

Digital Divide and Demographic Inclusion: A Sub-National Analysis

Author:

Akhter Ali

Professor,

Department of Economics, S³H, NUST

Executive Summary

In an increasingly digital global economy, access to technology and the internet is no longer a luxury but a fundamental driver of economic growth, educational opportunity, health outcomes, and social inclusion. Pakistan's rapid digital transformation holds immense promise for accelerating development; however, stark disparities in digital access remain deeply entrenched. These disparities—rooted in geography, gender, socioeconomic status, education, and age—risk exacerbating existing inequalities and leaving millions behind.

This policy brief synthesizes findings from a comprehensive sub-national analysis of digital inclusion in Pakistan, revealing critical gaps that must be addressed. It offers actionable policy recommendations designed to foster equitable digital access and literacy, catalyze inclusive growth, and ensure that Pakistan's digital future is shared broadly and fairly.

Key Findings

The following are key findings related to this particular issue and policy brief

Key Messages

- In Pakistan despite rapid expansion in digital services, access to technology and the internet services remain uneven across regions, genders and income groups. All this is risking the exclusion of million from education, economic opportunity and essential services.
- Urban centers enjoys robust digital infrastructure, however rural areas especially Balochistan, northern KP, and interior Sindh are facing the issue of low connectivity, limited investment. All this restrict economic and social mobility. Rural urban gap is quite wider in Pakistan.
- Multiple factors cultural norms, safety concerns, affordability constraints, and low digital literacy prevent women from fully accessing and benefiting from the digital economy, further entrenching gender-based inequalities. In case of digital access the gender gap is quite wider.
- Households with low income levels, low education levels and specifically older adults are disproportionately excluded from digital tools, preventing them from access to online education, telehealth, e-governance, and digital financial services.
- Pakistan's overall growth and human capital development is affected by gaps in technology access directly hindering progress in education, economic inclusion, health service delivery, and democratic participation.
- Expanding infrastructure, improving digital literacy, addressing gender barriers, making connectivity affordable, and strengthening data systems are essential steps to ensure an equitable digital future for all Pakistanis.

1. Geographic Disparities

Digital infrastructure and internet penetration are disproportionately concentrated in urban centers such as Karachi, Lahore, and Islamabad, where access to high-speed broadband and mobile networks is comparatively robust (PTA, 2023). In contrast, rural and remote areas—particularly in Balochistan, northern Khyber Pakhtunkhwa, and parts of Sindh—suffer from inadequate infrastructure, poor connectivity, and low network quality (World Bank, 2022). These gaps reflect both the challenging terrain and lower commercial incentives for telecom investment, which limit economic opportunities for millions residing in these areas.

2. Gender Divide

Women in Pakistan face multi-dimensional barriers to digital access. Cultural norms and safety concerns restrict their mobility and ownership of digital devices, while affordability issues further widen the gap. Digital literacy among women remains significantly lower compared to men, reducing their ability to participate fully in the digital economy (GSMA, 2021; UN Women Pakistan, 2022). This gender digital divide compounds other inequalities, limiting women's access to education, health information, financial services, and political participation.

3. Socioeconomic Inequality

Digital exclusion is deeply correlated with income and educational attainment. Poorer households and those with lower education levels are far less likely to own smartphones or have reliable internet access (PSLM, 2021). This restricts their ability to leverage digital tools for learning, employment, entrepreneurship, and access to government services.

4. Age and Literacy

Digital engagement is predominantly among younger generations who are more adaptable to technology and have greater exposure through education and social networks. Older adults, by contrast, often lack basic digital skills and access to devices, creating a significant generational digital divide (We Are Social, 2023). This exclusion impairs their ability to access health information, social support networks, and digital financial services that could improve quality of life.

