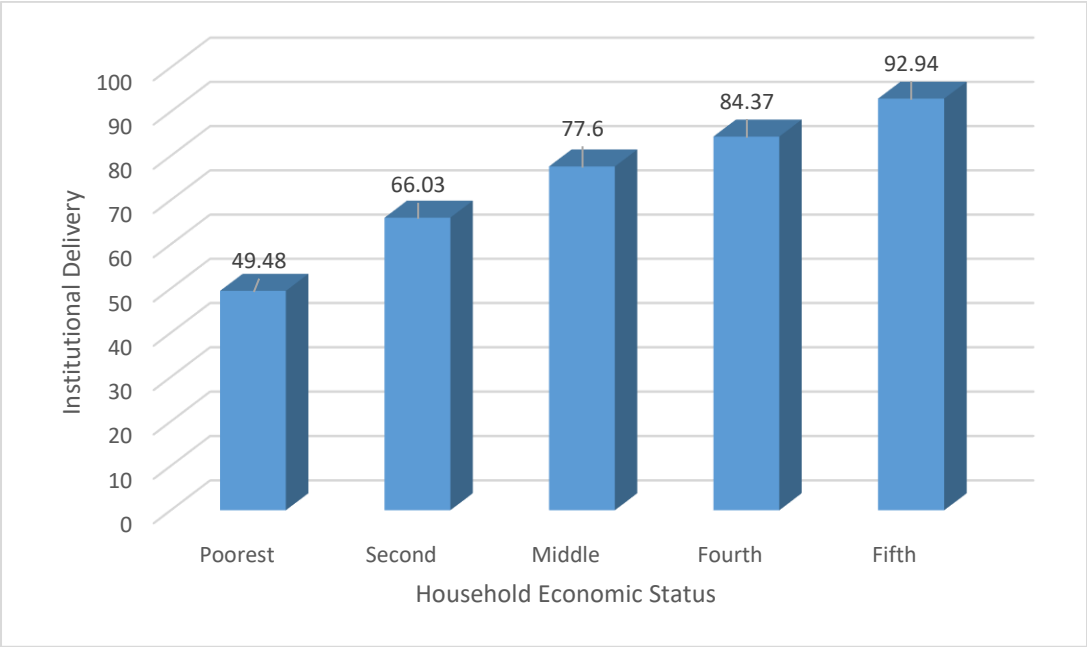

Fig 4.2: Institutional Delivery by Household Economic Status

4.3 Institutional delivery by Mother Age

Results of mother age shows that mother whose age bracket are from 20-24, 25-29 and 30-34 years they are more practiced institutional delivery as 75%, 74% and 74% respectively. After that as mother age went upward from 35-39, 40-44, and 45-49 years institutional deliver fall gradually from 70%, 64% to 57% respectively. 67% mother used institutional delivery whose age are from 15-19 years.

