Enabling Policies for Transfer of Technology for Development

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Context

- Technology an important factor of production and resource for development
- Global innovative activity is highly concentrated:
  - top 10 countries account for the bulk of R&D expenditure, global patents and technology fees received
- Transfer of technology is important for other countries to benefit from technological development.
  - Importance of the work of the Working Group on Trade and Transfer of Technology
- Critical importance of technology transfer in the context of climate change mitigation and sustainable development
- Multilateral trade rules especially TRIPs and TRIMs Agreements have important implications for the ability of host countries to adopt policies that facilitate technology transfer

Understanding transfer of technology

- Transfer of skills and technological learning that lead to enhanced local technological capability
- Absorption of knowledge and ability to meaningfully employ the knowledge including with necessary adaptations

Sources of technological learning

- Learning from the production process itself
  - Shop floor learning, trouble shooting and minor adaptations
- Imitation, reverse engineering, adaptation, R&D are important sources of technology absorption and learning
  - Assimilation, 'imitative duplication' or reverse engineering of foreign technology was a 'critical component of Asian miracle'
    - (Nelson & Pack, Kim, Hobday, Amsden, Wade, Lall, a.o.)
    - Generics drugs are result of reverse engineering
- Absorptive capacity is defined by availability of skilled manpower, R&D activity, and other elements of the national innovation system

Globalization of R&D activity by MNEs

- R&D activity is least globalized of MNE activities
- Globalized R&D is highly concentrated in advanced economies and emerging economies
- Designed to absorb spillovers from centres of excellence and benefit from availability of low cost talent
- Motivations of R&D by foreign subsidiaries and local firms are different and benefits for host countries are different

Factors that facilitate technological learning

- Training of workers and specialization, mobility of skilled workers is often a source of learning and transfer of knowledge
- Vertical inter-firm linkages provide valuable opportunities for transfer of technology
    - Participation in global or regional value chains
- Joint ventures provide greater opportunities for learning and absorption than sole ventures
    - Case studies from Korea (Kim 1997); India (UNCTAD 2003)
- Knowledge spillovers to competitors
    - Technology gap hypothesis: Knowledge spillovers take place when technology gap is not too wide; negative spillovers when gap is wide

Policy Issues

- Policies for industrial deepening through industrial policy
    - Public procurement, pioneer industry programmes, joint venture promotion can be helpful
- Vertical linkages promotion/ fostering vendors/ value chains
- Governments have employed a number of performance requirements to foster industrial deepening and linkages
    - Extensively employed by the developed countries in the early stages of their development
    - A number of developing countries also effectively employed performance requirements to build competitive industrial capacities
    - Many of the performance requirements are now prohibited under TRIMs Agreement

Policy Issues contd.

- International knowledge-spillovers and reverse engineering have been important sources of learning and building of technological capabilities
- Developed countries and NICs have employed soft patent regimes in their own process of development and have absorbed technology from other more developed countries
- IPR regimes have been strengthened after they reached a certain stage of development
    - At levels of per capita income about US$ 20,000 e.g. Japan, Switzerland, Italy etc. : (Birdsell, Rodrik, Subramanian 2005)
- Strengthening of IPR regime under TRIPs may affect technological learning by developing countries

Concluding Remarks

- Promoting on skills formation, training, and R&D activity including through common facilities, incentives and support
- Fostering industrial deepening through promotion of investments including FDI
- Encouraging local learning and absorption of technology through joint ventures
- South-South cooperation to address common challenges faced by developing countries by pooling resources
    - International funding of joint R&D activity of developing countries
- Strengthening TRIPs provisions for transfer of technology including environmental technologies for developing and least developed countries
    - a possible new agreement on Trade and Transfer of Technology

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