

Executive Summary:

Evaluation of Economic Specialization in the City of Portland

**Prepared for the Portland Development
Commission**

ECONorthwest

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Executive Summary

The Portland Development Commission asked ECONorthwest to provide an analysis of economic specialization to support a conversation in the City about the policy choices it must make related to economic development, and to provide for the first time results that are specific to the City of Portland and its commercial core. This executive summary provides an overview of results and implications in the following sections:

- Background
- Overview of key findings
- Implications and next steps

BACKGROUND

This study is intended to support several citywide strategic planning processes that have prompted a new look at industry specialization:

- The City of Portland has begun work on the Portland Plan, one component of which is an update of the Central City Plan that was initially completed 20 years ago. The Portland Plan is a citywide, long-term planning effort.
- The City of Portland is creating a new strategic plan for economic development, which will build on past research and strategies to identify actions and partnerships that support and strengthen the City's economy and better position the City for future economic growth.
- A new City administration has made economic development a critical component of its agenda, in part as a response to an ongoing recession that is affecting the opportunity for economic growth in the City and the region.

The analysis summarized in this executive summary seeks to identify the biggest, most concentrated, and fastest-growing industry sectors in Portland: that information may be useful as the City develops specific economic development strategies. The analysis uses the following industry-specific measures of the local economy:

- *Location quotients for measures of economic activity (LQs)* measure the degree of specialization for each industry in the Portland economy relative to the surrounding region and the national economy, based on *value added*.

- *Value added* measures an industry's net contribution to the economy. It is the value of the labor and capital (land, buildings, equipment) used in production. Value added is approximately the same as the market value of the production of goods and services.
- *The amount of value added that is exported* provides a measurement of a term used a lot (and sometimes loosely) in economic development: *traded sector*. Traded sectors are important to a local economy because they bring new dollars into the region rather than just recycling existing dollars.
- *Employment (jobs)* are important in their own right (e.g., a region does not want a high unemployment rate), but they do not measure economic activity as well as value added or output, because some jobs create much more value added per employee than others. For that reason, the report also measures *wages*.
- *Shift-share analysis* measures changes in industry value added over time, and estimates the portion of that change that cannot be attributed to national trends for a particular industry.

Many of the results of this study are consistent with those of previous studies of economic specialization done in the Portland region. Given this report's different data sets and methods, however, it should not be surprising that it produced some results that are different. ECONorthwest and staff at the Portland Development Commission (PDC) and the City see the identification of industry concentrations as an interim step on the way to learning about the City's strengths and weaknesses in supporting desirable economic activity, and to making policy choices that retain and enhance the strengths and remediate the weaknesses.

OVERVIEW OF KEY FINDINGS

ECONOMIC CONTEXT

FAST FACTS:

