Urban rural differentials in spatial distribution of pregnant women's choice of delivery place by district in Punjab — Results from Pakistan Social and Living Standards Measurements Survey 2014-15

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Madam, home deliveries are fraught with higher risks of maternal and neonatal complications, but in many developing countries childbearing women choose to deliver at home.[1-3] Utilization of public or private maternal healthcare services is predicated on availability of, access to, and cost concerns. Public sector healthcare facilities are designed to essentially provide free services.[1-3] In this study, percent of delivery sites utilization, disaggregated by urban and rural residency status in each district of the Punjab province were mapped using Geographic information Systems. The spatial distribution of delivery site percentages, disaggregated by three places of either home delivery, delivery at government facilities (hospital, Rural Health Center, and Basic Health Units), and delivery at private hospitals or clinics was done to highlight the urban and rural distribution, including the differences between urban and rural percentages.

The 'Pakistan Living Standards Measurement' surveys (PSLM) are conducted by the Pakistan Bureau of Statistics (PBS).[4] The latest district-level survey report is available for the PSLM 2014-15 in tabular form, and was downloaded from the PBS website as a PDF file.[5] District level data was entered into Excel programme and joined with the Punjab districts shapefile using GIS programme ArcGIS 10.7. Three sets of three choropleth maps were created using ArcGIS 10.7, showing percentage of pregnant women that delivered either at home, or government hospitals including Rural Health Centers (RHC), and Basic Health Units (BHU), or at private hospitals or clinics, and the differences between urban and rural residency status by district. Five classes were used to depict various percentage levels of delivery places, using natural breaks (Jenks) method for the urban residency status maps. For rural residency status, five classes were also used, but with manually defined intervals to match the urban map for ease of district-level comparisons. Similarly, for the differences between districts by urban residency percentages compared to rural residency percentages, five classes with natural breaks method were used.

Figure-1 shows the map of Punjab province with all 36 districts and their names. Figure-2 shows three maps of home

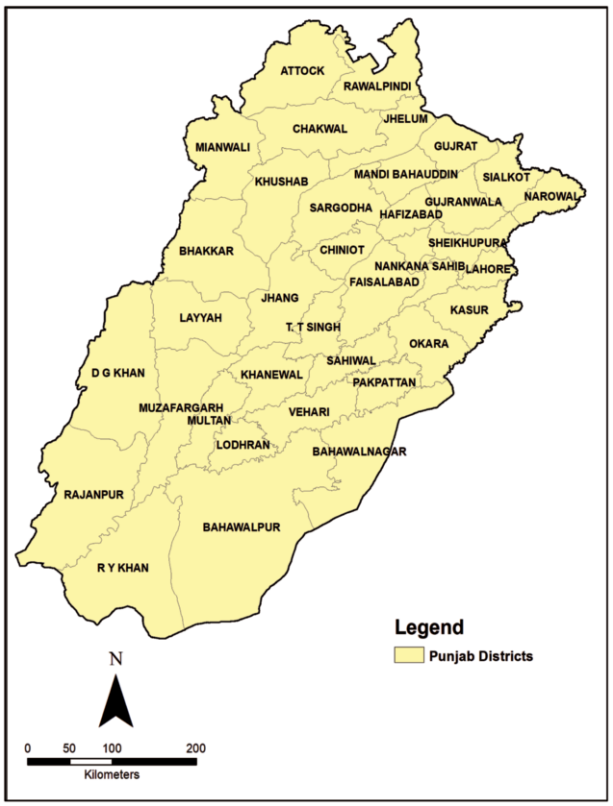

Figure-1: Map showing the districts of Punjab province, Pakistan.

