



Small City Economic Dynamism Index Version 3.0

Indicators and Sources, Literature Review, Methodology, and References

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The Small City Economic Dynamism Index provides a snapshot of the economic trajectory and current conditions of small and mid-sized cities. This version of the index (version 3.0) has been updated with 416 additional cities, includes the most recent data available, and displays an extended time series of data to better illustrate changes over time. The index is both a mapping and peer comparison tool for leaders working in small and mid-sized cities. In it, economic dynamism is defined as the *churn* in a local economy that creates the potential to generate positive economic performance. It is assessed by changes across four dimensions: **demographics, economics, human and social capital, and infrastructure**. The index is an aggregation of 13 indicators that have been shown to correlate with local economic growth or development. Indicators, sources, and references to literature are detailed in table 1 below.

The original version of the index was released in 2015. Based on feedback from program partners and peers, several changes were implemented in the 3.0 version. In this most recent update, we introduce more years of data for the indicator variables to better illustrate changes over time. For example, the tool now displays employment data for all years between 1990 and 2017, and median household income data for 1989 through 2017, whereas the previous version of the tool only displayed these data points for three years. That means we present an additional 4 to 25 years of data points, depending on the variable. Additionally, we have added data on 416 micropolitan areas for a total of 816 micropolitan and metropolitan areas that have less than 500,000 residents. This means the tool now displays data on truly small micropolitans in rural locales, whereas those were largely excluded in the previous version. The smallest micropolitan included is Vernon, Texas, with 12,764 residents in 2017; the largest is the Lafayette, Louisiana, metropolitan statistical area, with 491,558 residents.

We changed data sources for certain indicators: 1) we adopted 5-year American Community Survey estimates instead of 1-year estimates for two variables (the GINI coefficient and educational attainment), which, though less precise, allows for annually updated data at the county level; and 2) we used the U.S. Census Bureau's Small Area Income and Poverty Estimates for the median household income and poverty rate variables, which allows for annual county-level estimates. Finally, we changed the calculation of the index by introducing a weight for the current state of the indicator variables for each city. Importantly, the trade-off

associated with these changes (new indicators and new data) is that it is not possible or appropriate to compare economic dynamism scores for any particular city between the various index versions, because the component parts of the index have changed. New indicators are noted and explained in the footnotes.

Table 1: Indicators and Sources

Dimensions of economic dynamism	Indicator	Time frames	Geographic level ¹	Technical notes	Data source	References
Demographics	Population growth	2000–17 2016–17	County	Percentage change in population	U.S. Census Bureau’s Population Estimates program	Kotkin, J. (2014); Kodrzycki, Y.K. and Muñoz, A.P. (2013); Petrakos, G., Arvanitidis, P.A., and Pavleas, S. (2007)
	Change in migration ratio	2000–16 2015–16	County	Percentage point change in the ratio of in- to out-migrants	Internal Revenue Service’s Statistics of Income	Kotkin, J. (2014); Petrakos, G., Arvanitidis, P.A., and Pavleas, S. (2007)
Economics	Change in employment	2000–17 2016–17	County	Percentage change in the number of employed individuals	U.S. Bureau of Labor Statistics’ Quarterly Census of Employment and Wages	Kodrzycki, Y.K. and Muñoz, A.P. (2013)
	Change in income equality (GINI)	2010–17 2016–17	County	Inverse of the change in the Gini coefficient	U.S. Census Bureau’s American Community Survey 2010–17 5-year estimates	Cingano, F. (2014); Nord, S. (1980); Persson, T. and Tabellini, G. (1994); Clarke, G. (1995)
	Change in poverty rate ²	2000–17 2016–17	County	Inverse of the percentage point change in poverty rates	U.S. Census Bureau’s Small Area Income and Poverty Estimates Program	Kodrzycki, Y.K. and Muñoz, A.P. (2013)
	Change in median household income ³	2000–17 2016–17	County	Percentage change in median household income, adjusted to 2017 dollars	U.S. Census Bureau’s Small Area Income and Poverty Estimates Program	Erickcek, G. and McKinney, H. (2006); Kotkin, J. (2014)
Human and Social Capital	Change in educational attainment	2009–17 2016–17	County	Percentage point change in the share of the population that is aged 25 years and over with a bachelor’s degree or higher	U.S. Census Bureau’s American Community Survey 2009–17 5-year estimates	Barrow, R. (1991); Erickcek, G. and McKinney, H. (2006); Kodrzycki, Y.K. and Muñoz, A.P. (2013)

¹ The geographic level indicates the lowest geographic area from which the data have been drawn before aggregating to create measures for metro or micropolitan areas. The data were adjusted for any metropolitan statistical area boundary changes that have occurred, to allow for a comparison over time.