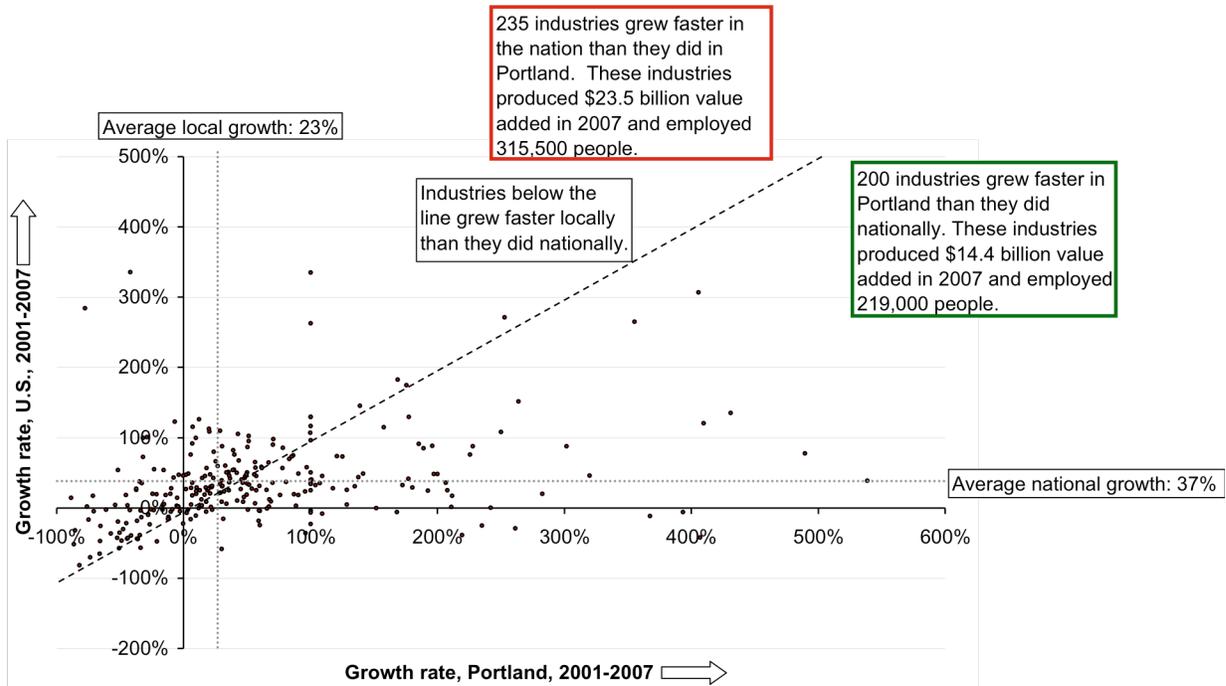
The total Portland economy, in 2007, produced about \$40 billion in value added.

Downtown Portland contributes about 1/3 of the City's total value added; the City contributes about 1/3 of the total regional economy.¹

Portland's economy had a 23% increase in value added between 2001 and 2007, while the national economy had a 37% increase.

Exhibit ES.1 provides a sector-level snapshot of the Portland economy. It plots national growth against local growth for industry sectors in Portland.² Each point represents a single industry; its location along the x-axis indicates its percent growth in value added in Portland between 2001 and 2007; its location along the y-axis indicates its percent growth nationally between 2001 and 2007. Any industry plotted below the dashed line grew more quickly locally than it did nationally. The Exhibit also indicates the average growth in value added for the national and the City economy.

Exhibit ES.1: National change and local change in value added, 2001-2007, industries in the City of Portland



Source: ECONorthwest, based on sector-level data from IMPLAN, 2001 and 2007. City of Portland approximated by zip code boundaries.

¹ Region defined as: Clark and Skamania Counties in Washington State, and Clackamas, Multnomah, Marion, Polk, Washington, and Columbia Counties in Oregon.

² Note that not all industries can be properly displayed due to extreme relative growth (in some cases on the order of 30,000%) resulting in scaling issues. We found that most of the extreme growth was related to data errors and is irrelevant to the discussion.

Key findings related to Exhibit ES-1:

- In general, most of the industry sectors in Exhibit ES-1 are gathered along the dashed line indicating that, for the most part, industry sectors were growing at about the same rate in Portland as in the nation.
- About 54% of the industries are located above the diagonal dashed line (i.e., they grew faster nationally). More significantly, the industries above the line had about \$23.5B in value added, compared to just \$14.5B in value added for industries below the line. Not only are there more industries above the line than below it, but those that are above are larger industries than those below. This accounts for the slower growth experienced in the Portland economy when compared to the national economy.
- Most of the industries in the Portland economy that experienced very strong growth relative to the national economy were small in terms of value added. Because they were small to begin with, even small gains in value added will result in large percent increases. In other words, we found no large industries that were far outpacing national growth.

Later sections of this executive summary and the full report identify specific industries that are both large and growing quickly, or are not keeping pace with national trends.

