

## Unlocking the Digital Gender Gap for Structural Transformation: Case of India, Kenya and South Africa<sup>1</sup>

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Like economic growth, structural change is not an automatic process, as it needs a nudge in the appropriate direction. As India, Kenya and South Africa make an unconventional transition towards high-productive business services, the labour market friction of digital gender gap acts as a constraint to the mobility of female workforce towards these services. Considering that digital technologies represent a potential opportunity to overturn the many challenges of gender inequalities, this specific friction can be integrated into the existing theories of FLFP and structural transformation for serious policy analysis and evaluation of gains at the aggregate level.

### What is digital gender gap?

Digital gender divide refers to gender differences in resources and capabilities to access and effectively utilize ICTs within and between countries, regions, sectors and socio-economic groups. This amounts to gender-gaps in access and use of digital technologies, digital skills and digital finance. These gaps widen on account of non-technological barriers such as inadequate economic resources, lack of training and socio-cultural assumptions about women's roles and place in society. With gender gaps in digital inclusion, they consequently spill over into gender inequalities in the labour and financial markets, which further puts women at a disadvantage.

### What is unusual about India, Kenya and South Africa?

Since 2000s, economies of India, Kenya and South Africa (IKS henceforth) have primarily been driven by the growth in services sector, while their industry has prematurely stagnated, despite the fact that these countries remain in the category of low to low-middle income economies. However, what is common in the growth patterns of IKS is that this growth is largely propelled by financial

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and business services, which have witnessed sharp increases in their value-added share accompanied by substantial rise in labour productivity growth. This distinguishing feature not only corroborates the similar trend in structural change in IKS, but significant increases in the growth of labour productivity in business services in these economies also runs counter to the evidence on Baumol's disease observed in most developed countries.

## **What role do business services play in structural transformation?**

Even as IKS have experienced high within sector labour productivity growth in business services, they are characterized by a weak structural change component, which implies that this subsector has contributed to economy-wide productivity growth both by experiencing rapid productivity improvements and by drawing labour from lower-productivity sectors. However, despite the existence of large inter-sectoral productivity gaps, the reallocation of labour in business services remains tiny. This shows that they have not been able to absorb much of the labour force released from the traditional activities, which has, thereby, also reduced the speed of growth-enhancing structural transformation in these countries.

Moreover, as business services provide inputs to many other economic activities, they have additionally resulted in above unitary backward and forward linkages with respect to high-skilled employment category. This implies that the growth in business services in IKS creates strong high-skilled employment linkage effects both within the sector as well as in other sectors, where formal sector employment increase has primarily occurred in occupations with high ICT intensity since the decade of 2000s. But in order to raise the long-term benefits of ICT intensive jobs in modern services, it is imperative to focus on enhancing ICT literacy skills that can enable greater flexibility and ease the worker mobility towards these services.

Since business services is a high-skilled sector, shortages of adequately skilled workforce in IKS act as a major constraint to sustainable growth driven by these services. In view of the fact that the average ICT task intensity of jobs in business services is much higher due to the intensive use of digital technologies, skill gaps are likely to become more binding in these economies as this subsector grows further in the coming years. This is also why business services have become an unlikely destination for low-skilled workers who reallocate among marginal jobs rather than climb the job ladder and persist in high-paying work, which suggests that they face barriers to move towards stable, high-wage work.

## **How can female workforce be steered towards high-paying business services?**

With large and persistent backlog of low-skilled informal workers in IKS, the share of informality is found to be even higher for women who are predominantly employed in sectors with low wages, high vulnerability and poor working conditions. Furthermore, women are also missing from the

workforce, where the female labour force participation (FLFP) is not only low, but women also face significant labour market challenges in the form of unemployment and underemployment in these economies. The statistics, therefore, reveals that despite the increase in job opportunities in business services, the barriers to entry towards high-paying regular jobs in this sector are even more pronounced for women. This draws attention to the fact that as these economies are leapfrogging towards modern services, their structural transformation processes are not gender neutral since they have taken place against a background of persistent gender segregation in sector-wise employment over the past decades. Low levels of FLFP and occupational segregation of women's employment in these countries may not reverse by itself with high rates of growth in business services since the key driver in the growth of this ICT-intensive sector requires skills that a majority of women do not possess.

With a significant proportion of women being secluded from the high-paying ICT-intensive services that is on a high growth trajectory, there is a need to revisit the issue in terms of human capital formation and how the acquisition of ICT skills by women can change this troubling dynamics. A rise in economic participation of women is instrumental at a macroeconomic level not only for the realization of their full economic potential, but also to advance the growth rate in IKS, while also making the structural change process more inclusive. Considering that digital technologies represent a potential opportunity to overturn the many challenges of gender inequalities, they must be targeted in unleashing their ability in empowering women and girls. This should be channelized through supply-side gender-sensitive policy measures that provide medium for increased usage of mobile phones, Internet access and digital payments, which can facilitate in fostering safe discussion spaces for women, building peer networks and instilling confidence to participate in the labour market. The focus on digital alternatives to facilitate skills training, skills matching and general information that benefit women and girls hold the ability in paving the path of narrowing gender gaps in ICT skills, FLFP, wages and entrepreneurship.