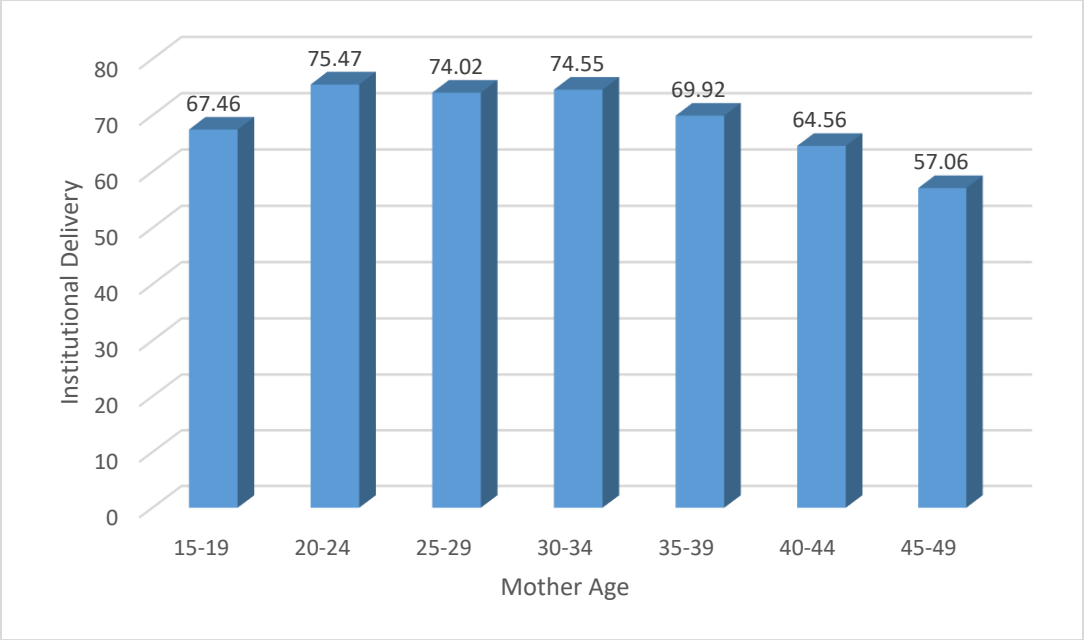

Fig 4.3: Institutional Delivery by Mother Age

4.4 Institutional delivery by Mother Education

Results of Mother Education and Institutional delivery shows an upward trend as mothers education went upward from preschool to primary institutional delivery also increases from 57% to 74%. Again, when mothers education went from primary to middle, secondary and higher secondary, institutional delivery trends upward from 74% to 83%, 88% and 94% respectively. (Figure 1.3).

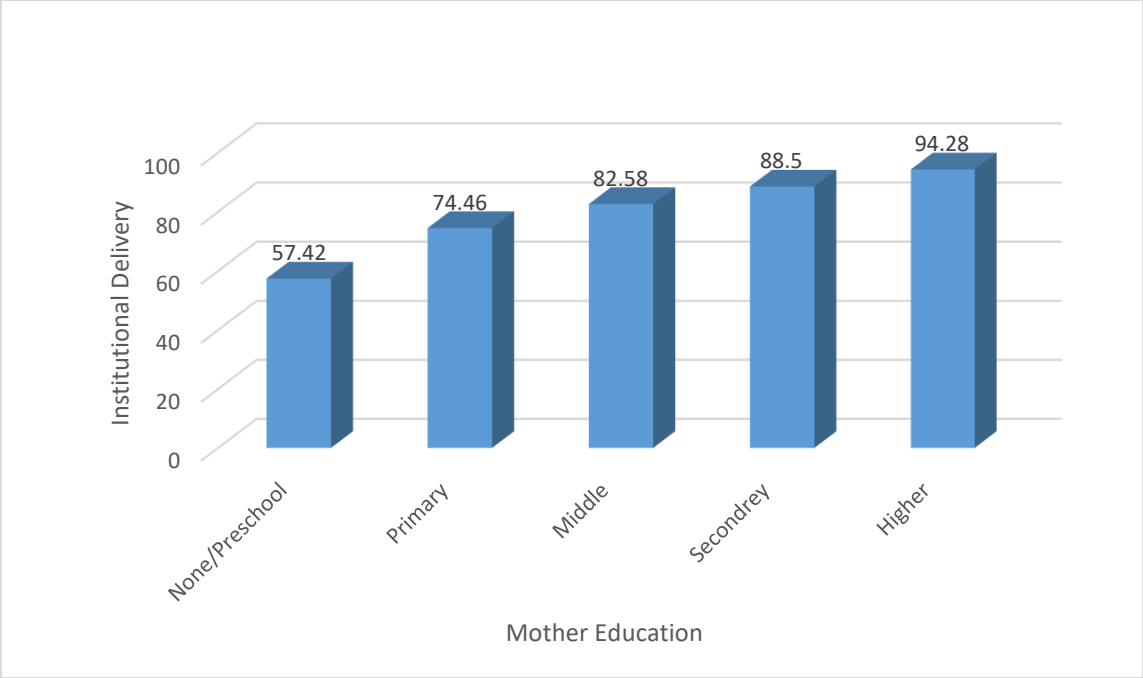

Fig 4.4: Institutional Delivery by Mother Education

4.5 Institutional delivery by Antenatal care visit

Results of antenatal care visit and Institutional delivery indicate a positive relationship those women who have no antenatal care visit only 39% of them used institutional delivery. women who used to visit 1-3 times 4-7 times and 8 and above times they used institutional visit 63%, 85% and 92% respectively.