SECTOR RESULTS OVERVIEW

Exhibit ES.2 identifies the 10% of industries in the Portland economy that are the largest, the most concentrated, and are growing the most quickly. To arrive at this list of industries, ECO created a simple index for identifying which industry sectors are the most important to the Portland area's economy:

- Value added LQ (25%)
- Total value added (15%)
- Amount of value added that is exported (as a measure of traded sector) (25%)
- Number of jobs (10%)
- Industry growth measured as local effect (shift-share) (25%)

For each industry, we report the results of a *shift-share analysis*, a standard technique for economic evaluation that is used to make a quantitative estimate of the relative contribution to observed local growth, by sector, of national economic growth, industry sector-specific growth, and local attributes. The columns in Table ES.2 are:

ECO ran the sector index model multiple times, each time changing the weighting of the individual input factors (see text for details). While we did get different results with each index run, we found that the following industries were in the top 10% of industries regardless of the weighting we chose:

- **Transport by truck**
- **Software publishers**
- **Insurance carriers**
- **Legal services**
- **Architectural, engineering, and related services**
- **Management of companies and enterprises**
- **Medical diagnostic labs and outpatient facilities**

These seven industries are concentrated, relatively large, and growing. Many of them are already under consideration for City policy initiatives. Exhibit ES-2 provides the results of the index run using our baseline weighting.

- *Actual change* and *percent change* show the amount of change in value added between 2001 and 2007
- *Expected change* shows the amount of change in value added that would have been expected if the industry had followed national trends
- *Local effect* is the difference between the actual change and the expected change. It quantifies the portion of the change that cannot be attributed to national economic trends (in the aggregate or by sector), and is thus arguably the result of some factor in the local economic context (public policy, comparative advantage associated with geographic location, etc.)

The red text in Exhibit ES.2 signifies an industry that underperformed relative to national growth, and green text signifies faster growth locally than nationally. Industries shaded in grey are those that are included in one of the clusters identified in the City's current draft of its economic development strategy (see the next section of this Executive Summary for details).

Exhibit ES.2. 2001-2007 value added shift-share results (in millions of dollars): top 10% of industry sectors in Portland based on an index of measures of economic specialization

Industry	Actual Change	Percent Change	Expected Change	Local Effect
Software publishers	\$169.4	56%	\$19.3	\$150.1
Iron and steel mills and ferroalloy manufacturing	\$199.0	410%	\$58.6	\$140.4
Insurance carriers	\$509.2	86%	\$440.6	\$68.6
Architectural, engineering, and related services	\$169.8	29%	\$126.6	\$43.2
Ferrous metal foundries	\$78.7	45%	\$47.7	\$31.0
Data processing, hosting, ISP, web search portals	\$99.6	101%	\$40.1	\$59.5
Other state and local government enterprises	\$8.0	2%	-\$24.7	\$32.7
Medical and diagnostic labs and outpatient and other	\$287.3	158%	\$209.8	\$77.5
Management of companies and enterprises	\$650.0	56%	\$758.3	-\$108.3
Legal services	\$331.3	49%	\$320.5	\$10.8
Food services and drinking places	\$312.9	48%	\$278.9	\$34.0
Transport by truck	\$132.8	50%	\$93.0	\$39.7
Scenic and sightseeing transportation and support	\$78.9	35%	\$115.7	-\$36.8
US Postal Service	\$163.4	85%	\$141.4	\$22.0
Specialized design services	\$61.5	96%	\$15.0	\$46.5
Cutlery, utensil, pot, and pan manufacturing	\$70.4	N/A	\$0.0	\$70.4
Other support services	\$75.5	65%	\$29.5	\$46.0
Other Federal Government enterprises	\$108.2	125%	\$63.4	\$44.8
All other miscellaneous professional and scientific	\$352.0	176%	\$350.3	\$1.7
Natural gas distribution	\$42.3	18%	\$134.8	-\$92.4
Federal govt. electric power	-\$221.5	-45%	-\$214.8	-\$6.6
Wholesale trade businesses	\$721.3	30%	\$741.4	-\$20.1
Real estate establishments	\$737.1	39%	\$1,562.9	-\$825.8
State & local govt. education	\$555.2	100%	\$354.6	\$200.5
Offices of physicians, dentists, and other health	\$238.9	29%	\$287.2	-\$48.3
Federal government - non-military	\$350.3	81%	\$159.7	\$190.5
Material handling equipment manufacturing	\$60.0	4228%	\$0.3	\$59.7
Dental equipment and supplies manufacturing	\$43.7	1421%	\$1.7	\$42.0
Community food, housing, and other relief services	\$58.8	121%	\$35.9	\$22.9
Transport by air	\$24.5	10%	\$51.0	-\$26.5
Telecommunications	\$55.0	10%	\$135.3	-\$80.3
Private hospitals	\$182.2	35%	\$264.0	-\$81.8
Securities, commodity contracts, and investments	\$78.6	22%	\$110.6	-\$32.0
Automotive repair and maintenance, except car wash	-\$217.7	-51%	-\$246.0	\$28.4
Advertising and related services	\$19.4	7%	\$52.7	-\$33.3
Retail Nonstores - Direct and electronic sales	\$217.3	169%	\$235.2	-\$17.9
Asphalt shingle and coating materials manufacturin	\$86.9	253%	\$93.2	-\$6.3
Steel product manufacturing from purchased steel	\$27.9	104%	\$8.8	\$19.1
Truck trailer manufacturing	\$28.0	200%	\$6.8	\$21.3
Flat glass manufacturing	\$23.5	970%	\$0.9	\$22.6
Asphalt paving mixture and block manufacturing	\$56.5	20059%	\$1.3	\$55.3
Primary smelting and refining of nonferrous metal	\$25.1	N/A	\$0.0	\$25.1
Electric power generation, transmission, and distribution	\$114.2	24%	\$385.2	-\$271.0
Other private educational services	\$64.6	107%	\$21.4	\$43.2