As digital technologies have fostered the growth of ICT-intensive services, they have restructured the labour markets by making it more flexible through changes in the structure of labour demand and supply, which may constitute an important factor for raising FLFP. In this context, reducing the gender gaps in digital access, usage and literacy can be transformative for low-income countries to leverage the full benefits of digital economy that bypasses traditional technologies. New forms of work that have emerged in the digital economy with the Covid-19 pandemic offer advantages either through flexibility in the number of hours or the ability to work from remote locations, where jobs involving online engagements hold the potential of overcoming gendered mobility constraints and longstanding occupational segregation faced by women in these countries. Mobility constraints often include greater domestic responsibilities that make travel farther from home more difficult, safety concerns (harassment or rape), unequal access to cars or bicycles, and cultural disapproval of girls' movements.

As digital platforms reduce the entry barriers and transaction costs confronted by women from working in the formal sector, they also enable labour market matching by increasing the transparency of information flows. With profound transformation in the content of jobs in the ICT-intensive sector and the skills needed to perform them, addressing the digital gender divide can potentially impact the labour market outcomes for women. Directing policy efforts towards gender-oriented actions to target Internet access, digital skilling, digital finances and ICT platforms would not only enable women in finding better job opportunities and fight economic vulnerability, but also provide access and control over financial resources through the use of mobile money that accelerates the financial inclusion of women and aids in their empowerment. This is expected to not only raise the FLFP and narrow the digital gender gap, but would also create a cascading effect on human capital formulation through inter-generational transmissions at the household level.

### **Reducing barriers to women's participation in ICT-intensive business services**

Although large-scale nationwide digital programs are underway across IKS to address the digital skilling of women and girls, these initiatives have not been able to translate into higher FLFP in high-paying service sector jobs. Not only are these programs lacking in making provisions for gender-disaggregated training targets, but they also fail to recognize that women's rate of Internet usage may not increase in tandem with increases in national deployment of digital technologies in the economy. This is because gender gap in the use of mobile internet-based services and Internet, in general, is substantial, where women remain disproportionately disadvantaged in terms of ownership and usage of smartphones. But this gender gap deepens even after the access is granted because going beyond access, the issue of lack of digital literacy and skills to capitalize on the benefits from participating in the information economy further widens the existing divide that consequently spills over to low levels of women's participation in ICT-intensive services. This implies that access is a necessary, but not sufficient condition to close up the digital gender divide. It is not merely access to digital technologies, but the capacity to draw on its meaningful use that is especially needed as the digital transformation unfolds. The fact that women are much less endowed with such skills is also likely to contribute to the already existing gender wage gap considering that ICT-intensive services are a high-paying sector.

Since women experience mobility constraints and have reported difficulties in gaining access to the Internet through public facilities on account of safety reasons and cultural norms that prevent them from seeking training and support services, the bottom-up approach through group-based methods, such as self-help groups (SHGs), can provide a platform for administering various levels of digital and financial literacy programs. A range of digital strategies to support its grassroots women's collectives can be employed by recognizing the access and use of the Internet amongst the group members and creating an interface with local government representatives for evaluating women-targeted e-services. This not only overcomes regional imbalances and information asymmetry with respect to ICT access and usage by women at the local level, but it also fosters a safe gender-inclusive

internal learning space for women that can be channelized to experiment with a range of digital tools. Although interventions through the SHG linkage or programs with public-private partnerships and industry sponsorships are successful in a few districts in India that provide digital skilling to rural women in underserved areas, more research is needed to investigate the efficacy of these skilling interventions on women's market work that sheds light on how female market participation is evolving over time with such initiatives. Randomized controlled trials (RCTs) can be designed to identify if digital literacy programs for women incentivize placement and retention in ICT-intensive jobs after training that can provide crucial linkages for connecting women to ICT-intensive work.

Even as the gender gap in financial inclusion appears to decline in IKS, women's access to conventional financial products by means of visiting the local bank branches becomes limited by long travel distances, social norms, and family responsibilities, which is why, digital financial services offer innovative platforms to address gendered financial exclusion. Not only do digital platforms reduce the transaction costs and overcome restrictions brought on by geography, but they also have the potential to enhance transparency, facilitate links to government-sponsored financial support and provide women with greater financial autonomy through confidentiality and control over their finances. For instance, mobile money through M-Pesa showed pronounced effects on female entrepreneurship and labour market participation of women in Kenya. Similarly, data from a randomized experiment in Niger indicates the benefits of mobile money cash transfers through improved household diet diversity and additional meals for children among households who received mobile transfers, which is attributed to time-savings and shifts in intra-household bargaining power for women. But more research is needed to derive pathways through which digital technologies can be leveraged to accelerate financial inclusion among women considering that women in low-income economies continue to face gaps in digital learning, where it is crucial to study the role of higher degree of digital literacy on financial inclusion of women.