delivery percentages by urban (left map), rural (central map) residency status, and the differences between the two (right map). The home delivery percentage ranged from 5% to 71% in urban areas, with six districts falling in the lowest group of 5%-17% and another six were in the highest group of 47%-71%. Among rural areas, the home delivery percentages ranged from 11%-92%, with one district falling in the lowest group of 11%-17%. While in thirteen districts the percentages ranged from 47%-92%. The differences between the urban and rural home delivery district percentages ranged from -38% to 16%; with negative differences between urban and rural residency status implying that rural residents in the district had higher percentages compared to urban residents. Rawalpindi was the only district where urban residents had non-negative i.e. higher percentage of home delivery compared to rural residents. Figure-3 shows three maps of

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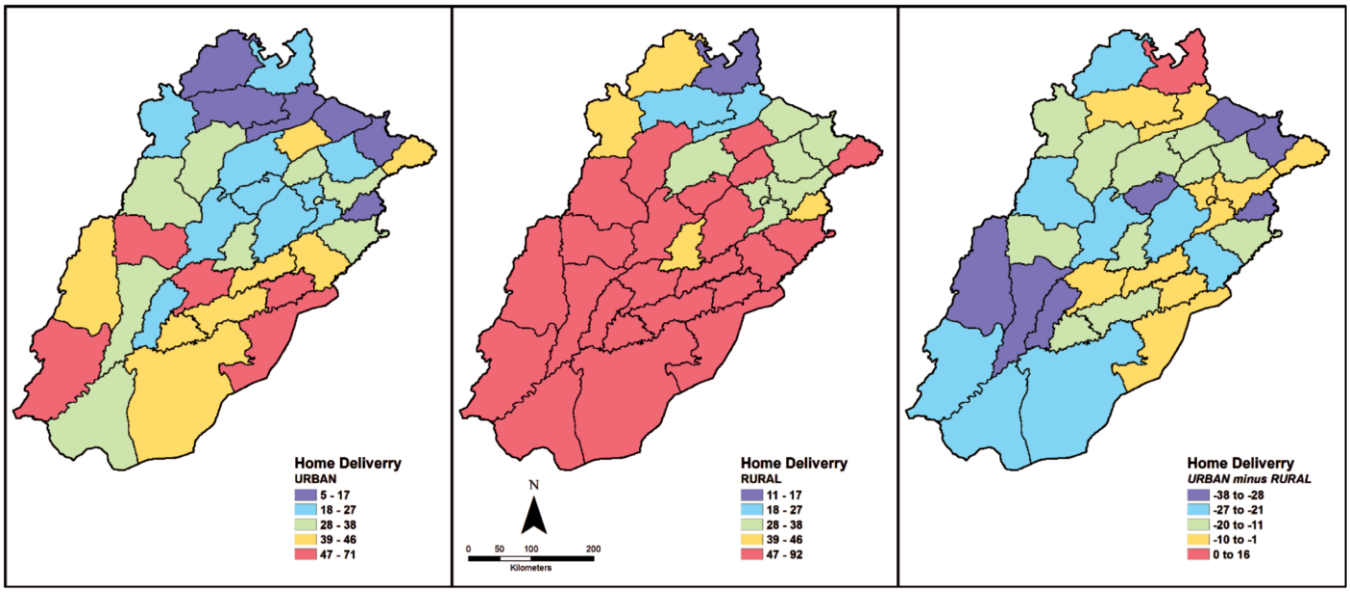
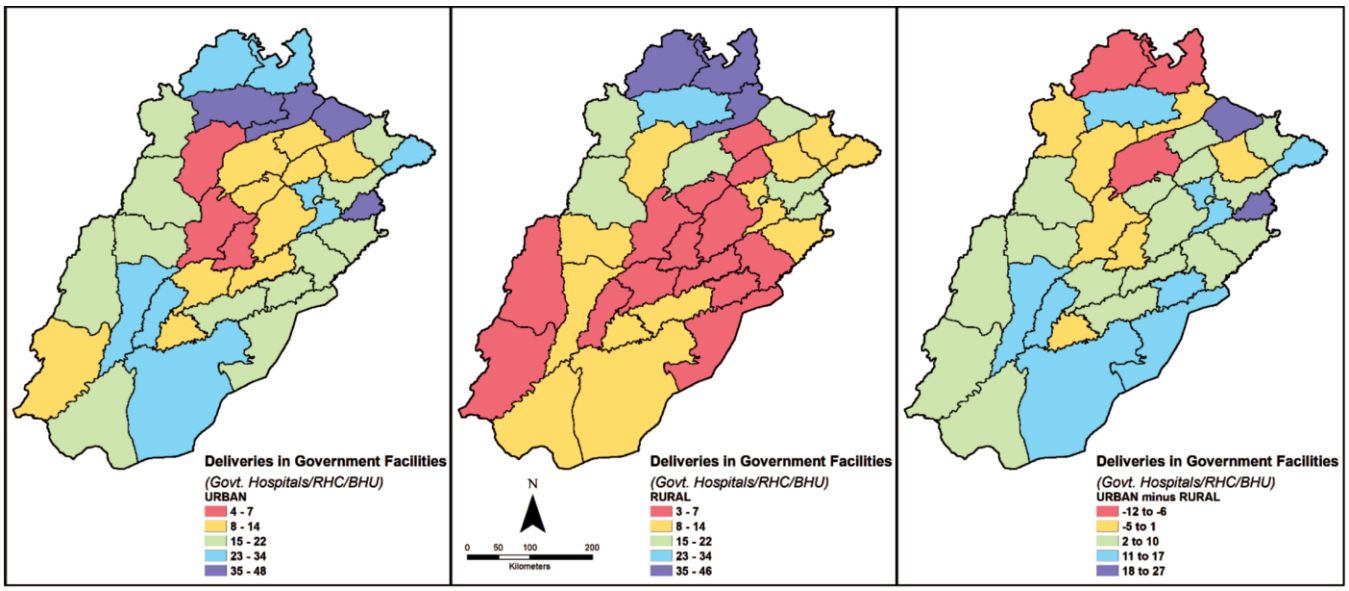