² The data source for this variable was changed from the U.S. Census Bureau’s American Community Survey to the Census Bureau’s Small Area Income and Poverty Estimates to allow for annual county-level estimates over a longer time period.

³ Ibid.

	Change in start-up rate	2000–15 2014–15	County	Percentage point change in the share of new out of total business establishments	U.S. Census Bureau’s Statistics of U.S. Businesses	Grant Thornton (2014); Hughes, D., Mallory, K., and Szabo, M. (2005)
	Change in per capita nonprofit revenue	2000–15 2014–15	County	Percentage change in per capita revenue of nonprofits (adjusted to 2017 dollars) that file a Form 990	Internal Revenue Service’s Exempt Organizations Business Master File; the Urban Institute, National Center for Charitable Statistics; and Census Bureau’s Population Estimates Program	Saxton, G. and Benson, M. (2005); Whiteley, P. (2000)
Infrastructure	Change in building permits	2000–15 2014–15	County	Percentage change in building permits	U.S. Census Bureau’s County Business Patterns	Strauss, J. (2013); U.S. Census Bureau (2015)
	Change in principal city population density	2010–17	City/census designated place	Percentage change in the population divided by the land area of the principal cities	U.S. Census Bureau’s 2010 Census and Population Estimates Program	Kodrzycki, Y.K. and Muñoz, A.P. (2013)
	Change in commuting ratio	2000–15 2014–15	City	Percentage point change in the ratio of in-commuters to out-commuters into an area’s principal cities	U.S. Census Bureau’s Longitudinal Employer Household Dynamics (LEHD) program: On the Map	Goetz, S.J., Han, Y., Findeis, J.L., and Brasier, K.J. (2010)
	Change in business vacancy rate	2010–15 2014–15	Census tract	Percentage point change in the business vacancy rate: vacant business properties divided by total business properties	U.S. Department of Housing and Urban Development Office of Policy Development and Research; U.S. Postal Service Vacancy Data	Rosen, K. (2011)

Literature Review

In international development literature, economic dynamism is often described as a process of structural transformation or analogous with the “creative destruction” that precedes and accompanies economic growth (Arvanitidis and Petrakos, 2011; Elert, 2014). Some 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 (Petrakos et al., 2007). The authors define economic dynamism as the potential of a place to generate and maintain high rates of positive economic performance due to its knowledge capacity. Arvanitidis and Petrakos (2011) constructed an indicator for economic dynamism based on 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) describes economic dynamism as being based on the quality of growth, where growth contributes to local economic value. In addition to the innovation indicators referenced above, Grant Thornton's index also includes demographic, economic, and infrastructure indicators. More recent work from the Economic Innovation Group (2017) defines economic dynamism as the rate and scale of creative destruction, where an economy's resources are reallocated across firms and industries according to their most productive use.

We define economic dynamism as the *churn* in a local economy that creates the potential to generate positive economic performance.

Multiple qualitative studies of economic and community development at the local level have identified certain "soft factors" such as local leadership, vision, strategy, and regional context (among others) as being critical determinants of place-based economic performance (Erickcek and McKinney, 2006; Kodrzycki and Muñoz, 2009; Lambe, 2008). This index does not account for these soft factors, except insofar as they may be reflected in changing demographics, economic, human and social capital and infrastructure. The index provides a snapshot of the economic trajectory of small and midsize cities by measuring the churn across a selection of indicators that have been shown to correlate with economic growth or development. Local leadership and regional circumstances act on economic dynamism in a particular community in order to realize positive economic performance.

