

Understanding Shift Share

Shift Share Overview

Shift share is a standard regional analysis method that attempts to determine how much of regional job growth can be attributed to national trends and how much is due to unique regional factors. The shift share section of various reports in EMSI's Strategic Advantage helps to answer the question "Why is employment growing or declining in this regional industry, cluster, or occupation?" To do this, shift share analysis splits regional job growth into three components: the national change effect, industrial mix effect, and regional competitiveness effect. Note that a timeframe (start year and end year) is required to perform shift share analysis, since shift share deals with job growth over time.

For the purposes of this explanation, we will focus on shift share analysis of industries. The explanation works equally well for clusters, since they are simply aggregations of industries. For occupations, shift share analysis is primarily a workforce-oriented view of industry data, since occupational growth and decline is tied to the growth and decline of the major industries employing workers in those occupations. You can translate industries to occupations and vice versa using the Staffing Patterns and Inverse Staffing Patterns reports in the Economic Forecaster.

Shift Share Components

To help make the following explanation clearer and more concrete, we'll assume the following facts as the basis of a shift share scenario:

- The national economy grew by 4% (total employment) in the given timeframe.
- The Employment Services industry grew by 15% nationally, and by 350 jobs regionally. It had 1000 total jobs regionally at the beginning of the given timeframe.
- The Apparel Manufacturing industry declined by 5% nationally and by 80 jobs regionally. It had 200 total regional jobs at the beginning of the given timeframe.

The National Growth Effect

The national growth effect explains how much of the regional industry's growth is explained by the overall health of the national economy: if the nation's whole economy is growing, you would generally expect to see some positive change in each industry in your local region (the proverbial "a rising tide lifts all boats" analogy).

So if the entire national economy grew at a rate of 4%, we might have expected the regional Employment Services industry would also grow by 4%, or $0.04 * 1000 = 40$ jobs. These 40 jobs are the national growth effect for Employment Services. For Apparel Manufacturing, the national growth effect is $0.04 * 200 = 8$ jobs, meaning that we might have expected it to grow by 8 jobs over the time period simply because of general economic growth.

The Industrial Mix Effect

The industrial mix effect represents the share of regional industry growth explained by the growth of the industry/cluster/occupation at the national level. To arrive at this number, the national growth rate of the total economy is subtracted from the national growth rate of the specific industry, and this growth percentage is applied to the regional jobs in that industry.

In our example, Employment Services grew by 15% nationally, but we subtract the 4% growth of the national economy to arrive at a national industry-specific 11% growth rate for Employment Services (the

industry's national growth that exceeded overall trends). Applied to the regional industry, we would thus have expected Employment Services to grow by $(0.11 * 1000) = 110$ jobs due to industry-specific trends at the national level. Similarly, we get a national industry-specific relative growth rate of $(-5\% - 4\%) = -9\%$ for Apparel Manufacturing (i.e., the industry not only declined 5% nationally but failed to grow 4% with the rest of the nation), meaning we would have expected a regional loss of $(0.09 * 200) = 18$ jobs due to national industry-specific trends.

The Regional Competitiveness Effect

The regional competitiveness effect is the most important of the three indicators, as it explains how much of the change in a given industry is due to some unique competitive advantage that the region possesses, because the growth cannot be explained by national trends in that industry or the economy as whole. This effect is calculated by taking the total regional growth and subtracting the national growth and industrial mix effects. Note that this effect can be higher than actual job growth if national and/or industry mix effects are negative while regional growth is positive. This is because the regional competitiveness effect accounts for jobs "saved" from declining national trends as well as new jobs created.

So in our example, Employment Services grew by 350 jobs regionally, but 40 of those jobs might have been expected due to national trends in the economy as a whole, while 110 jobs might have been expected due to national trends in Employment Services specifically. This makes a total of 150 jobs expected from national trends. Since the actual growth was 350 jobs, $(350 - 150) = 200$ jobs cannot be explained by national trends, and so they must be attributed to unique conditions and advantages that the region possesses which contribute to the growth of this specific industry.