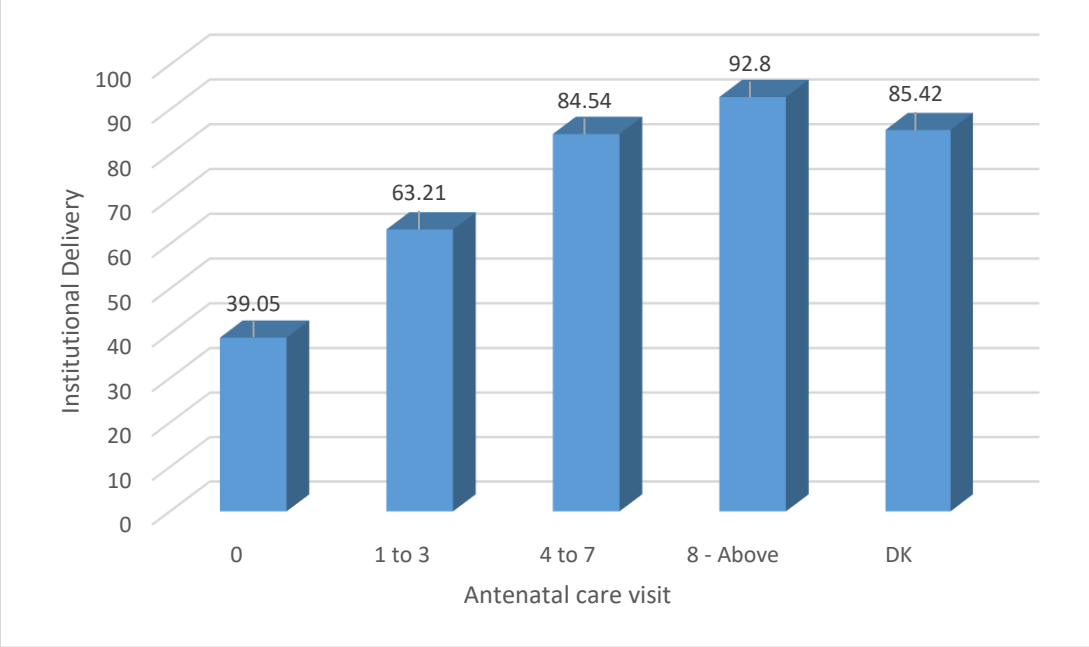

Fig 4.5: Institutional Delivery by No of Antenatal care visit

4.6 Institutional delivery by Place of Residence

Place of residence is indicated through region and division. Results for region indicate that there is strong association between institutional delivery and rural, urban areas i e figure 1.6 indicate that 82% institutional delivery is used by women given who belong from urban area while 69% women used institutional delivery from rural area.

