FRBSF Weekly Letter
Number 93-37, October 29, 1993

Regional Comparative Advantage

How do you identify a region's comparative advantage, and can policymakers in a region substantively affect that advantage to improve growth prospects? While the questions seem straightforward, the answers are not. In this *Letter,* I discuss some of the issues involved in determining and affecting comparative advantage, and discuss different approaches policymakers have chosen.

Comparative advantage

The essence of comparative advantage is the recognition that each nation (or region) has different combinations of productive factors. These factors include land (and natural resources), capital, and labor (including technological expertise). While all countries have these factors to some degree, the proportions differ. For example, Saudi Arabia has a much higher ratio of oil to capital than does Switzerland. Comparative advantage suggests that both Saudi Arabia and Switzerland will be better off by having Saudi Arabia specialize in producing oil, and selling it to Switzerland in return for banking and financial services from the country. In both cases, the countries recognize that they have a relative cost advantage in producing one type of commodity, so they are better off if they specialize in producing that commodity and trade with the other country for the other commodity.

Regional comparative advantage

Regions within nations also have comparative advantages that work to shape their economic infrastructures. Often, in the earliest stages of development, the region's physical characteristics determine its comparative advantage. For example, access to natural ports helped guide development in the Seattle and San Francisco regions, while Hawaii's climate and geography made it a natural destination for trade and tourism.

Regional comparative advantage also is shaped by the evolution of the region's economy. Development of port facilities and construction of transportation and communication networks can influence the ability of the region to compete in trade. For example, Memphis invested in transportation facilities to leverage its location as a distribution center. Similarly, investment in higher education facilities in Boston and the San Francisco Bay region provided those areas with comparative advantages in developing "knowledge-based" industries.

Pinning down a region's specific comparative advantage, however, is difficult. First, comparative advantages change with market conditions. In Seattle, for example. Boeing has been the major employer in the region for decades, with spin-offs from that company leading to the region's specialization in aircraft manufacturing. In the last several years, however, demand for aircraft has plunged, leading to large reductions in aircraft-related employment. Conversely, over the last decade Microsoft has emerged as the dominant force in software, and its expansion has boosted the role of computer software production to the region's economy.

Second, regional economies typically become diversified over time, making it difficult to single out "the" industry that exemplifies the region's comparative advantage. With the exception of a few "company towns," most regions have broadly mixed industrial structures, perhaps distinguished by a few large employers, but generally dependent on large numbers of small and varied producers. And as the region's population increases, diversification generally increases. In the San Francisco region, for example, major employers include software and computer hardware firms, oil companies, port facilities, auto assembly, vintners, legal, banking, accounting, and managerial consulting firms, to name a few. Each of these firms relies upon and influences the region's comparative advantage, but the underlying factors that draw and support them are not necessarily the same.

Changing comparative advantage

To boost a region's economy, public policies are most effective when they are consistent with the region's comparative advantage. The challenge to policymakers in changing comparative advantage is to affect productive factors—land, capital, and labor—thereby affecting the relative factor costs facing the region's industries and potential industries.

Land factors can be modified, although within relatively strict boundaries. Land can be reclaimed from swamps or bodies of water, new techniques can make hillsides available for building, and pollution control efforts can reduce undesirable environmental problems and help reclaim toxic contaminated land. This factor, though, is probably the least adjustable to policymakers—Kansas cannot feasibly become Hawaii, and vice versa.

Capital factors are frequently the target of policymakers. Investment in physical capital can enhance a region's comparative advantage in transportation costs, sewer treatment, water supply, electrical, and communications systems. Policies include building new roads or transportation facilities, airports, port facilities (including dredging channels), developing affordable housing, and recently, a drive to build state-of-the-art communications centers.

Capital investments also are necessary to build the regional social infrastructure. This includes hospitals, schools, universities and libraries, as well as the efficient provision of public services. Regions can adjust their social capital by investing in new facilities, changing zoning and permitting processes, and competing in tax and expenditure policies.

Labor is another factor that policymakers can influence in the long run. The skill level of the community can be enhanced by good education and training facilities. Moreover, policies aimed at adjusting the ethnic composition and assimilation of immigrants to the region can be crucial to the eventual skill level of the resident population.

Clearly, the three broad factor classes interact strongly. Policies to attract highly skilled workers require investment in the social capital of schools. Similarly, eliminating air pollution may be very important in attracting highly skilled workers who favor amenities.

The trickle-down approach

Policymakers interested in affecting regional comparative advantage have two avenues of approach: the "trickle-down" approach, which targets specific companies and attempts to bring them to the region, and the "trickle-up" approach, in which the region attempts to alter directly its comparative advantage through infrastructure improvements. The trickle-down approach affects comparative advantage indirectly. For example, the Dallas region successfully attracted the headquarters of J.C. Penny's from New Jersey by promoting Dallas as a low-cost national distribution center. Such efforts can change a region's comparative advantage if the investments by firms in the region serve to attract other businesses or startups.

