



Small City Economic Dynamism Index: Methodology

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This analysis rests on the notion of economic dynamism as the potential of a specific place to generate positive economic performance. So then, what is “economic dynamism” and what factors contribute to economic dynamism in a small-city context? Most literature on this topic comes from international development economics, which draws on national data at the country level. In this literature, economic dynamism is often described as a process of structural transformation or analogous with the “creative destruction” that precedes and accompanies economic growth.

Some international scholars have argued that knowledge is at the center of economic processes and that therefore knowledge is the main engine for long-term economic growth. These scholars go on to define economic dynamism as the potential of a place to generate and maintain high rates of economic performance due to its knowledge capacity. Arvanitidis and Petrakos (2011) have constructed an indicator for economic dynamism on the four building blocks of human capital, innovation ability, information access, and economic performance. Their index for assessing and comparing place-based economic dynamism includes elements of both infrastructure and economic performance.

In studies that focus on subnational jurisdictions, such as states or metro areas, economic dynamism is defined most often in terms of “innovation” in the private sector context. Metrics such as business formation patterns, initial public offerings, relative share of jobs in gazelle firms, patents, industrial makeup, and share of employment in knowledge-intensive firms provide benchmarks for place-based economic dynamism. Grant Thornton (2014) utilizes a notion of economic dynamism focused on the quality of growth, where growth itself has contributed toward local economic value. In addition to the innovation indicators referenced above, Grant Thornton’s index also includes demographic, economic, and infrastructure indicators.

Much has been written about the relative pros and cons of composite indicators or indices for comparing places across a range of complex dimensions. The *OECD Handbook for Constructing Composite Indicators* (CIs) recognizes CIs’ value as a useful tool in policy analysis and public communication but warns that they can send misleading policy messages if poorly constructed or misinterpreted. Therefore, composite indicators must be seen as a starting point for initiating discussion and attracting public interest. It is in that spirit that we offer the small city index of economic dynamism.

Given limited economic density and scale in smaller cities, as well as data limitations, and drawing from national and subnational studies, our assessment of economic dynamism in small cities begins with basic demographic and economic indicators. According to Petrakos et al. (2007), who reviewed the literature on this question, population growth, population density, and migration have a role in economic growth at the country level. Dynamism necessarily rests on

new people moving in or business entities moving in or being created within the market. Economic indicators such as job and labor force growth, per capita real GDP, median household income, reduction in poverty, and reduction in the Gini index (as a measure of income distribution) account for the extent to which population changes are translating into gains for the local economy.

The index will include two measures of human capital, which according to Robert Barrow (1991), is the most critical element in terms of growth of real per capita GDP. Erickcek & McKinney (2006) cite evidence that a more educated workforce provides a competitive advantage especially to small and midsize cities. Studies tend to measure human capital by using proxies related to acquisition of education and training. Our index includes an indicator of education attainment, population 25 years and over with some college or more, as well as a proxy for the entrepreneurial nature of the population, by including new-firm growth as a share of overall firms.

Finally the Small City Economic Dynamism Index includes several measures of infrastructure, which many have suggested as a critical facilitator of economic dynamism. Workers who own one or more cars is a proxy for transportation access. A growing share of in-commuters into the primary city, population density, and building permit growth are used as additional proxies for local infrastructure.

The index identifies trends across several “lagging” and “leading” indicators of economic dynamism for two separate time periods: one long (2005–12, 13 or 14) and another short (2011–12, 13 or 14). Lagging indicators represent the trend of growth reflected by historical data. Traditionally, they are obtained from (1) demographic and (2) economic variables, including population growth, labor force growth, job growth, and per capita real GDP growth. Leading indicators are included to capture early-stage patterns reflective of potential demand within the local market. They are obtained from (3) infrastructure and (4) human capital variables, including in- and out-migration population, in- and out-commuter growth, building permit growth, transportation accessibility, population density, education attainment, and new-firm growth.

Long-term indicators are used to adjust extreme variations in a business cycle, while short-term indicators are used to incorporate the recent performance. The outcomes for the long-term growth are measured over several years (for example, migration is measured between 2005 and 2012, commuters between 2005 and 2013, building permits between 2005 and 2014). The recent performance for short-term growth is measured for a 12-month period (for example, migration is measured between 2011 and 2012, commuters between 2012 and 2013, building permits between 2013 and 2014).

Next, we calculated the ratio of growth for each indicator across both short- and long-term time frames. A summation of ratios produced a raw score for small city economic dynamism. Higher scores equate to greater levels of economic dynamism in the period 2005–14. The equation used to calculate the score is as follows.

$$ED_i = \sum_{j=1}^J \omega_j \cdot X_{ij}$$

ED_i denotes the score of economic dynamism of small city i , X_{ij} is an indicator i for dimension j , including demographic (population growth and migration growth), human capital (education attainment and new-firm growth), economic (labor force growth, job growth, per capita real GDP

growth, household income growth, poverty reduction, and reduction in GINI index), and infrastructure (commuter growth, building permit growth, and transportation accessibility). ω_j represents the weighting, and we used equal weights for each variable, assuming that all variables contribute to economic dynamism of small city MSAs equally. To compare the relative economic dynamism of small cities, 245 MSAs are first grouped into quartiles based on the scores (high, medium-high, medium-low, and low economic dynamism).

Sources

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