Policy Brief Series # 83

Research And Development Solutions

District Level Estimates of Contraceptive Use

Using Small Area Estimations to Bridge Data Gaps for Smarter Family Planning Decisions

Why District-Level Estimates Matter

Pakistan's national and provincial family planning indicators - such as the Contraceptive Prevalence Rate (CPR) - provide an overall picture, but they hide considerable differences within provinces. Some districts are well served, while others lag because of differences in income, education, availability, and access to services.

To make real progress toward Universal Health Coverage (UHC) and the Sustainable Development Goals (SDGs), policy decisions must be guided by local realities. District-level data allow governments to identify underserved areas and populations, target resources where they will have the greatest impact, and then to track progress transparently across districts and over time to ensure results.

This brief presents district-level estimates of CPR and modern CPR (mCPR), developed using locally available (survey and program) data. These analyses can be replicated with other similar datasets to track other indicators in health, education, and social services.

District Estimates of Contraceptive Use

The analysis - of estimates for 2019-20 - reveals wide variation across districts—even within the same province. Urbanized and better-educated districts generally show higher FP use, while rural and agriculture-heavy districts lag behind.

KEY TAKEAWAYS

1. **Accurate District CPR and mCPR Estimates** allow focused Interventions and Evaluations.
2. **Improved Tracking of Progress.** By setting actual benchmarks for services at the district level, these estimates help convert gaps into measurable targets, allowing progress tracking in terms of number of users served.
3. **Automation.** District estimates can be connected to **Dashboard** and on **Heat Maps** and **automated to produce routine reports** without requiring advanced statisticians.
4. **Annual Replication** of these estimates will help track progress in real time.
5. **Beyond Family Planning.** Similar Analysis can be done for other indicators such as immunization, poverty, services for primary healthcare and other indicators and serve as benchmarks to track progress of social, education and health programs.

These local differences allow planners to visualize where resources and outreach efforts should be concentrated.

Figure 1: CPR at the District level

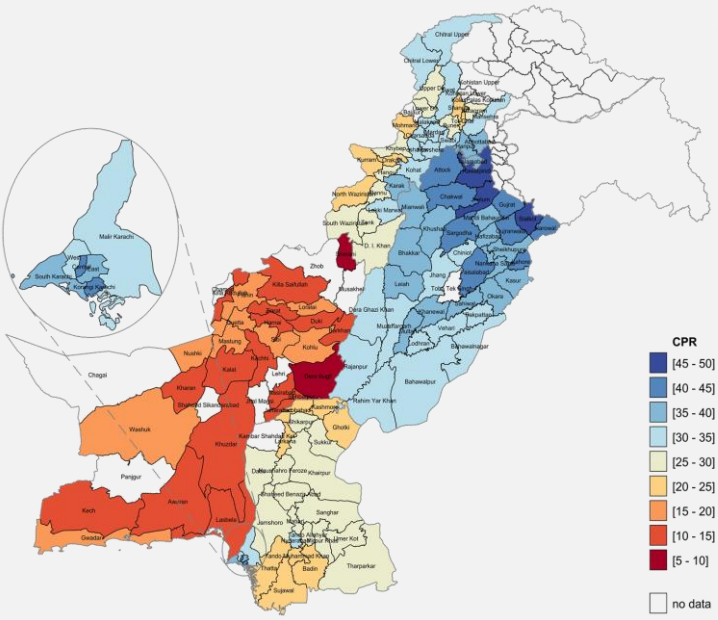
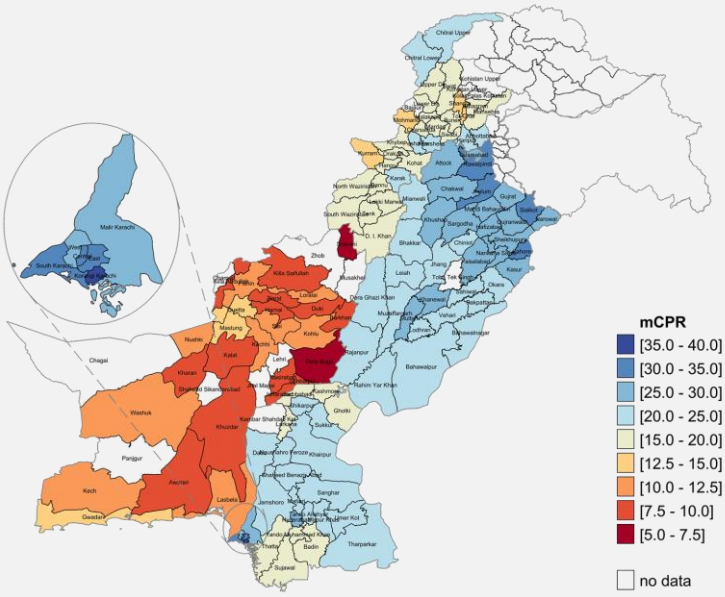


Figure 2: Modern CPR at the District Level



How the Estimates Were Developed

The estimates combine information from:

- The **Pakistan Social and Living Standards Measurement (PSLM) 2018–19 Survey**, which provides reliable provincial averages. PSLM has previously been shown to be highly reliable measure of national and provincial CPR.[1] Other indicators from district-level PSLM 2019-20 include district characteristics such as education, income, fertility, and economic composition for refining the estimates and reducing uncertainty errors.
- The **Contraceptive Logistics Management Information System (cLMIS)**, which tracks commodity distribution. Our analysis can be replicated using other datasets for commodities and services.