Left map showing the percentage of pregnant women who delivered at home by district in urban areas, middle map showing the percentages in rural areas, and the right map showing urban-rural differentials.

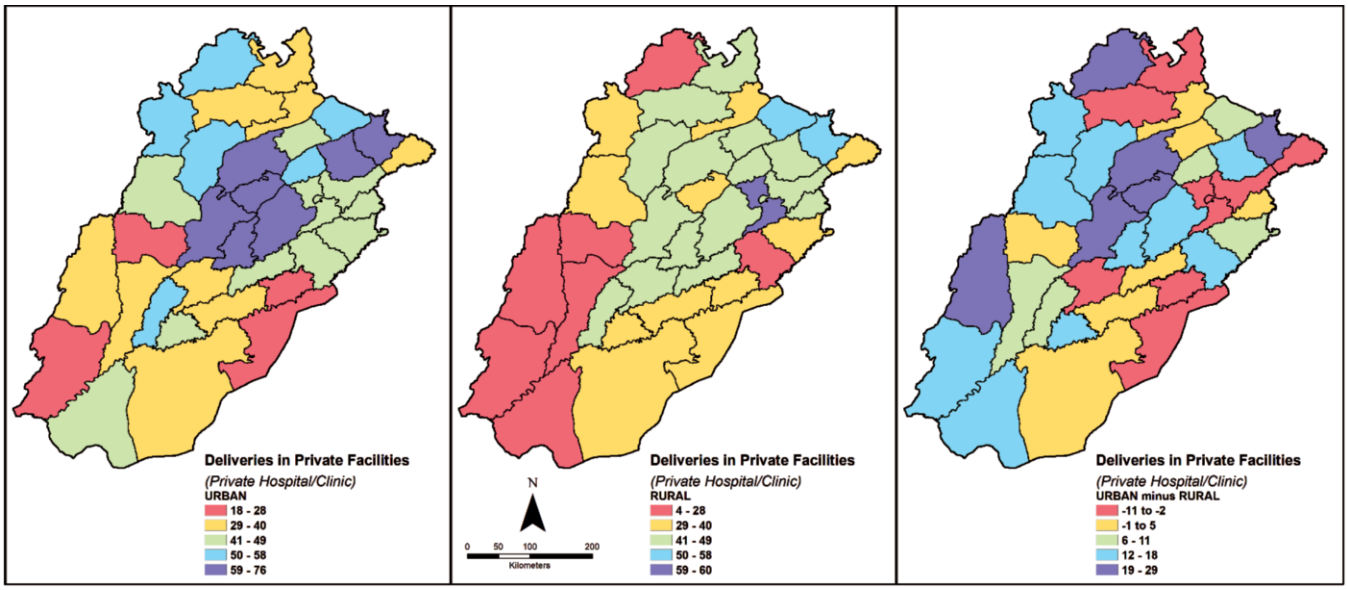
Figure-2: Map showing the percentage of pregnant women who delivered at home by district in Punjab, disaggregated by urban, rural, and urban-rural differentials.