Implications of the Digital Divide

- **Education:** Digital access is critical for modern education delivery, including remote learning and digital literacy. The divide disproportionately affects rural students and girls, who face compounded challenges such as limited school resources, fewer trained teachers, and social constraints (UNICEF Pakistan, 2021). Without bridging this gap, Pakistan risks entrenching educational inequalities and undermining future human capital development.
- **Economic Inclusion:** Digital tools unlock access to broader job markets, digital entrepreneurship, and financial inclusion through mobile banking and e-commerce. The digital divide excludes large populations from these opportunities, reinforcing cycles of poverty and limiting national economic growth (World Bank, 2022).
- **Health and Government Services:** E-health initiatives and e-governance platforms have the potential to improve service delivery and transparency. However, limited digital access prevents marginalized communities from benefiting from telemedicine, digital health records, and online government services, undermining equity in health and governance (Digital Pakistan Policy, 2020).

- **Democratic Participation:** Access to digital communication channels enhances political awareness, voter engagement, and civic activism. Without equitable access, marginalized groups remain politically disenfranchised and less able to participate in democratic processes (Freedom House, 2022).

Key Recommendations

1. **Expand Digital Infrastructure:** Prioritize investment in broadband and mobile networks in underserved rural and remote areas using a mix of public funding, subsidies, and incentives for private sector investment. Technologies such as low-earth orbit satellites, TV white space, and community networks can help overcome geographical barriers (World Bank, 2022). Promote regional infrastructure hubs and “digital villages” equipped with public Wi-Fi and community access points to ensure last-mile connectivity.
2. **Promote Digital Literacy and Skills Development:** Implement tailored digital literacy programs targeting women, youth, and older adults that go beyond basic usage to include cybersecurity, digital rights, and entrepreneurial skills (UNDP Pakistan, 2022). Integrate ICT education into school curricula and expand vocational training centers focusing on digital skills aligned with market demand. Partnerships with NGOs and private sector actors can amplify reach and impact.
3. **Ensure Gender-Inclusive Access:** Develop and implement gender-sensitive policies that address cultural and safety barriers, including female-friendly community tech hubs and subsidized digital devices for women and girls (GSMA, 2021). Encourage women’s participation in digital entrepreneurship and leadership through targeted mentorship programs and funding opportunities.
4. **Make Digital Access Affordable:** Introduce subsidies or voucher programs for low-income households to acquire smartphones and affordable data plans, reducing financial barriers to connectivity (Pakistan Ministry of IT, 2023). Expand community Wi-Fi hotspots in public spaces such as schools, libraries, and health centers to provide free or low-cost internet access.
5. **Foster Multi-Stakeholder Partnerships and Innovation:** Facilitate collaboration between government, telecom operators, civil society, and international donors to create scalable digital inclusion models. Encourage innovation hubs and incubators in underserved areas to develop locally relevant digital solutions.
6. **Strengthen Data Collection, Monitoring, and Accountability:** Establish comprehensive, disaggregated data systems to regularly assess digital inclusion progress across gender, geography, income, and age groups (PTA, 2023). Develop provincial digital inclusion dashboards and engage local governments in monitoring and reporting to ensure accountability.

Conclusion

Bridging Pakistan's digital divide is fundamental to achieving inclusive and sustainable development. The digital gap transcends technology—it is a mirror reflecting deep-rooted social and economic inequalities. Without deliberate and coordinated policy action, Pakistan risks leaving millions excluded from the digital revolution, further entrenching poverty and social marginalization.

A national digital inclusion strategy that combines infrastructure development, skills training, affordability measures, and gender-sensitive approaches can transform Pakistan's digital landscape. Empowering all citizens with digital access and capabilities will accelerate innovation, enhance governance transparency, improve health and education outcomes, and strengthen democratic participation. The time to act is now—to ensure that Pakistan's digital future is equitable, inclusive, and prosperous for all.

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Contact Us

✉ cepws@s3h.nust.edu.pk

 @CePwSnust

 cepws-nust

 @cepws.nust

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