Explaining Catch-up: the Trade and Technology Story

The increasing returns story is most compelling when told about what is happening at or near the technological frontier. To explain a pervasive long-term divergence of incomes, it needs to be coupled with a story explaining a comparatively slow pace of diffusion of technology and business know-how through and between economies.

For example, the presumption long has been that developing countries *should* be able to grow faster than the developed, with the observed result being convergence of earnings in low-income countries towards levels in the higher-income countries. The logic behind this expectation is simple. In a technological sense, the advanced countries have pushed out what economists have termed the "production possibilities frontier" and must work hard to grow further by exploiting untapped efficiency gains and through further fundamental innovation. Developing countries operating well inside this frontier should be able to grow much more quickly by adopting already well established production technologies and "best practices" in terms of economic policy and socio-economic organization.[4]

Even if such "catch-up growth" does not take an economy all the way to the true cutting edge of a Silicon Valley, there is no apparent reason why it should not permit a country to move rapidly at least to the income levels in rich country regions that are characterized by mature industries exploiting standard, well-established technologies. And insofar as there has been "catch-

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[4] It is interesting to observe in passing that the convergence is not to some average level of technological capacity but to the frontier. See Robert J. Barro and Xavier Sala-i-Martin "Technological Diffusion, Convergence, and Growth", *NBER Working Paper 5151*, June 1995. Since real incomes are determined by real production possibilities, the advance of real incomes in the developing countries does not (ignoring for the moment transitional adjustment costs) undermine real incomes in those countries already at the technological frontier. Industrializing China thus does not become the "workshop of the world"—indeed, China will in the long run import about as much as it exports as there are limits to the utility of any mercantilist build up of foreign exchange.