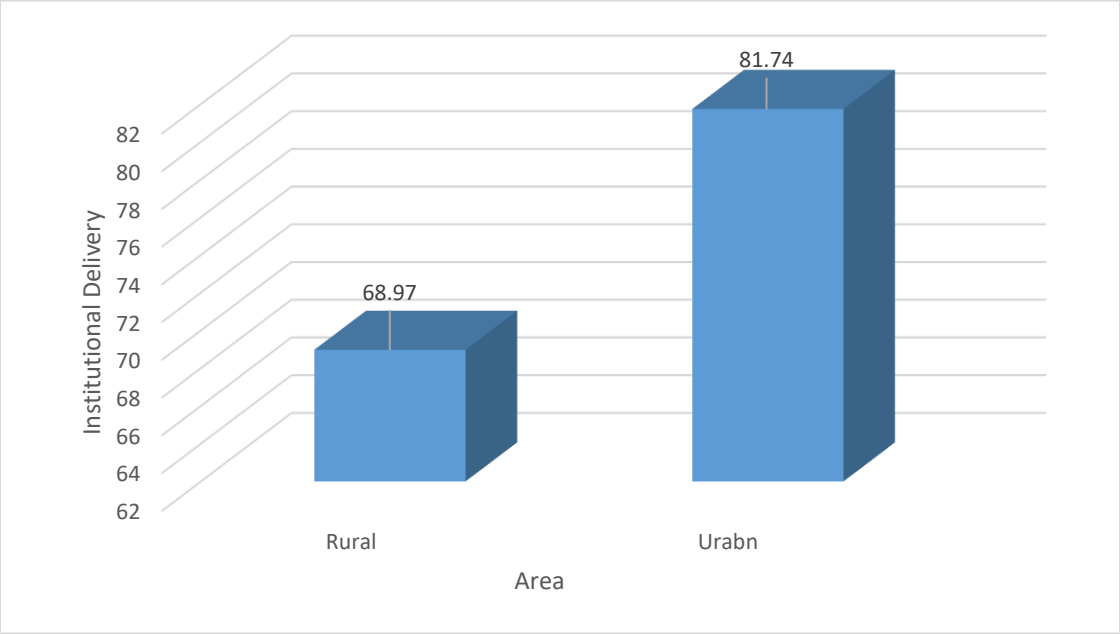

Fig 4.6: Institutional Delivery by Area

Like the results between regions division have also strong association with institutional delivery according to the results (figure 1.7) Rawalpindi, Gujranwala, Lahore, Faisalabad and Sargodha have the highest institutional delivery score that is 84%, 81%, 80% 77% and 76% respectively. While Multan and Sahiwal have 74% and 73 % institutional delivery the remaining division Bahawalpur and DG khan have the lowest institutional rate that is 62% and 47%.

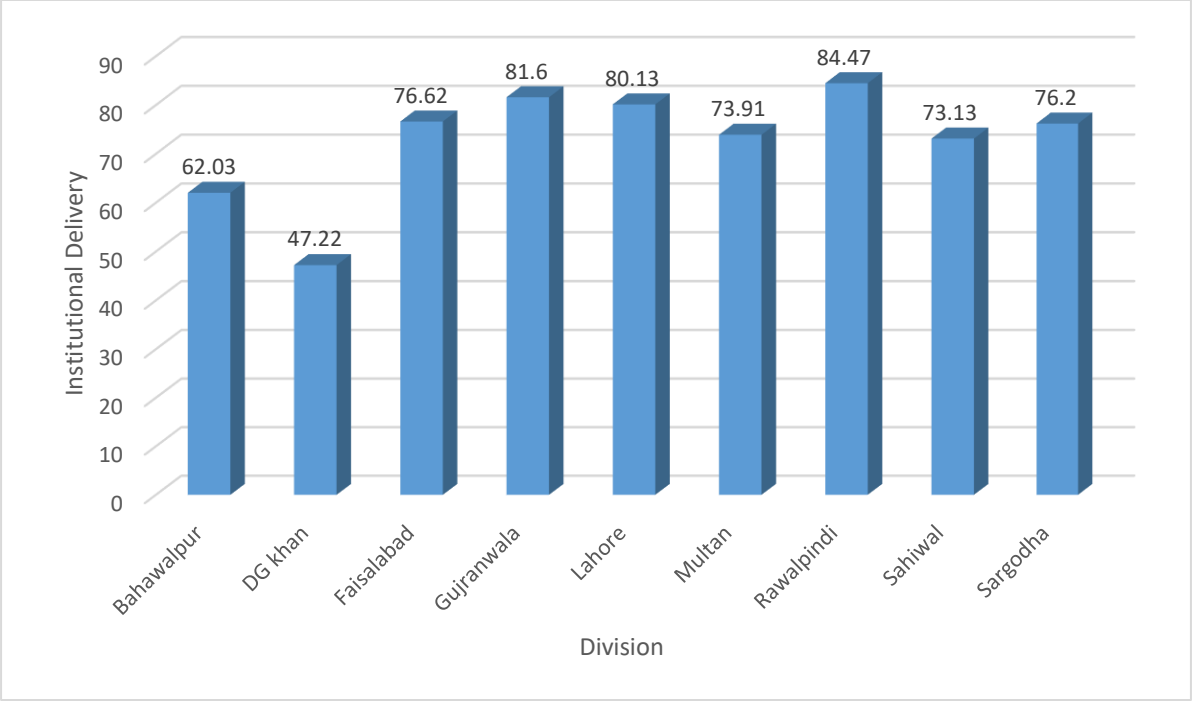

Fig 4.7: Institutional Delivery by Division

4.7 Multivariate Regression Results

To find out the most significant factors for institutional delivery binary logistic regression is run. The dependent variable here is converted into dichotomous having two categories i.e. ID=1 as the delivery happened inside the hospital facility (Organization) and ID=0 If delivery occurred in home. The finding (Table 1.1) are indicate the value of significance, beta coefficients, odd ratios and other model fitness values. Odd ratios are used to interpret categorical variables. Odd ratios express the likelihood of ID across every variable keeping all other factors constant. Sign of beta coefficient shows positive or negative relationship between variables. Trend shown in multivariate analysis is consistent with bivariate analysis for almost all the factors.

