IV. Statewide Findings and Conclusions

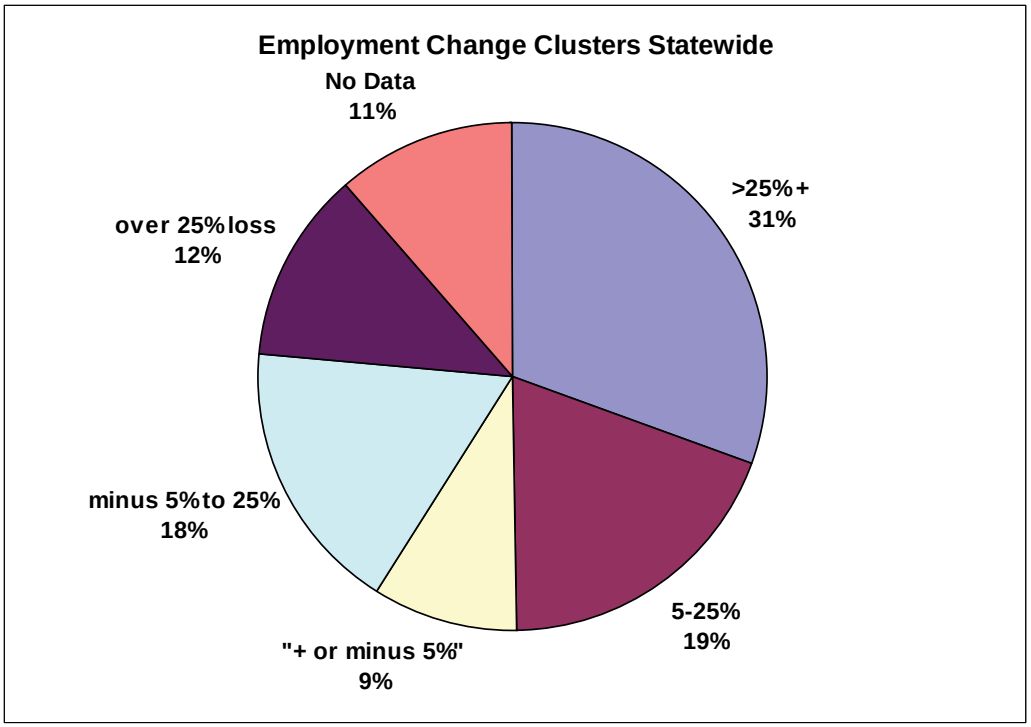
This last section presents some statewide findings, and provides some brief concluding comments. The statewide findings are based on one key indicator for regional economies—employment. Future research could develop other aggregate measures of statewide performance by cluster groups.

Statewide Findings

We provide some conclusions about overall patterns displayed in the complex diagrams and tables contained in this report, as evidenced by one measure of importance to local economic development officials and interests--employment. As discussed in Appendix I, it has been argued by the scholarly community that clusters are related to positive rates of growth in regions. How does this analysis support this argument? We now present some limited data on this question; much more research could be done to tease out from the data presented in this report answers to this question.

Figure 42 below shows the frequency distribution of employment change in clusters across the twelve Workforce Development regions. This pie-chart is a simple tabulation of the classification of the bubbles in the bubble charts for each region. Eleven percent of the clusters did not have data on employment change. If we disregard these clusters, it is clear that more regions had clusters with growing employment levels than regions with declining employment levels. This finding supports the general notion of clusters as a basis for economic development strategies. However, it fails to address the

Figure 42: Employment Change in Clusters Statewide



size or importance of the cluster in regional economies. Another perspective is gained in Figure 43, which shows for clusters by Workforce regions the distribution of clusters by growth trend over 2001-2007. This figure provides a more complex report on the cluster concept across the Workforce regions.