Using these data sources together allowed us to fill gaps in areas where recent surveys were unavailable. The results align closely with PSLM benchmarks while providing local details for each district.

Validation of Results

To ensure accuracy, district estimates were compared with provincial averages from PSLM 2018–19. The results closely match survey data, confirming that the approach provides a sound basis for planning and monitoring.

Table 1: Validation of Provincial Estimates

Province	Estimated CPR	PSLM CPR	Estimated mCPR	PSLM mCPR
Khyber Pakhtunkhwa	**30.0%**	30.6%	**18.8%**	18.7%
Punjab	**38.3%**	38.6%	**26.0%**	26.3%
Sindh	**30.0%**	29.5%	**25.9%**	25.3%
Balochistan	**14.1%**	13.7%	**10.4%**	10.2%

Implications for Policy and Programs

1. Provincial Departments of Health and Population Welfare can use district estimates to prioritize resource allocation, staffing, and supply chain management.
2. Development partners and donors can align funding with the districts of highest unmet need, ensuring value for money.
3. Performance-based budgeting can be linked to improvements in district-level indicators, enabling transparent tracking of outcomes.
4. Monitoring systems can integrate these estimates as benchmarks into dashboards for quarterly review and accountability.

Conclusion

District-level CPR and mCPR estimates provide a practical tool for evidence-based decision-making, efficient use of resources, and greater transparency. They bridge the data gap between national surveys and routine monitoring, allowing government and partners to plan smarter, act faster, and deliver results where they matter most.

Reference:

[1] Ibrahim M, Khan AA et al. **Towards Cohesive National Surveys in Pakistan: A Comparative Study of DHS and PSLM.** PLoS One. 2025 Mar 25;20(3):e0320044. https://doi.org/10.1371/journal.pone.0320044

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For more information, please contact
Dr. Adnan Khan, MBBS, MS.
adnan@resdev.org

DISTRICT CPR (2020 Estimates)

PUNJAB

District	CPR	mCPR
Sialkot	46% (41–51%)	32% (28–36%)
Rawalpindi	46% (40–51%)	32% (28–36%)
Jhelum	46% (41–51%)	31% (28–35%)
Chakwal	44% (39–49%)	29% (26–33%)
Gujrat	44% (41–47%)	30% (28–32%)
Gujranwala	43% (40–47%)	30% (27–32%)
Lahore	43% (39–47%)	30% (27–33%)
Narowal	43% (39–47%)	29% (26–32%)
Attock	41% (37–44%)	27% (25–30%)
Sargodha	40% (38–43%)	27% (25–29%)
Faisalabad	40% (37–44%)	28% (25–30%)
Mandi Bahauddin	40% (37–43%)	27% (25–29%)
Nankana Sahib	39% (37–40%)	26% (25–27%)
Khushab	38% (35–42%)	25% (23–28%)
Hafizabad	38% (36–41%)	26% (24–27%)
Sheikhupura	38% (35–42%)	26% (24–29%)
Khanewal	38% (34–42%)	26% (23–28%)
Kasur	37% (34–40%)	25% (23–28%)
Bhakkar	37% (33–41%)	24% (22–27%)
Multan	37% (34–39%)	25% (23–27%)
Okara	36% (33–40%)	24% (22–26%)
Mianwali	36% (34–39%)	25% (23–26%)
Leiah	36% (32–41%)	23% (21–27%)
Sahiwal	35% (31–40%)	23% (20–26%)
Jhang	35% (31–39%)	23% (20–26%)
Chiniot	34% (32–36%)	22% (21–24%)
Bahawalnagar	34% (31–36%)	22% (21–24%)
Bahawalpur	33% (30–36%)	22% (20–24%)
Vehari	33% (30–36%)	22% (20–24%)
Lodhran	32% (29–35%)	21% (19–23%)
Rahim Yar Khan	32% (29–35%)	21% (19–23%)
Dera Ghazi Khan	32% (29–35%)	21% (19–23%)
Pakpattan	32% (27–37%)	20% (17–24%)
Rajanpur	31% (27–35%)	20% (17–23%)
Muzaffargarh	31% (27–35%)	21% (18–23%)

ISLAMABAD

District	CPR	mCPR
Islamabad	38% (38–39%)	26% (25–27%)

