9. Looking Forward

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Over and over, the conversation returned to the question of whether Latin America will be able to provide the stability, safety and opportunity that IT requires. Yet, stability and safety will facilitate development in any sector, and so phrased this way, the prerequisites of IT are no different than those for development more generally. The challenge becomes a cultural and political one, not a technological one. Thus, it is worth pausing, in looking ahead, over what *is* distinctive about IT and about Latin America.

In one sense what is distinctive about IT is that it would seem to depend *less* on location, less on stability and safety than almost any other industry. It is possible to make the artifacts of IT, save for hardware and chips, without putting much fixed capital at risk. All that is really needed to run a first-rate software house, besides talented people, are some PCs, a few phone lines, a middling reliable electrical supply, and roof over your head. The same is the case for many IT-based services. The very essence of the information revolution is that people can get rich without building big, immobile factories. In an odd way, then, IT would seem the ideal sector for politically and socially unsettled countries. If things go bad, entrepreneurs can take their start-ups elsewhere. In this sense, Latin America might be able to circumvent obstacles in politics or infrastructure. To be fair, though, even if initial innovation can be done on a shoestring with hardly any fixed capital, converting, say, software into a real service requires more organization to provide updates, support and the like.

And location still matters.[14] In some cases it matters because it is convenient to locate near ancillary services -- finance in New York, or film production services in southern California. Yet precisely because the infrastructure requirements of IT are so limited, entrepreneurs can locate where they please. They are not dependent on minerals or electric power or even, in many cases, on large pools of labor. They can locate where life is safe and pleasant, or choose to be close to the

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[14] See, for instance, Porter (1998) for a discussion of geographical clusters of IT-related businesses.

comfort of ethnic kin or to the stimulation of peers. Cost of living may be a secondary consideration, and so Silicon Valley, Seattle, and Miami continue to be attractive despite the expense of living there.

Latin America would still seem to have advantages in producing IT content for the Spanish-speaking world. Yet at the high end of that content market, the infrastructure advantages of Miami, or Hollywood, are considerable. To those infrastructure advantages are added the benefits conferred by the presence of a large, relatively affluent, Spanish-speaking market close to home; by one estimate, the "GNP" of the 15 million Mexicans and Mexican-Americans in the United States equals that of the 100 million Mexicans in Mexico. To the extent that content needs to be closely tailored to particular countries, then there is no "Spanish-speaking" market, but the infrastructure and financing advantages of U.S. locations still may be significant, especially at the high quality end.

The role of universities in creating IT clusters elsewhere in the world is plain. Why has there been no Latin American IT success story? Surely, culture is important, but the role of universities is key: witness Silicon Valley or Route 128 in the United States. India produces 300,000 graduate software engineers a year, and a fifth of those come to the United States. The conversation during the conference kept returning to knowledge and to universities: Monterrey Tech is good but focused more on business than science; Brazil is improving; Chile is good, and Argentinean biological sciences are promising.

How is Latin America distinctive, for all the variations across the region? While it lags behind Asia on IT indicators, Asia does not look better in terms of building democracy. So far, though, that difference does not seem to have much relevance. To the extent that physical infrastructure matters, Latin America's, while inadequate, is not as bad as that in Africa and parts of Asia. It is worth remembering that the penetration of some new technology is not the same thing as making it in the new economy. And so the conversation kept returning to human capital and to the role of government. At this point, the role of government in Latin America seems more of an impediment than an advantage.

If education and the role of government are explicit and over-arching themes in Latin American approaches to both development and IT, the nature of the region's connections to the United States are, as always, a powerful implicit theme. Mexico weathered the financial crises of the 1990s better than other regions because it was so closely tied to a booming U.S. economy. Is it such a bad thing that all the cable lines run north and south, if Latin America is trying to develop technologically? If the region is to integrate into a global economy, its

technical people need to be connected to the top of the game, and that top is now Silicon Valley.

Yet if Latin America becomes more and more a piece of the U.S. economy, it may be able to have a piece of the action, but can it have its own action? Can it lure and keep its best and brightest at home? Can any country in the global economy? If the region progresses, but the gap between rich and poor continues to widen, then what? Latin American did not close the gap during the industrial revolution, so it would be rash to imagine that it will during the information revolution. Better IT will make the gaps more vivid for citizens. It is worth remembering, though, that the lead times were long for the United States as well – 10-15 years or more for major advances in IT – and inequality increased in the United States as well.

Looking out two decades, is it possible to imagine Latin America "opting out" of what it perceived as an unfair global regime? What would "opting out" mean? Suppose it decided to use new GMO seeds but not pay for them. The foreign companies presumably would simply stop selling them, and Latin America would be left to fend for itself. If Latin America managed to produce some intellectual property (IP), it might seek not just good IP protection but also barriers to imports. Desires for national or regional autonomy will persist, and they will continue to lure Latin American nations in the direction of policies, like protection and import substitution, that may produce autonomy but at the price of poverty. In the world of the global information economy, to "opt out" is to opt for poverty. Autonomy means not disconnecting but trying to structure niches and connections to the global economy in a way that will provide maximum national advantage.