Figure 43: Cluster Employment Change Frequencies

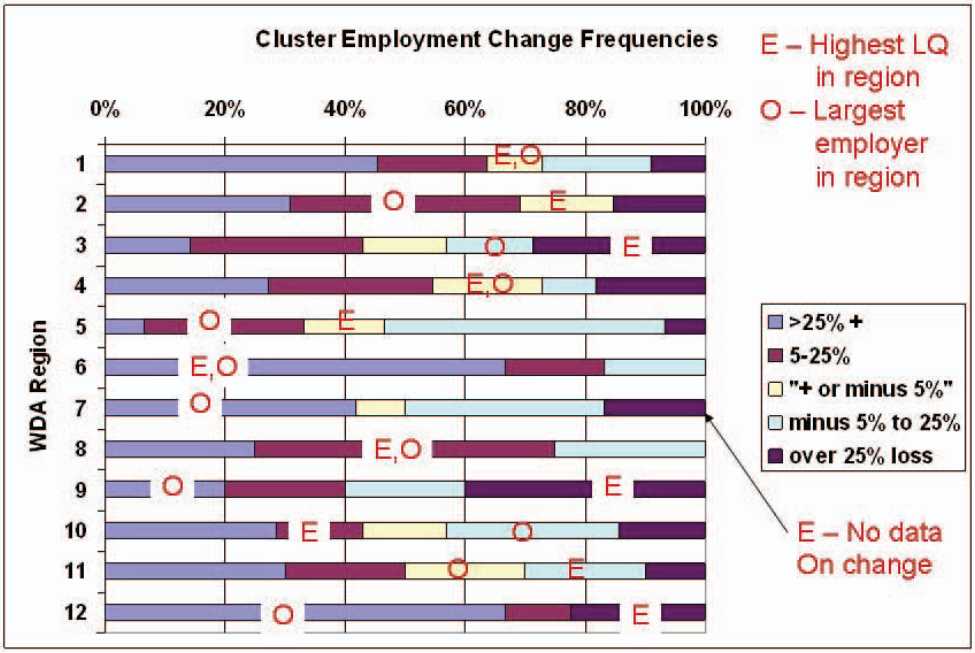
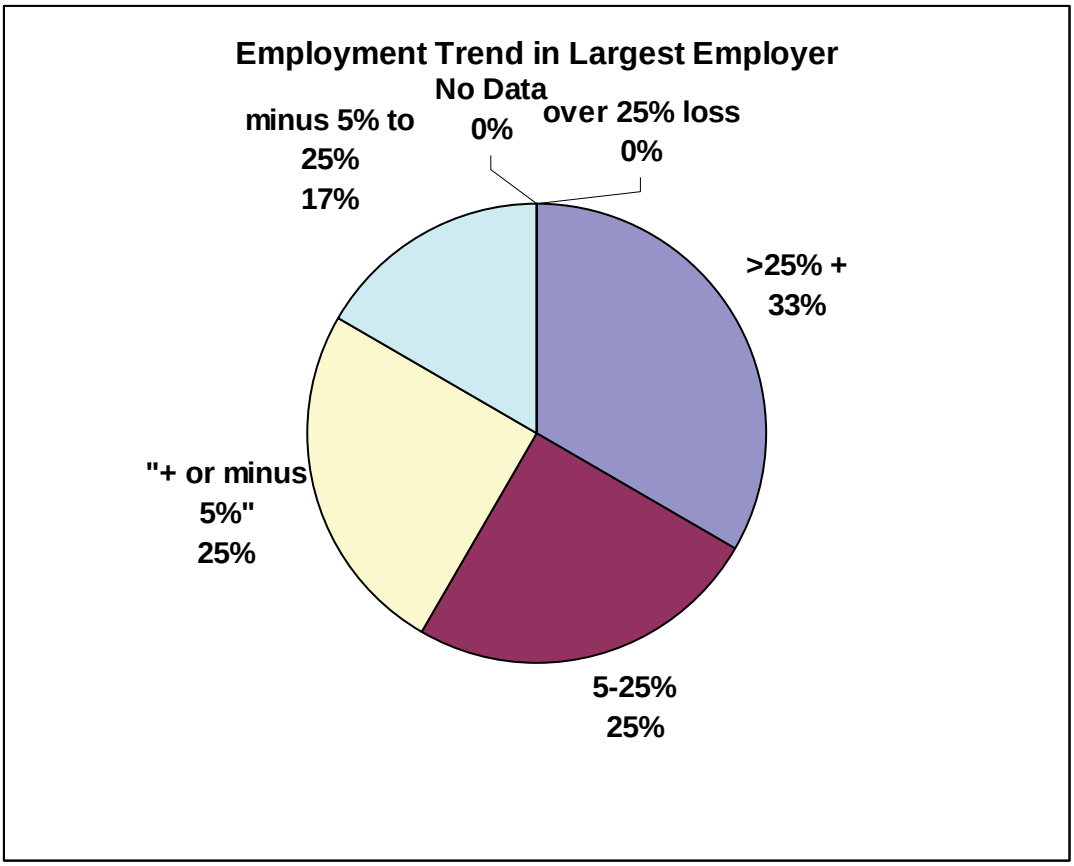