Table 4.1 Result of Binary Logistic Regression for Determinants of Institutional Delivery			
Explanatory Variable	**Beta coefficient**	**Significant value**	**Odd ratio**
Economic Status[1] 1nd Quintile	**-0.496***	**0.00**	**0.608**
2nd Quintile	**-0.253***	**0.00**	**0.776**
4nd Quintile	**0.210***	**0.00**	**1.234**
5nd Quintile	**0.700***	**0.00**	**2.013**
Mother Age[2] 15-19	**-0.121**	**0.30**	**0.885**
20-24	**0.036**	**0.57**	**1.037**
25-29	**-0.144***	**0.01**	**0.865**
35-39	**0.013**	**0.86**	**1.013**
40-44	**-0.049**	**0.69**	**0.952**
45-49	**-0.418**	**0.08**	**0.657**
Mother Education[3] Preschool	**-0.508***	**0.00**	**0.601**
Primary	**-0.217***	**0.01**	**0.804**
Secondary	**0.235***	**0.02**	**1.264**

[1] 3st Quintile
[2] Mother Age group (30-34 year)
[3] Middle level

Higher Secondary	**0.633***	**0.00**	**1.942**
No of Antenatal care visit[4]1-3	**-0.723***	**0.00**	**0.485**
8-Above	**0.613***	**0.00**	**1.847**
Don't Know	**-0.094**	**0.75**	**0.909**
Residence[5] Urban	**0.208***	**0.00**	**1.231**
Division[6]Bahawalpur	**-0.208***	**0.03**	**0.812**
Dera Gazi khan	**-0.868***	**0.00**	**0.419**
Faisalabad	**-0.061**	**0.47**	**0.940**
Gujranwala	**-0.133**	**0.12**	**0.875**
Lahore	**-0.141**	**0.11**	**0.867**
Rawalpindi	**0.094**	**0.35**	**1.099**
Sahiwal	**0.025**	**0.80**	**1.025**
Sargodha	**0.201***	**0.02**	**1.222**
Constant	**1.824***	**0.00**	**6.199**
Model Chi-square	**2171.88**		
Model Significance	**0.00**		

[4]Antenatal care (3-7 visit)
[5]Rural Residents
[6]Division Multan
* Indicates significance of variable at 5%

Log likelihood	**-6404.059**

Study findings show if there has been a positive correlation among Institutional delivery and household economic status women from 1st and 2nd quintile are 0.6 and 0.7 times low probability to delivered in the hospital facilities as comparative to women from 3rd quintile and women from 4th and 5th quintile are 1.2 and 2.0 times extra likely to delivered in institutional facilities as compared to third quintile, literature also support our finding that better household wealth has been positively associated with higher institutional delivery (Pathak et al 2006). Moms whose age group are 15-19 and 25-29 years are 0.8 times less possible to delivered in health facilities as women from 30-34 years and mother whose age group are from 20-24 and 35-39 years their likelihood are same as reference group but mothers whose age are from 40-44 and 45-49 years are 0.9 and 0.6 times less possible to delivered in health facilities, Similar finding can be seen by literature that institutional delivery and age is negatively associated with each other (Teferra et al 2012). Those mother who are uneducated and up to primary level education are 0.6 and 0.8 times low odds to have a delivery in hospital services as comparative to women who have middle level education and mothers who have secondary and higher secondary education are 1.2 and 1.9 times higher probability to deliver in the healthcare units, Similar finding can be seen from another study that mother education play a vital role in improving institutional delivery (Aremu et al 2011). Mother whom attained antenatal care appointment 1-3 times are 0.4 times fewer probable to deliver in hospital units as compared to reference group and those women who attained antenatal care visit 8- above times are 1.8 times extra probable to be delivered in institutional services, Similar finding can be seen by literature that institutional delivery and number of Antenatal care visit are positive associated (Teferra et al 2012).Mothers

from the Urban areas are 1.2 times more probable to used institutionalized delivery than rural women, literature also indicate that women who lives in the urban areas have a higher probability to give birth in healthcare service units than the women living in the country-side areas (Feyissa et al 2013). Women from Bahawalpur, Gujranwala and Lahore divisions are 0.8 times less expected to deliver in health facilities while women from D G khan and Faisalabad division are 0.4 and 0.9 times less possible to deliver in the institutional facilities. Women from Rawalpindi and Sahiwal division are the same as reference category and women from Sargodha division are 1.2 times more prospective to used institutional/organized delivery, another study also indicate that there are much variation between different regions with respect to Institutional delivery (Pathak et al 2017).

