



Introduction to Innovation Policy for Developing Countries

Module 01

Changing Geography of Innovation



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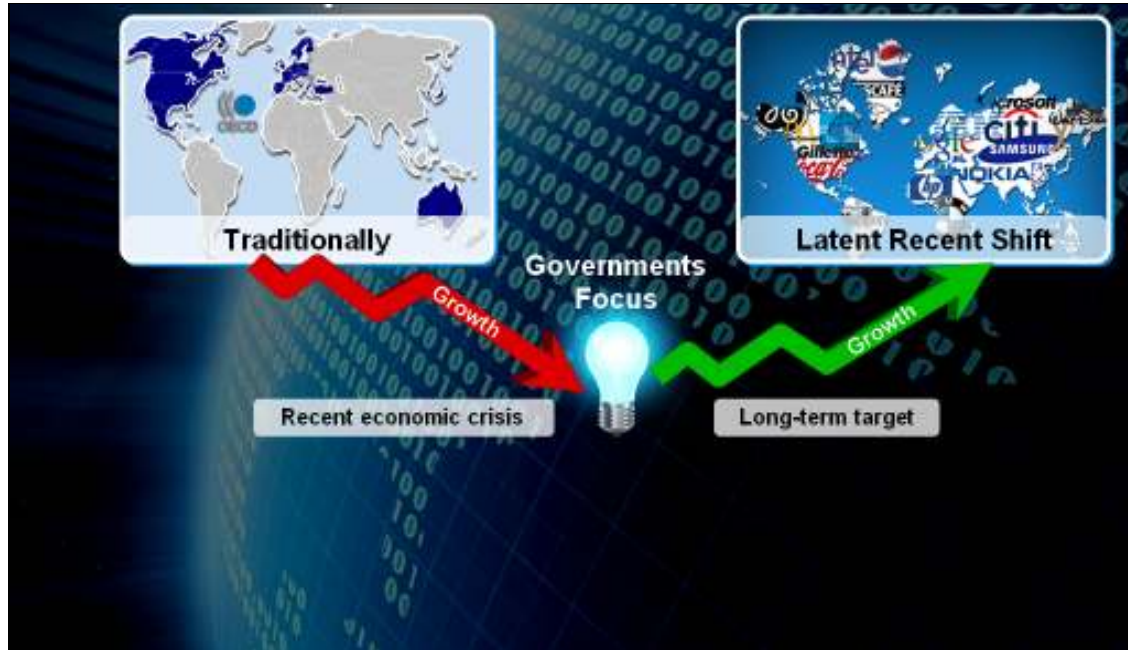
Now we'll be discussing a changing Geography of Innovation.



Landscape of Innovation

Is the landscape of innovation, traditionally concentrated in a handful of OECD countries, shifting worldwide? To what extent has the recent economic crisis affected this change? And what may be the implications of this shift, for global growth?

As we know from previous topics - innovation has long been identified as central to sustained economic growth. With 2012 real GDP growth forecast globally at just 2.5 percent and recent trends and data pointing to future sluggishness, the recent economic crisis has raised concerns about potential growth, notably in advanced economies. This has accordingly increased the focus of many governments on investments in innovation as one of the main ways to boost medium- to longer-term growth prospects.



Rise of Major Developing Countries on Innovation Radar

The current crisis has rendered more prominent an ongoing global trend already visible in many other sectors: the spectacular rise of a few major developing countries. More specifically, China is now the 4th ranked patenter and 2nd largest spender on R&D in the world. Brazil is planning to sponsor 100 000 students to go abroad to study in the best universities, and is also discussing the ways to attract back the best talents from its overseas diaspora. India is redoubling its efforts to expand higher education. Countries as diverse as Vietnam and Colombia are also giving more attention to innovation strategies. Multi-national companies that account for 60% of global R&D are investing heavily in major developing markets.



Shift in Geography of Science & Technology (S&T)

The past five years have witnessed an increase in S&T (Science and Technology) capacity most notably in Asian countries relative to North America and Europe, and most observers forecast that the advanced countries will continue losing ground. The biggest gainer is likely to be China, which has increased spending by about 10 percent annually over the past few years and is targeting a 2.2 – 2.5 percent share of GDP for R&D by 2020, by which time it expects to have surpassed the projected R&D conducted by the U.S. and surpassed also its output of scientific papers and patents. In this sense at least, the research capacity landscape is changing and the crisis by tightening government budgets and forcing western countries to cut spending, is accelerating the process. Budgetary austerity is also affecting R&D by firms especially smaller and younger firms and those with limited access to public funding.



Middle-income Asian countries and a few in Latin America and eastern Europe, which have experienced a slowing of growth in recent years paralleled by declining investment, are seeking an alternative engine of growth and targeting growth rates of 5-6 percent p.a. over the medium term through innovation induced gains in productivity. Countries such as Malaysia, Thailand, and Vietnam, which invest 1 percent or less of GDP in research, are all introducing policies that will bring them closer to the OECD average of 2 percent of GDP within a decade.





Q&A: Is this increase in S&T capacity translating into a changing geography of innovation?

While a changing S&T landscape is of considerable interest, from the standpoint of sustainable growth and welfare - much more important is its implications for innovation and how innovation affects growth rates. And so is this increase in S&T capacity translating into a changing geography of innovation? Our answer is “not necessarily and not yet”. The reasons for this are multiple:

First, the quality and relevance of R&D and the qualifications gained by higher education graduates is extremely important. Middle-income countries are finding that they need to increase both the number of graduates with S&T skills and the quality of training imparted because it is the latter that promotes good research. But virtually all are failing to raise quality even as they expand enrollment. University reform is not keeping pace with expansion and universities are almost uniformly unable to attract the best students into the teaching profession and into academic research. Hence the hunt is on for trained faculty from advanced countries and collaboration with the leading western schools. In India for example, a third of the faculty positions are vacant with more to follow as ageing instructors retire. In South Africa well over a third of the faculty is approaching retirement and replacing them with equally talented teachers is proving to be a challenge.



Second, investments in basic innovation inputs (higher education, R&D) do not necessarily result in higher innovation outputs nor do they automatically create economic value, as other modules in this course will point out.



Third, other important factors influence the capacity to innovate: Research points to the importance of a minimum vibrant mix of entrepreneurs, venture capitalists and other finance providers, as well as supporting institutions. We will go into more depth in the next modules.

“Not necessarily and not yet”. Because...



Quality and Relevance of R&D are Important



Investments in R&D do not Necessarily Translate into Innovation



There are Overall National Factors that Affect Innovation