Figure 43 shows the share of clusters in each Workforce Region with valid data on employment change. The letter E indicates the class interval in which the largest location quotient is found in each region, while the letter O indicates the largest cluster as measured by employment in each region. This figure reports a more complex pattern than found in Figure 42. Regions 1, 2, 4, 6, 8, and 12 show a domination of growth in employment across clusters. Regions 3, 7, 10 and 11 are split between growth and decline.

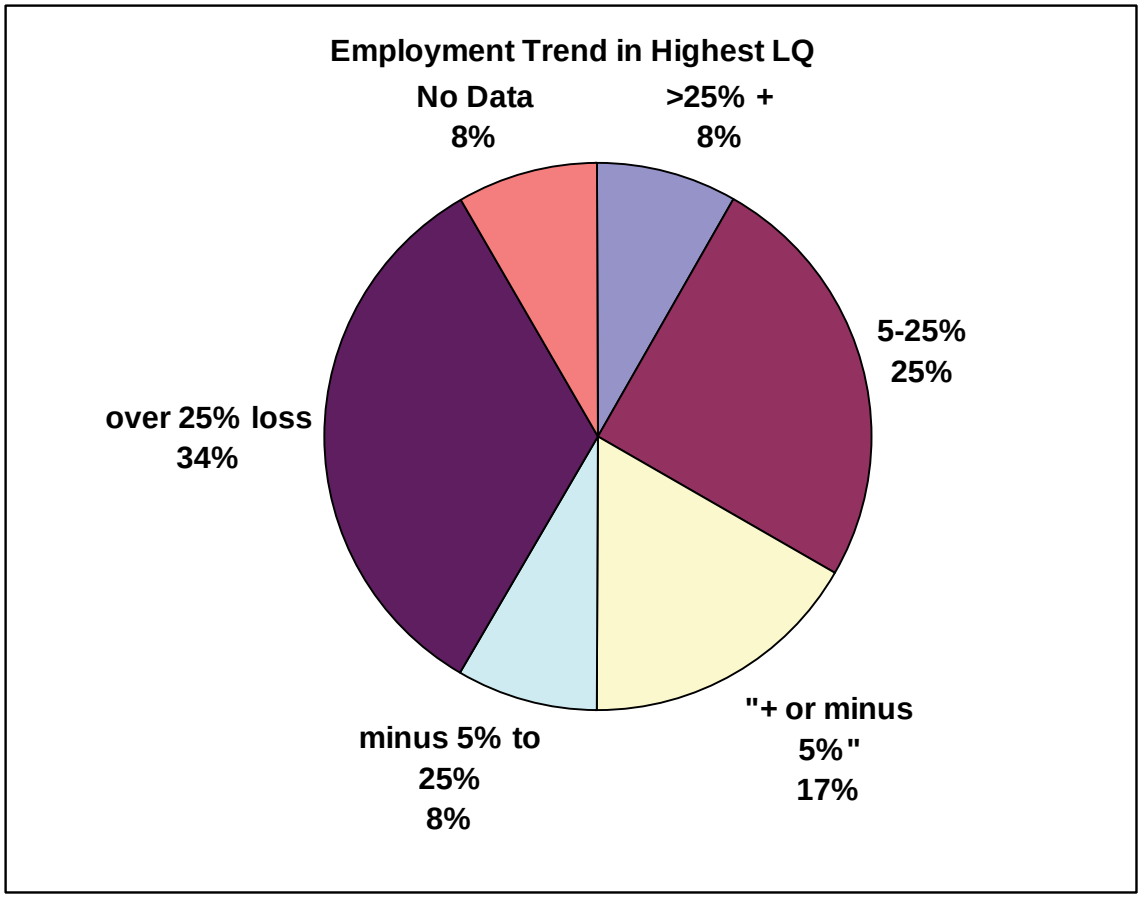
Figure 44 reports the frequency of employment trends for the largest employer in each workforce region. This figure indicates that most of the regions largest employer had employment gains over the 2001-2007 time period. Only 2 regions had losses of over 5% in their largest employer.