Significance factor towards Institutional delivery are economic status, mother education, antenatal care visit, area and women from Bahawalpur, DG khan and Sargodha division. Mother age is highly insignificant except age group from 25-29 years. Faisalabad, Gujranwala, Lahore, Rawalpindi and Sahiwal division are also insignificant factor towards institutional delivery. The p-value of 0.00 for model significant indicates that the overall model is statistically significant.

Chapter 5

CONCLUSION AND POLICY RECOMMENDATION

Maternal mortality ratio in Pakistan is 140deaths/ 100000 live birth (index mundi 2017). This horrified maternal mortality ratio the risk of complication and infections can be reduced by promoting deliveries in health facilities where proper medical and hygienic conditions, clean environment and skilled health professional available. But poverty is the main essential element that clarifies the higher pace of home based deliveries in Asia & Africa. Mothers from poorer families & marginalized networks has absence of availability to appropriate maternity care units/institutes and in areas where services are accessible have been constrained by higher financial barriers (Sarker et al 2012&Montagu et al 2011). Another significant cause of the maternal mortality in Pakistan is the absence or late or sluggish approach to the hospital facility. Numerous provincial territories in the nation have absence of maternity homes while the current medical clinics have absence of prepared staff to manage pregnant mothers who have complications. So when there is an intricacy, for example, obstetrician drain, these clinics can't give the earnest treatment to the ladies. In some cases, ladies die on the spot. Taking them to the city for the best possible treatment, sometimes, causing delayed travel and labor related complications. Ladies frequently need to know it may take hours to get treatment for intricacies which are getting serious as time passes. The study finding shows that 27% of women delivered at home while 73% used institutional deliveries. Household economic status is one of the most influential factors towards institutional deliveries in Punjab.

The literature shows that various socio economic characteristics is responsible for institutional deliveries for inquiring this certain background characteristics are selected

including: Household economic status (which is also divided by five quintile from lowest to higher level) Mother age (which further divided by age groups) Mother education (which further divided by five quintile) No of antenatal care visit, Area of residence and Administrative Division. According to the results Institutional deliveries increase as economic status, mother education attainment and No of antenatal care visit increases from lower to higher. Studies of (Kamal & Hassan 2013) also revealed same results respectively. Women whose age are from (20-39 years) are slightly high than other age (15-19 and 40-49 years) group by using health facilities during birth of child. Rural women used institutional delivery less than urban women and a lot of variation observed between administrative divisions D.G Khan division have the lowest while Rawalpindi division have highest rate of institutional deliveries.

Along with the background and Socio economic characteristics result of multivariate analysis shows that household economic status, mother education, number of antenatal care visit, residential area matters the most significant determinants of Institutional delivery. While Mothers age impact insignificant for Institutional deliveries.

The study provides a comprehensive understanding of the institutional delivery among women in Punjab. It gives evidence that institutional deliveries rate are low in poor households and some divisions. Moreover, strategies to overcome this concern are not incorporated in the health plan of the country to promote institutional deliveries. In this backdrop, suggestion for policies and interventions are needed for tackling this issue, some of the policy directions are recommended below:

- Deliveries at home and unskilled birth attendant are one of the reasons of maternal death. A specific comprehensive strategy should be design where vulnerable women prioritize

in emergency basis as well as those women who are at risk of not having access to health facilities should be targeted.

- Study show that lower wealth quintile women are more vulnerable than rich quintile. The most vulnerable groups should be targeted by providing them free of cost services with special incentive in shape of cash for the improvement of ID prior to the rest of other groups.
- Mother education is a significant factor of ID in this research mother who has illiterate or lower education they are more vulnerable as compare to those mother who have higher education attainment. So specific health knowledge about ID should be given to mothers on priority basis.
- Antenatal care visit of mother is a positive impact on ID so antenatal care visit should be promoted by counseling of pregnant women through Lady Health Workers Program.
- Rural women should be targeted and provide them maternity home at door step, Basic Health Unit in rural area should be functionalized and equipped with basic necessities used in normal delivery with specialized lady health worker.
- In the finding a very high variation has been seen between administrative division those division should be prioritize which are most vulnerable and ID strategy should be implemented at district level.

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