Source: IMPLAN data for the nation and the City of Portland (based on zip codes) for 2001 and 2007. Calculations by ECONorthwest. Note: All figures in millions of current dollars. Red text signifies underperforming industries relative to national growth rates, even for industries that were growing. Green text signifies industries that outperformed national growth rates. Table is sorted by descending index value (most important to least important).

Key findings related to Exhibit ES.2:

- Many of the strong local sectors are already under consideration for City policy initiatives.
- Nearly all of the sectors in the top 10% grew, but many did not grow as fast as would have been expected based on national trends for that industry.
- The top 10 sectors are a mix of knowledge, service, and manufacturing.

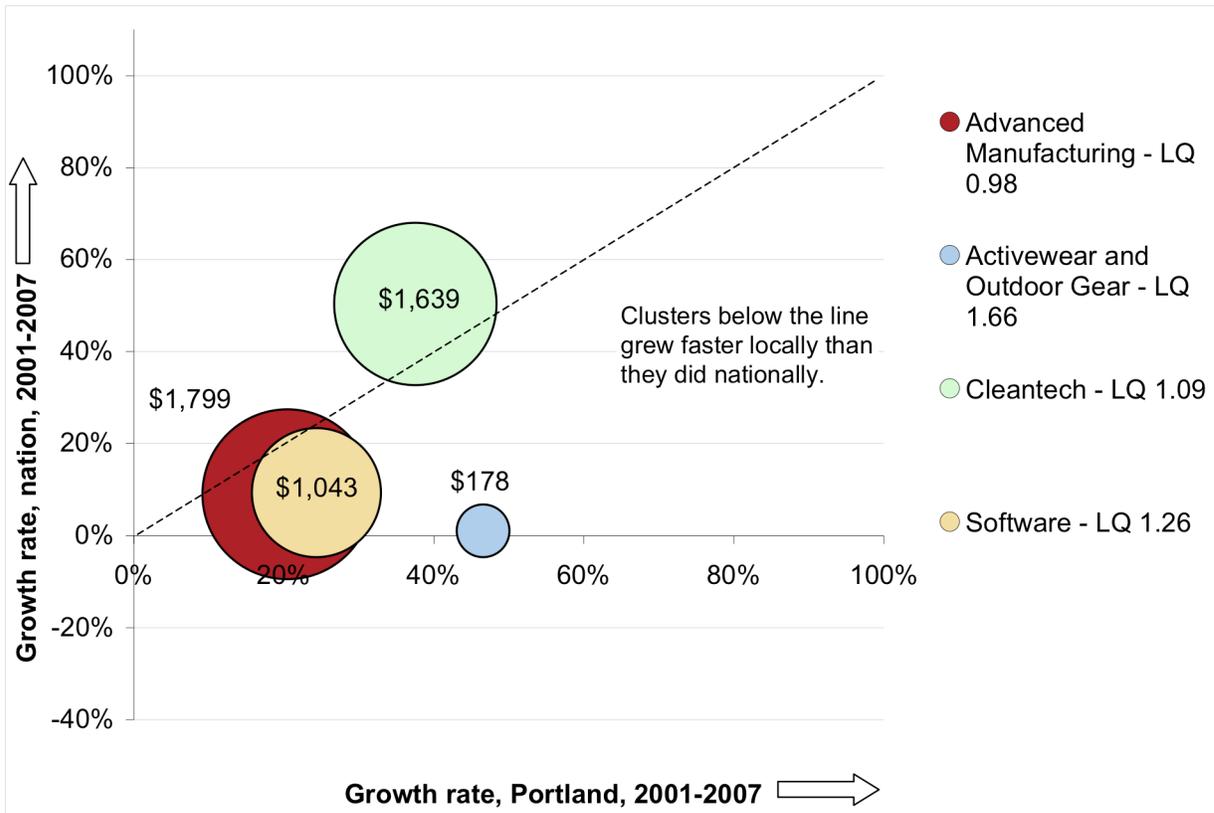
RESULTS FOR CITY OF PORTLAND CLUSTERS

The sector-level analysis in this report was conducted to support and complement the City's parallel analysis of industry clusters for its ongoing creation of its economic development strategy. The *Draft Economic Development Strategy* available at the time the analysis in this report was conducted identified four clusters that are increasingly important to the Portland economy: activewear and outdoor gear, advanced manufacturing, software, and cleantech.³ This section of the executive summary aligns the results of its sector-level analysis with the City's identified clusters.

Exhibit ES.3 shows the following information for the target clusters that the City is currently evaluating: (1) total value added in 2007 (size of the bubble); (2) rate of local growth relative to national growth between 2001 and 2007 (location of bubble); and (3) 2007 location quotient (listed as a ratio in the legend). Data are for the City of Portland (not the entire Portland region). To allow for comparison across the documents ECO defined the clusters using the same NAICS codes that the City of Portland / PDC used for its analysis.