One significant advantage of the trickle-down method is that it offers tangible, immediate results: a firm is attracted to the area and creates new jobs and income for the region. Moreover, if the firm generates large spillover effects—spinning off new businesses and opportunities, generating tax revenues for the region, and participating in further development of the region —the strategy can be very successful. Micron Technologies was attracted to Boise, Idaho, for example, and in addition to providing strong employment opportunities, it has worked hard with the local schools to upgrade the quality of the labor force, and hence, to make the region more attractive to other potential firm relocations.

Trickle-down approaches have potential risks, however. First, because the approach is company-specific, success depends on the strength of that particular company, which is riskier than the prospects for the industry as a whole. Thus, the success of the strategy depends partially on guessing right on a company, as well as an industry. For example, while the computer industry as a whole performed well, it has undergone a significant shake-out, and some parts of the country, like Route 128 near Boston, have not shared equally in the industry's growth in recent years.

Second, the trickle-down approach tends to use direct incentives to attract firms, such as tax breaks, land improvements, or special zoning rulings, thus implicitly (or explicitly) subsidizing firms as a reward for relocating. If the firm attracts sufficient new income to the region, this investment may well be justified. But in some cases, such policies have wound up causing taxes on other businesses and residences to be higher, worsening their competitive position in the process of attracting a target firm.

The trickle-up approach

In contrast to the trickle-down approach, the "trickle-up" approach attempts to affect comparative advantage directly by changing a region's underlying factor endowments through investment or governmental policies. Under this approach, policymakers change the economic landscape and thereby improve the competitive posture of certain types of existing firms or make it attractive for similar types of startups or firms to enter the region.

The trickle-up approach can involve dramatic investment projects—if the result is a new piece of public infrastructure, like a freeway, airport, or bridge—and can permanently alter the comparative advantage of the region. The approach also can reflect institutional changes, such as improving the business climate by streamlining regulations.

The key advantage of the trickle-up approach is that it allows decentralized responses to determine the ultimate effects of the policy. For example, a region can enhance its educational system without knowing which specific industries would develop. By doing so, though, the region can hold reasonable expectations that the firms choosing to do business in the region will be those that require highly skilled workers.

The trickle-up approach also has two potential risks. The first is measuring the impact of a given policy. Unlike the trickle-down approach where policymakers can count the number of new employees in the attracted firm, trickle-up approaches change the economic situation for *all* the region's firms, which may increase employment and profitability in a wide range of existing firms, and attract new firms to the region. However, because of the decentralized way in which the project affects firm behavior, it is harder to measure the success of the venture.

The second potential risk with trickle-up approaches is that the projects may not have the desired effect on the region's comparative advantage. Construction of a new airport, for example, may increase tax levies on current residents, but fail to attract new flights and business.

Other policy risks

Strategies to affect comparative advantage often are two-edged, boosting one industry's advantage over its rivals elsewhere and decreasing another industry's advantage. For example, in the San Francisco Bay Area, oil refining operations have historically played an important role. Yet, as the region has become less industrialized and more oriented toward service and high-tech, the demand for a high quality environment has risen. Consequently, new laws to improve environmental quality, and thus, to attract and retain skilled workers, may work to the detriment of the established industrial concerns, such as oil companies.

Similarly, efforts to boost a region's comparative advantage in high-skill industries may attract highly educated and highly paid workers. In consequence, though, housing prices could go up, pricing the region's low-skilled workers out of the market and putting industries that depend on those workers at a competitive disadvantage.

Conclusions

Enhancing a region's comparative advantage is tricky and can proceed in several different ways. Past experience suggests several findings, however. First, it is possible to adjust a region's comparative advantage by constructing new infrastructure or institutions, or by attracting specific new businesses. By changing the factor endowments or the constellation of businesses and industries in the region, the region's potential output is affected.

Second, a successful alteration of the region's comparative advantage requires careful investment in efforts that augment or are consistent with existing comparative advantages of the region. Attracting firms that do not yield synergistic benefits to other businesses, or that do not significantly boost the region's comparative advantage in a desired direction, is not likely to contribute to the region's development.

Third, it should be clear to policymakers that efforts to change the region's comparative advantage will have both positive and negative effects. In a diversified region, policies that boost one industry's comparative advantage may force the exit of another industry whose comparative advantage is eroded by the change.

Finally, in choosing between the two broad approaches, trickle-up approaches tend to be more general and less risky, but they have less easily measured results than do trickle-down methods. Regional planners, therefore, are likely to use both methods in conjunction. Economic development agencies may have advantages in researching the potential returns from targeting specific individual firms, while broader planning agencies might emphasize policies that tilt the economic landscape in one direction or another, and thereby affect comparative advantage directly.

Ronald H. Schmidt
Senior Economist

Printed on recycled paper
with soybean inks.

Research Department
Federal Reserve
Bank of
San Francisco

P.O. Box 7702
San Francisco, CA 94120

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