Growth Research Programme

10 things to know about innovation in Low-Income Countries (LICs)

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Understanding innovation

1. **Innovation takes place everywhere; in developed countries and in LICs, in both formal and informal sectors.** During 2011-2013, 80% of firms surveyed in Ghana had introduced some form of innovation. But not all innovation is measured using conventional methods such as patents - it is often "under the radar" (Fu, 2014).

2. **In LICs, innovation often takes the form of transfer, adoption and adaptation of existing technology, rather than new inventions.** This is one reason why patent activity and research and development (R&D) measures are low in LICs. R&D expenditure to GDP ratios vary considerably among country groups, from very low in LICs, 0.61 in Low and Middle-Income Countries, 0.96 in Upper Middle Income Countries and 2.32 in High-Income Countries. The share of R&D spending from foreign sources is larger at lower per capita income levels. Such diffusion and learning-based innovation has enabled firms in LICs to survive and grow. However, low investment in technology-intensive innovations results in a slow process of structural change and industry upgrade (Fu et al., 2014).

3. **The impact of innovation on productivity can be measured by** a move from low- to high-productivity sectors and firms within a sector, and improved firm-level productivity. A study in Bangladesh found considerable variability in productivity within firms (Woodruff, 2014), while a study of African labour productivity uncovered very significant intersectoral productivity gaps (McMillan and Rodrik, 2011).

4. **Many LICs have failed to diversify or transform their economies.** With a few exceptions (e.g. Bangladesh), the manufacturing value addition - as per cent of GDP - has been stagnant or declining over the past few decades. The prospect of industrialisation in LICs has recently improved this situation however, owing to increases in Chinese wages, improvements in policies and institutions and building of export clusters and zones. A newly launched UN post-2015 Global Sustainable Development Goal includes technical facilitation, local capabilities upgrade and economic growth as important targets to achieve by 2030.

5. **Future innovation will be different, taking place as part of value chains and trade in tasks, rather than in compartmentalised economic sectors.** The role of the private sector is large, and fostering new connections between smallholders and larger firms can help to transform agriculture and promote value addition (Gatune, 2015). The diffusion of ICT helps the diffusion of innovative knowledge within and to LICs (Fu et al., 2014).

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Promoting innovation

6. **LICs generally lack adequate interactions between private firms and higher education institutions** (Fu et al., 2014).

7. **Export upgrade in LICs depends on capital deepening, knowledge creation and transfers via investment in education and R&D, and openness to FDI and trade.** Importing Chinese products has a significant positive impact on total factor productivity at firm-level (Zhu and Fu, 2013).

8. **Inconsistent policies hinder the development of innovative capacity.** In Tanzania, industrial and trade policies have had opposite effects in developing the local pharmaceutical industrial capabilities despite strong local demand for products (Wangwe et al., 2014). However, smart interventions among key stakeholders can incentivise early take-up innovation (e.g. new malaria treatments) by building trust and sharing information for the longer term (Dillon et al., 2014).

9. **Innovation crucially depends on participation in value chains and the formation of national/regional (if not global) production networks.** By forming national or regional vertical production networks across Africa, firms build their capacity to produce more sophisticated products, which single firms are less capable of doing (Fu et al., 2014).

10. **Support systems (e.g. extension services) are often inadequate or unknown to investors** (Fu et al., 2014).

Implications

UK funders interested in fostering innovation in LICs could consider supporting: responsive higher education institutions; new ways of collaborative thinking between the public and private sector; the development of local production networks; and upgrades within global value chains.

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