

# AT then and now

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# Talk will

- Start by taking view from 1970s
- Consider limited development since then
- Ask: how relevant for today?

# View from 1970s: Context

- Countries politically independent
- But economically dependent on advanced countries:
  - For finance;
  - Capital goods;
  - Management;
  - Technology
- Mainly as direct foreign investment

# Small 'modern' manufacturing sector

- Import substitution
- Western products
- Served elites mainly.
- Industry share of employment, 1970
  - 7% Ethiopia
  - 14% Ghana
  - 15% India.
- Most people working in informal sector and agriculture.

# Technology

- Designed in west; very little local R. and D.
- 96% of R and D. in developed countries.
- Technology reflected conditions in industrialised countries
- Producing products designed for richer consumers and with relatively high K/L.
- Could cover only a fraction of work force in developing countries

# Problems arising

- Employment problem, especially with high pop. growth and increasing education. Young people wanted 'proper' jobs with higher wages than in traditional sector.
- Products inappropriate for poor consumers.
- I.E. INAPPROPRIATE TECHNOLOGY AND INAPPROPRIATE PRODUCTS

# Advocacy of Intermediate Technology - Schumacher

- Intermediate between high productivity and high K/L in modern sector and low productivity and low K/L in rest of economy.
- More small scale, aimed to raise incomes of poor and produce appropriate products.

# Debate: is there a choice of technology?

- Solow model assumed an array of efficient technologies of different capital-intensity.
- Eckaus argued there was just one technology for each product.
- Viewing technology development in a historic context points to Eckhaus' conclusion because less capital-intensive technologies become obsolete over time with advances in knowledge – i.e. with lower labour *and* capital productivity.
- And products become obsolete too. And as they do the technologies that produce them become obsolete too.
- Plus capital goods were produced in developed countries and the older more labour-intensive capital goods ceased to be produced .



# Hence limited choice of technology

- Need to develop AT, cannot simply select it.
- But some choice existed;
- Yet selection mechanisms were biased in most economies – e.g. with subsidies to capital, dominance of multinationals and little small-scale finance available.

# Thinking since then

- AT mainly in NGOs, not much advance in academic thinking.
- AT not popular with LDC governments.
- Academic analysis increasingly focussed on technological capabilities needed to improve productivity and adapt technologies to local conditions (Lall, Westphal, Katz..)
- And with success of E Asian economies in labour intensive exports this became a model for employment expansion rather than choice of technique.
- The debt crisis diverted attention to macro issues.

# Is AT relevant today?

- Not everywhere because some countries have moved out of labour surplus phase and there has been a slow down in population growth (e,g,Korea, China). But these are a minority.
- Still a critical need for AT elsewhere:
  - Employment problems remain; and low productivity in informal sector in Africa and much of Asia.
  - Modern sector still very small.
  - Informal sector grossly neglected
  - Lack of appropriate products – e.g. in housing, food, transport, medicine.
  - Sustainability and environment issue bring new dimensions and urgency to appropriate technology.

# And there may be higher potential for AT today

- 1970s, led by North and NGOs, not that popular in South.
- Today more Southern ownership possible; and much more Southern R. and D.
  - China R. and D. 84% of US; India's greater than UK; Taiwan's greater than Russia; Brazil's greater than Italy.
  - More local entrepreneurs, and more finance for small scale firms.

# More potential in recent technologies

- Solar energy and wind pumps can be small scale.
- Digital revolution gives more potential for adapting technologies, including digitally printing products
- R. and D. is greater in more similar economies – potential for trade in AP and AT – e.g. Indian pumps throughout Africa.
- But
  - Selection mechanisms remain a problem.
  - And MNC and supply chains which can limit choice to advanced country technology.
  - Global links make it more difficult to deviate from advanced country technologies in products and technologies.