### **Wanted: gender-disaggregated ICT data and new experimental evidence**

A major limiting factor observed in IKS is the lack of gender disaggregated, nationally representative dataset on ICT access and usage that identifies and documents variations in the application of ICTs at an individual level by men and women. Since aggregate data collections at the household level do not guarantee that women in the household have equal access to ICTs, this implies that women-specific indicators go unrecorded, both in statistics as well as in policy, which consequently underlies the push for gender-based statistics so as to unmask the gender differences. As the role of ICT becomes increasingly vital that permeates across fields, the first step to address the digital gender divide begins with defining, collecting and analysing the gender-related statistics on ICT, which is a necessary prerequisite to inform national policy, develop gender-specific indicators of ICT and evaluate the magnitude of current policy effects.



Considering the enormous gender-based disparities in access and use of ICTs that leads to further divides in the job opportunities for women in these countries, collection of gender-specific data on ICT statistics and indicators provides the basis for developing the evidence needed for policy formulation that addresses gender issues in digital policies, plans and strategies. A convenient starting point could be to collect the individual-level ICT statistics through existing surveys such as population censuses or labour force survey that allow for disaggregation by sex, where the variables on ICT questions such as awareness, access options, utilization and skill can be included and measured, without the need for allocating additional resources. Moreover, monitoring and evaluating the results obtained from this data collection, followed by researching women's access to and use of the Internet that is disseminated through publication in government reports is critical to track the implementation of policy reforms and interventions over time.

These efforts can further be supplemented by employing an embedded strategy through women-directed e-Government initiatives, where accessibility to e-governance can be strengthened through electronic registration methods for services like, banking, healthcare, education and government dissemination of information. Here, more evidence is needed to understand how the government policy of providing healthcare facility through digital mediums affects the ICT access and usage by women particularly in rural areas. It is also critical to recognize the causal chain linking women-oriented digital interventions on their ability to navigate these e-programs and to explore how such interventions through health and education systems facilitate in bridging the digital gender divide.

With speedier movement from agriculture into services, FLFP rates in IKS may not follow historical patterns as women face mobility barriers to move to and persist in high-paying ICT services jobs. Even though modern services have grown rapidly, the specific friction arising through digital gender divide in the form of lack of digital access and skills leads to misallocation of female labour, where upward movement in FLFP along the U-shape is not automatic in these economies and policy interventions are needed to address this gap for improvements in female labour market outcomes. Nationwide ICT plans in IKS can be channelized to integrate and mobilize gender-oriented skilling interventions through SHG linkages by imparting digital skills training to women tailored to the skills requirements of the rapidly growing business services. This may include coding bootcamps and other digital jobs programs that can equip women with advanced digital skills and soft skills necessary to enter ICT-intensive jobs. In conjunction with job-matching platforms through select organizations and institutions, they can target women in online job-matching services that also hold the possibility of identifying female mentors and developing professional networks. Through innovative digital solutions, women can be made to connect with each other, which not only addresses the issues of mobility, safety, affordability and literacy barriers, but also provides a channel of fostering peer networks among women through SHG linkages. Here, experimental evidence is needed to investigate the effects of SHG skilling of women on their decisions to participate in ICT training and to identify whether women can carry out financial transactions through online platforms or whether they can apply digital tools that could relate to expenditure and

saving patterns in households or what kind of investments to make, and whether or not to work. Understanding these causal linkages could be significant to analyse if digital training empowers women to exercise agency and effect changes in household decisions.

Also, an important question for future research is whether remedying the friction of lack of digital literacy enables women to move towards high-paying business services considering that the rise of services is also associated with a faster marketization of home production activities, which is mostly due to decrease in women's household hours on account of changes in housework (cleaning, cooking etc.). Accordingly, this can be used to evaluate whether addressing these frictions results in the patterns of female work observed in developed economies being replicated in IKS and whether it allows these countries to either move onto the increasing part of the U-shape curve or shift the curve itself as ICT services expand further with structural transformation. Gaining insights on how female labour market frictions with respect to digital divide impact gender wage gaps and employment outcomes for women in IKS and other low-income countries can provide profitable avenues for future research, where connecting these particular frictions in labour markets with the structural transformation literature of developing economies can shed light on important policy implications for bridging this gap.

Finally, interventions could be designed to identify whether ICT jobs that provide flexible work arrangements with access from a home base facilitate market work for women, which can be combined with interventions that ease the time constraints on home production at the household level. Time-use survey can be deployed to measure and evaluate the dual impact of labour market interventions in ICT sector and of marketized home production services on time allocations for women. More evidence is also needed to look into how the digital training programs in IKS can successfully place women in ICT service jobs that not only support their employment aspirations, but also match female preferences and household roles, where systematic analysis for improving job retention rates among women is a promising area for further investigation. This can be further used to analyse whether the expansion of ICT services in low-income countries increases the relative demand for female work considering that women have a comparative advantage in service sector jobs and whether the rise in services generates gender convergence in labour market outcomes both in terms of employment and wages. Recognizing these causal linkages could be significant to analyse if the increase in potential ICT job opportunities for women influence their bargaining power within households either through changes in household decisions or shaping of marriage and fertility decisions or circumventing of social and cultural norms.