Left map showing the percentage of pregnant women who delivered at government health facilities by district in urban areas, middle map showing the percentages in rural areas, and the right map showing urban-rural differentials.

Figure-3: Map showing the percentage of pregnant women who delivered at government health facilities including hospitals, Rural Health Centers (RHC) and Basic Health Units (BHU) by district in Punjab, disaggregated by urban, rural, and urban-rural differentials.

delivery at government facilities. The percentage of women who reported deliveries at government health facilities ranged from 4% to 48% in urban areas, with three districts falling in the lowest group of 4%-7% and four were in the highest group of 35%-48%. Among rural areas, the home delivery percentages ranged from 3%-46%, with fourteen districts falling in the lowest group of 4%-7%. While three districts the percentages ranged from 35%-46%. The difference in percentages between the urban and rural areas in delivery at government facilities ranged from -12% to 27%; with negative differences between urban and rural residency status implying that rural residents in the district had higher



Left map showing the percentage of pregnant women who delivered at private health facilities by district in urban areas, middle map showing the percentages in rural areas, and the right map showing urban-rural differentials.

Figure-4: Map showing the percentage of pregnant women who delivered at private health facilities (hospitals and clinics) by district in Punjab, disaggregated by urban, rural, and urban-rural differentials.

percentages compared to urban residents. Seven rural districts had higher percentages of deliveries at government run facilities, while there was no difference between urban and rural percentages in the districts of Jhang and Lodhran. In district Jhelum the difference was merely of one percent point. Figure-4 shows the shows three maps of delivery at private health facilities that includes hospitals and clinics. The private facility delivery percentage ranged from 18% to 76% in urban areas, with four districts falling in the lowest group of 18%-28% and six were in the highest group of 59%-76%. Among rural areas, the home delivery percentages ranged from 4%-60%, with seven districts falling in the lowest group of 4%-28%. While only Nankana Sahib district reported 60%, and fell in the highest group of 59%-60%. The differences between the urban and rural private facility delivery district percentages ranged from -11% to 29%; with negative differences between urban and rural residency status implying that rural residents in the district had higher percentages compared to urban residents. In eight districts rural residents had higher percentages compared to urban residents. Sahiwal district did not report any urban-rural difference.

In general, women in rural parts of southern districts reported much higher percentages of delivery at home and government facilities, compared to their urban counterparts in the northern part of the province where more women delivered at private facilities. This is the first study on mapping of urban-rural residency disaggregated district level representative data on place of delivery in the Punjab province. The north-south gap is an interesting pattern that was clearly depicted in this study. The findings from the PSLM district level data for the 2014-15 survey will help determine the trends with the future iterations of PSLM surveys.

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