BALOCHISTAN

District	CPR	mCPR
Gwadar	18% (16–21%)	13% (12–15%)
Kohlu	17% (15–20%)	12% (11–14%)
Mastung	17% (15–20%)	13% (11–14%)
Quetta	17% (14–21%)	13% (11–15%)
Sibi	16% (14–18%)	12% (10–13%)
Washuk	16% (14–18%)	12% (10–13%)
Loralai	16% (13–18%)	11% (10–13%)
Pishin	15% (13–18%)	12% (10–13%)
Nushki	15% (13–17%)	11% (10–12%)
Kech	15% (13–16%)	11% (10–12%)
Kachhi	15% (13–16%)	11% (9–12%)
Lasbela	14% (11–18%)	11% (8–13%)
Ziarat	14% (12–17%)	10% (8–12%)
Harnai	13% (11–15%)	10% (8–11%)
Jaffarabad	13% (11–16%)	9% (8–11%)
Kharan	13% (10–16%)	9% (7–12%)
Kalat	12% (10–15%)	9% (8–11%)
Barkhan	12% (10–15%)	9% (7–11%)
Duki	12% (9–16%)	9% (7–11%)
Awaran	12% (10–14%)	9% (8–10%)
Killa Abdullah	12% (9–15%)	9% (7–11%)
Sohbatpur	12% (8–17%)	8% (6–11%)
Killa Saifullah	12% (9–14%)	8% (7–10%)
Khuzdar	11% (9–13%)	8% (7–10%)
Nasirabad	11% (9–13%)	8% (6–10%)
Sherani	10% (7–14%)	7% (5–10%)
Dera Bugti	9% (6–12%)	6% (4–8%)

DISTRICT CPR (2020 Estimates)

KHYBER PAKHTUNKHWA

District	CPR	mCPR
Abbottabad	38% (32–44%)	23% (19–27%)
Haripur	37% (31–44%)	22% (18–26%)
Karak	37% (33–41%)	23% (20–26%)
Chitral Upper	34% (31–38%)	21% (18–23%)
Mansehra	33% (30–36%)	20% (18–22%)
Nowshera	33% (29–36%)	21% (18–23%)
Swabi	32% (30–35%)	20% (18–21%)
Kohat	32% (30–35%)	20% (18–22%)
Peshawar	32% (29–35%)	20% (18–22%)
Malakand	32% (29–35%)	20% (18–22%)
Mardan	31% (29–34%)	19% (18–21%)
Lakki Marwat	31% (29–33%)	19% (18–20%)
Charsadda	31% (29–33%)	19% (18–21%)
Swat	30% (28–32%)	18% (17–20%)
Lower Dir	30% (27–33%)	19% (17–20%)
Bannu	29% (27–31%)	18% (17–20%)
D. I. Khan	28% (25–32%)	17% (15–19%)
Hangu	28% (24–32%)	17% (15–20%)
Khyber	28% (24–32%)	17% (15–20%)
Batagram	28% (23–32%)	16% (14–19%)
Tank	27% (22–32%)	16% (13–20%)
Buner	26% (24–29%)	16% (14–18%)
Upper Dir	26% (23–29%)	16% (14–18%)
South Waziristan	25% (20–31%)	16% (12–19%)
Tor Ghar	25% (19–31%)	14% (11–18%)
Orakzai	25% (21–28%)	15% (13–17%)
North Waziristan	25% (20–30%)	15% (13–18%)
Shangla	24% (20–28%)	14% (12–17%)
Kurram	24% (20–27%)	14% (12–17%)
Mohmand	24% (19–28%)	14% (12–17%)

SINDH

District	CPR	mCPR
Korangi Karachi	41% (34–48%)	36% (30–41%)
Central Karachi	40% (35–46%)	35% (31–39%)
East Karachi	39% (33–45%)	33% (29–38%)
South Karachi	36% (32–41%)	31% (28–35%)
Hyderabad	33% (31–36%)	29% (27–31%)
West Karachi	33% (28–39%)	29% (25–34%)
Malir Karachi	33% (29–37%)	29% (25–32%)
Mirpur Khas	29% (25–34%)	25% (21–28%)
Matiari	29% (25–33%)	24% (21–27%)
Naushahro Feroze	29% (25–32%)	24% (22–27%)
Umer Kot	28% (23–34%)	24% (20–28%)
Tharparkar	27% (21–34%)	23% (19–28%)
Sanghar	27% (24–30%)	23% (21–26%)
Shaheed Benazir Abad	27% (24–30%)	23% (20–26%)
Sukkur	27% (24–30%)	23% (21–26%)
Khairpur	26% (24–29%)	23% (21–26%)
Jamshoro	26% (23–30%)	23% (20–25%)
Dadu	26% (23–29%)	22% (20–25%)
Tando Allahyar	26% (23–29%)	22% (19–24%)
Shikarpur	25% (22–29%)	22% (19–24%)
Ghotki	23% (20–27%)	20% (17–23%)
Larkana	23% (20–26%)	20% (17–23%)
Badin	23% (20–26%)	20% (17–22%)
Jacobabad	23% (18–27%)	19% (16–23%)
Sujawal	23% (20–26%)	20% (17–22%)
Tando Muhammad Khan	22% (19–26%)	19% (16–22%)
Thatta	22% (18–26%)	19% (16–22%)
Kashmore	21% (16–26%)	18% (14–22%)