Our index includes basic demographic and economic indicators. According to Petrakos et al. (2007), population growth and migration play a role in economic growth at the country level. Dynamism is necessarily related to new people moving into a market. Kotkin (2014) as well as Kodrzycki and Muñoz (2013) offer support for these variables at the subnational level. Other researchers link employment growth (Kodrzycki and Muñoz, 2013), median household income (Erickcek and McKinney, 2006; Kotkin, 2014), reductions in the rate of poverty (Kodrzycki and Muñoz, 2013), and reductions in the Gini coefficient (a measure of income distribution) (Cingano, 2014; Nord, 1980; Persson and Tabellini, 1994; and Clarke, 1995) to economic gains for the local economy.

Additionally, the index includes three measures of human and social capital. Barrow (1991) considers human capital a critical element for real per capita gross domestic product growth. Erickcek and McKinney (2006) cite evidence that a more educated workforce provides a competitive advantage, particularly to small and midsize cities. Studies tend to measure human capital by using proxies derived from the acquisition of education and training. Our index includes a measure of the share of the population aged 25 years and over that have earned a bachelor's degree or higher. Further, it includes a proxy for the entrepreneurial nature of the population, measured by the change in the ratio of new business establishments out of the total number of businesses in an area. Grant Thornton (2014) and Hughes et al. (2005) connect startup activity to economic growth. The index also includes a measure of the change in per capita nonprofit revenues as a proxy measure for the "social capital" of a place. Saxton and Benson (2005) support nonprofit activity as a measure of social capital and Whiteley (2000) provides evidence to support social capital as a driver of economic growth.

Finally, the index includes several measures or proxies for the trajectory of a city's infrastructure, the first of which is change in the number of building permits issued within an area. The U.S. Census Bureau (2015) considers building permits a key economic indicator, which "allows analysis of economic performance and/or predictions of future performance," and they are considered a "principal federal economic indicator" by the Office of Management and Budget. Strauss (2013) also shows that building permits are a significant leading indicator of economic growth or decline, are related to expectations on future economic activity, and are a robust tool for forecasting future job and income growth at the state level. Next, we measure changes in the population density of an area's urban core, which Kodrzycki and Muñoz (2013) connect to the economic health of a local economy. Goetz et al. (2010) found counties that experience a greater degree of in-commuters experience higher economic growth rates than counties with greater shares of out-commuters. Growth in commuters that move into a small city are an indicator of the health and condition of local transit and transportation infrastructure, and of positive economic performance. Finally, Rosen (2011) attests to the relationship between economic health and commercial vacancy, which we use as a measure of the condition of commercial property in a given small or midsize city.

Methodology

To create the index, we extracted data on 816 metropolitan (with an urban core of 50,000 to below 500,000 population) *and* micropolitan (with an urban core of 10,000 to below 50,000 population) areas between 1989 and 2017. In the index, economic dynamism is measured by long- and short-term changes in 13 indicators, as well as by the most recent conditions. Data availability determined the selection of specific time periods, but they generally correspond to the following ranges: 1) for long-term changes, the difference between 2000 and 2017 data and 2) for short-term changes, the difference between the most recent year's data and the prior year. Long-term indicators represent the growth trend reflected by historical data and are used to adjust for extreme variations in a business cycle. For example, the long-term change in migration patterns is measured between 2000 and 2016, changes in commuting trends are measured between 2002 and 2015, and changes in the issuance of building permits are measured between 2000 and 2015. Short-term indicators are used to incorporate more recent performance into the index and reflect changes over a 12-month period with the most recently available data. For example, business start-up and building permits are measured between 2014 and 2015 and commuters between 2013 and 2014.

Next, we normalized the outcomes for each of the three iterations of the 13 indicators (long-term change, short-term change, and most recent conditions), and expressed each variable's value in a range of zero to one. This process allowed us to accurately compare across a set of variables whose values varied substantially. For instance, the commuter ratio variable displayed large, occasionally double-digit percentage point shifts. On the other hand, changes in educational attainment or poverty rates were often measured in single-digit percentage points. Simply summing these variables would thus have caused a major imbalance, in which changes in commuting ratios would have overpowered most other variables. By expressing all values as a range between zero and one, we are controlling for this natural variation. A summation of these normalized values for all the variables produced a total index score as well as a ranking. Higher scores equate to higher levels of economic dynamism. Finally, to compare relative levels of economic dynamism, the 816 cities were grouped into quartiles based on their scores (high, medium-high, medium-low, and low).

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