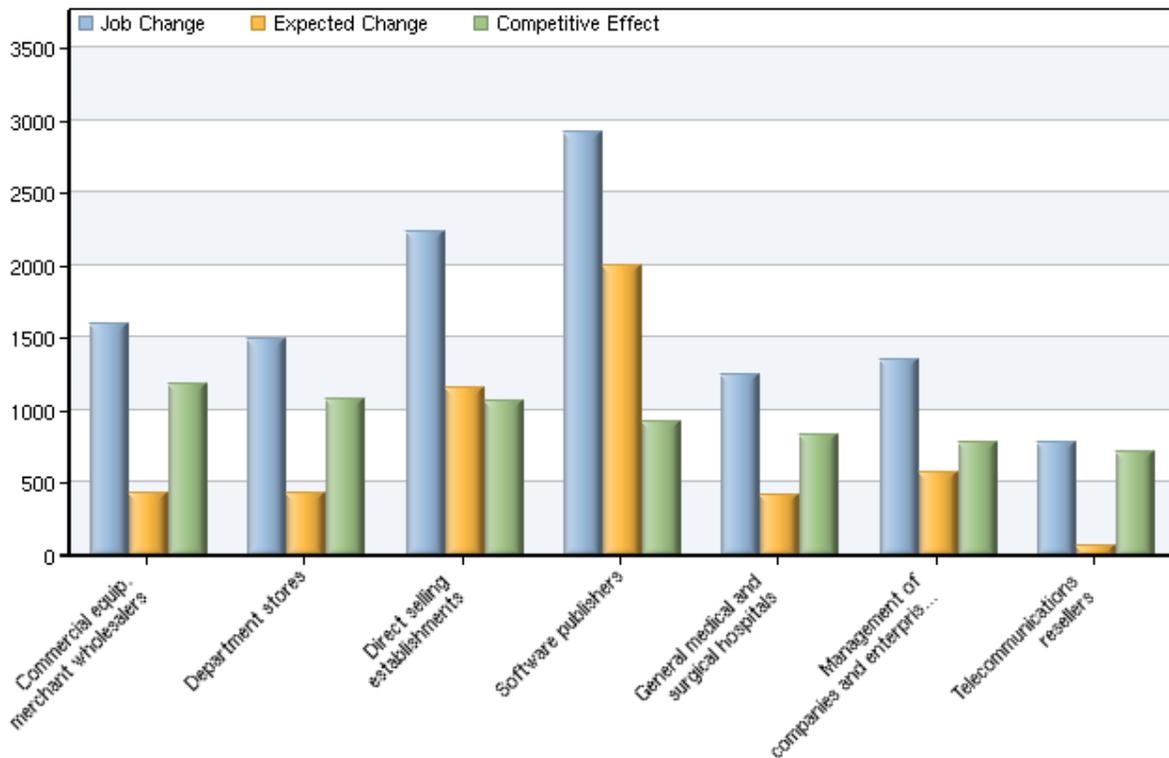
For Apparel Manufacturing, we might have expected a net change of $(8 + (-18)) = -10$ jobs regionally, while in fact there was a regional change of -80 jobs. The regional competitiveness effect is thus $(-80 - 10) = -90$ jobs, indicating that it fell short of the expected change by 90 jobs due to some specific conditions in the region, such as the closing of a factory.

Simplified Shift Share Components and Graph

Traditional shift share analysis involves the four components described above: job change, national change effect, industrial mix effect, and regional competitiveness effect.

Our simplified analysis includes three basic components, all defined in the basic unit of "jobs":

- **Job Change:** This the actual and/or projected job change in the regional industry over the specified timeframe. The change is "actual" for historical data and "projected" for future years' data.
- **Expected Change:** The sum of the national growth effect and industrial mix effect. It is basically the job growth one would expect in the regional industry if it followed national trends exactly.
- **Competitive Effect:** Exactly the same as the regional competitive effect described above (job change minus expected change).



Our shift share graph shows the three simplified shift share components: job change, expected change, and competitiveness effect. The competitiveness effect is the most important and equals job change minus expected change. A positive competitiveness effect for an industry indicates the regional industry is outperforming national trends (both overall national trends and national trends in that specific industry). A negative effect means that the industry is underperforming compared to national trends.

Using Shift Share Analysis

Shift share is similar to location quotient in that it highlights the uniqueness of a regional economy, but it does so in terms of job growth rather than total jobs in an industry. Industries with high regional competitiveness effects highlight the region's competitive advantages or disadvantages. Shift share does not indicate why these industries are competitive—that is the job of analysts who have knowledge of local conditions. Shift share merely shows the sectors in which the region is out-competing or under-competing the nation. Shift share is thus useful in identifying investment targets so that local stakeholders can help high-performing regional industries either continue to outperform national trends or else “catch up” with national trends so that the regional economy is not left behind in those sectors.

The basic use of shift share is to prevent a hasty and inaccurate interpretation of raw job growth numbers.

- An industry may be booming in a region, but shift share reveals that the industry is actually growing even faster at the national level, showing that regional factors probably have little influence on the regional boom. Or, shift share may reveal a national decline in that industry, showing a unique regional advantage in that industry that ought to be identified and fostered.
- An industry may be declining in a region, but shift share reveals that it is declining even faster at the national level—and thus the regional industry is actually outperforming the nation by stemming job loss. Or, the industry may be growing nationally, indicating that the region faces some disadvantage that is causing localized job loss in a nationally growing industry. If it is significant, this disadvantage should be investigated further.