Figure 44: Employment Trend in Clusters with the Largest Employment



Another perspective on cluster employment trends is presented in Figure 45. This figure reports the distribution of employment trends in the sectors with the highest location quotients in each workforce region. Here we can see that only one-third of the regions had their most concentrated industries with growth over 5%, while more regions had losses of at least 5% in their most concentrated sector. It should be noted that in some regions the most concentrated industry was not a very large employer. The strategic analyses presented in Section III dissects these trends in more detail at the regional scale.

Figure 45: Employment Trend in Clusters with the Highest LQ



Regions in the Washington economy are strongly dependent upon many different sectors. The linkage diagrams indicate many "isolates," sectors with concentration but not linkages with other sectors that are significant. Are these "clusters" within the framework of the Porter model? We cannot test this entirely in this project, as we do not have data on nontraded interdependencies and other significant aspects of external economies presumed to be important to these sectors. However, we can assume, based on our understanding of relationships across industry lines in this state that are not easily captured with available statistical data, that there are significant non-traded interdependencies and external economies for many of the isolates we identify in the charts above:

- non-store retailers in region 5 – many links to information technology companies, reliance on the IT labor pool in King/Snohomish counties
- wine in regions 10 and 11 – research and development, and workforce ties to local higher education institutions
- architecture/engineering and scientific R&D in region 11 – part of the complex of companies developing technologies and infrastructure for radioactive waste management on the Hanford reservation.

Readers with detailed knowledge of other isolated industries in the other nine regions can probably supply more examples of interdependencies that we could not capture with the available data. A recent test of the Porter model in the United Kingdom

came to a similar conclusion. In this paper the authors found a similar pattern as we have found, and they suggest that the main ties in clusters may be in the form of untraded interdependencies[6].

An intriguing pattern is also present in the wage distribution data. There is a great deal of suppression in the occupational data files due to application of the federal confidentiality rule at the individual occupation level, which may limit the validity of this finding. However, in seven of the twelve regions, the identified clusters have a relatively high percentage of jobs in occupations with median wages greater than the regional average. Significant cluster strength appears to be a key to relatively high wages for working men and women. A higher percentage of high wage jobs is found in just four of the twelve regions, indicating that very high wages are frequently found in industries that do not have significant competitive strength or strong inter-industry ties.

Concluding Comments

This report presents insights into the industrial specialties of the Workforce Development Areas in Washington State on a multidimensional spectrum. The data requirements for this project were a challenge, but we were able to develop good measures of industry clusters in all of the WDA regions. The linkage diagrams, bubble charts, strategic analysis, and maps each provide perspective on industry clusters across the state. Clearly, much more work could be done to develop detail on clusters in WDA regions. Especially important would be evidence related to the role of "non-traded interdependencies" and institutions.[7]

What can we conclude about the analyses reported for the twelve WDA regions in Washington State from this analysis? What does the measurement strategy employed here reveal statewide about these regions? Were the input-output model linkage measures, location quotients, earnings measures, and growth measures reported on the bubble charts robust ways of depicting industrial specialties in these regions? Does the prioritization of clusters seem intuitive, given local knowledge about these regions? Do the maps help crystallize where these sectors are located? We cannot answer these questions. People in the WDA regions will have to take the data presented in this report and take them to another level of understanding, given local knowledge about their region. However, given our general knowledge of the structure of the state economy, we feel as though this analysis has produced an understanding of regional structure that is useful, rich in detail, and indicative of clusters in which these regions have positions of competitive advantage.

This project is rooted in data for a specific time period, and the results are tied to it. Regional economies change over time, and it is important to revisit estimations of the type reported here. Concentrations of large industries in regional economies change slowly over time, while new smaller sectors may arise and disappear quickly. Average

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[6] Frank McDonald, Qihai Huang, Dimitrios Tsaglis, and Heinz Josef Tüselmann (2007) "Is there evidence to support Porter-type Cluster Policies," *Regional Studies*, Vol. 41, No. 1, pp. 39-49.

[7] Storper, op.cit.

earnings levels of existing sectors, and other data estimated in this project through the use of IMPLAN and ESD data will change each time these data are computed. Thus, it will be important for agencies interested in analyses of this type to revisit their estimation from time to time.