

## ISSUE BRIEF

### Knowledge Economies

To understand the concept of a knowledge economy, it helps to have a little bit of economic history. The model of how societies produce the goods they need has changed over time. In the pre-industrial era, land and labor were the main inputs of production. With the Industrial Revolution, capital—that is, machinery—supplanted land in the standard model of production. In the twentieth century, economists realized that beyond a certain point, increasing capital and labor would not deliver sustained economic growth. A third factor of production, technological change, was needed to account for the continuing economic growth of mature economies. Here, technology means the way inputs of production—capital and labor—are transformed into outputs—the goods and services we use in our lives.<sup>1</sup> More than ever, it is technological innovation, not the mobilization of capital and labor, that accounts for economic growth.

With this as background, it becomes easier to intuit what is meant by a knowledge economy. Simply put, a knowledge economy generates innovation internally or readily assimilates it from outside sources. Not only does a knowledge economy generate economic growth, but also improved quality, reduced costs, better adaptation to consumer needs, and innovative products.<sup>2</sup>

Another way to understand the concept of a knowledge economy is to contrast it with some alternatives. One way for a developing country to generate economic growth is by mobilizing its labor. Especially in countries with rapidly growing populations, this can be a successful short-term strategy for growing the size of the economy. But in the long term, growth will stall as the population stabilizes.

Another way to grow is to increase investment in machinery, either by using domestic savings or credit from abroad. But most capital has diminishing returns, meaning eventually, growth will become minimal. Finally, a country may expand its economy by extracting and selling its natural resources. But this can be a short-lived—and misleading—path to growth. Indeed, one could question whether this is economic growth at all, since the depletion of natural resources ought to be—but seldom is—deducted from a country's growth rate.<sup>3</sup> The knowledge economy stands in contrast to all these because of its dependence upon innovation rather than the mobilization of existing resources.

The clearest example of a knowledge economy, though by no means the only example, is the United States today. The World Bank identifies four pillars of a knowledge economy,<sup>4</sup> and the United States has them all.

- **Education and training:** America's education system, while far from perfect, produces a steady flow of skilled workers capable of creating, sharing and using knowledge.
- **Information infrastructure:** Communication is the lifeblood of a knowledge economy. America's well-developed information infrastructure makes it possible for innovation to spread rapidly.
- **Economic incentive and institutional regime:** Patents, fair and disinterested courts to enforce them, and other features of American commercial law give entrepreneurs reason to believe they can reap some of the benefits of their innovation. This provides them a strong incentive to create new technologies that benefit society.

• **Innovation systems:** Knowledge is a public good because all of society can benefit from it. But economic theory holds that societies tend to underinvest in public goods. That is why even market economies need an innovation system to direct society's resources to the creation of knowledge. America's innovation system includes its network of universities and research centers, think tanks, community groups and private enterprises.

One of the challenges of a knowledge economy is dealing with the pressure it places on traditional ways of living and on the very identities of peoples. Innovation is the making of something new. Implicit in this definition is the discarding of something old. Twentieth-century economist Joseph Schumpeter famously characterized capitalism as a process of "creative destruction." For communities defined in large part by venerable customs and practices, this can be a discomfiting prospect.

Must the pursuit of a knowledge economy place indigenous peoples in conflict with their own identity? That is an open question, but there is evidence to suggest the answer is "not necessarily." First, the social cohesion that many indigenous peoples exhibit may be a valuable asset for development. Theorists such as Robert Putnam have argued that bonds of trust and reciprocity—what he calls social capital—is important to political and economic development. To the extent that reinforcing cultural identity increases indigenous peoples' social capital without raising barriers to intercourse with other peoples, it may well aid, rather than hinder, their economic development. Second, economists have come to regard diversity as a social asset worth protecting, especially in a global economy where knowledge is increasingly the most important input of production. The more kinds of subgroups there are, the greater

the likelihood that one of them will yield a practice or innovation that benefits the rest of humanity. Third, culture itself is a kind of non-depleting natural resource that indigenous peoples may offer to the world economy. Unique arts, crafts and folkways may have an aesthetic as well as utilitarian value. Thus, apart from the paramount ethical reasons for preserving indigenous peoples' cultures, there are strong commercial reasons for doing so.

In conclusion, the global knowledge economy presents both a challenge and an opportunity to all Alaskans, including Alaska Natives. In a knowledge economy, natural resources alone are not enough to ensure growth and human development. Moreover, in a knowledge economy, cultural isolation is a detriment to economic growth and human development. But a knowledge economy breaks down spatial barriers, linking remote peoples to the wider world of innovation. And a knowledge economy thrives on diversity, making it possible for peoples who are few in number to have a wide and beneficial impact on the rest of the world.

<sup>1</sup> Charles I. Jones, *Introduction to Economic Growth*, 2nd edition (New York: W.W. Norton & Co, 2002).

<sup>2</sup> <http://lnweb18.worldbank.org/ECA/ECSSD.nsf/ECADocByUnid/50944F667382861B85256AA1006F54C7?Opendocument&Count=10&Start=1>

<sup>3</sup> Charles D. Kolstad, *Environmental Economics* (New York: Oxford University Press, 2000).

<sup>4</sup> <http://lnweb18.worldbank.org/ECA/ECSSD.nsf/ECADocByUnid/C250A12AACCC209085256AEF006E9DD2?Opendocument&Start=1&Count=10>