³ More information about the clusters and the draft policy actions is available online at www.pdc.us.

Exhibit ES.3. City of Portland industry clusters: 2007 value added (in millions of dollars), local and national growth rate (from 2001 to 2007); and location quotient 2007



Source: IMPLAN data for the nation and the City of Portland (approximated by zip codes) for 2001 and 2007. Calculations by ECONorthwest

Note: Size of bubble shows value added in 2007. Each legend label shows the cluster's 2007 Portland:U.S. value added location quotient. The dotted arrow has a slope of 1; clusters located below the line grew faster in Portland than in the nation between 2001 and 2007.

The City of Portland identified its clusters using the North American Industry Classification System (NAICS), and ECO used IMPLAN data, which is based on NAICS data but has its own classification system. These differing industry classification systems resulted in a less-than-perfect translation of the industries in PDC's clusters. In some cases, a five-digit NAICS category only matched up with a portion of an IMPLAN industry sector, resulting in overstated values. In other cases, there is no good IMPLAN match for a four- or five-digit NAICS industry sector and no values are given. In all, however, translation issues arose in only 14 of the 153 IMPLAN industry sectors used in Exhibit ES.3. Due to translation issues, size of activewear cluster is underestimated, cleantech cluster is overestimated, and all other clusters were well-matched. Figures in millions of 2007 dollars.

Findings related to Exhibit ES.3:

- In Exhibit ES.3, a cluster with a large bubble located below the dashed line and with an LQ over 1.0 would be considered a strong cluster. Most of PDC's clusters either meet those criteria, or come very close to meeting them.
- Nearly all of the clusters outpaced average growth in the total Portland economy (23% increase), and some (especially activewear and outdoor gear) outpaced the average growth in the national economy (37% increase).

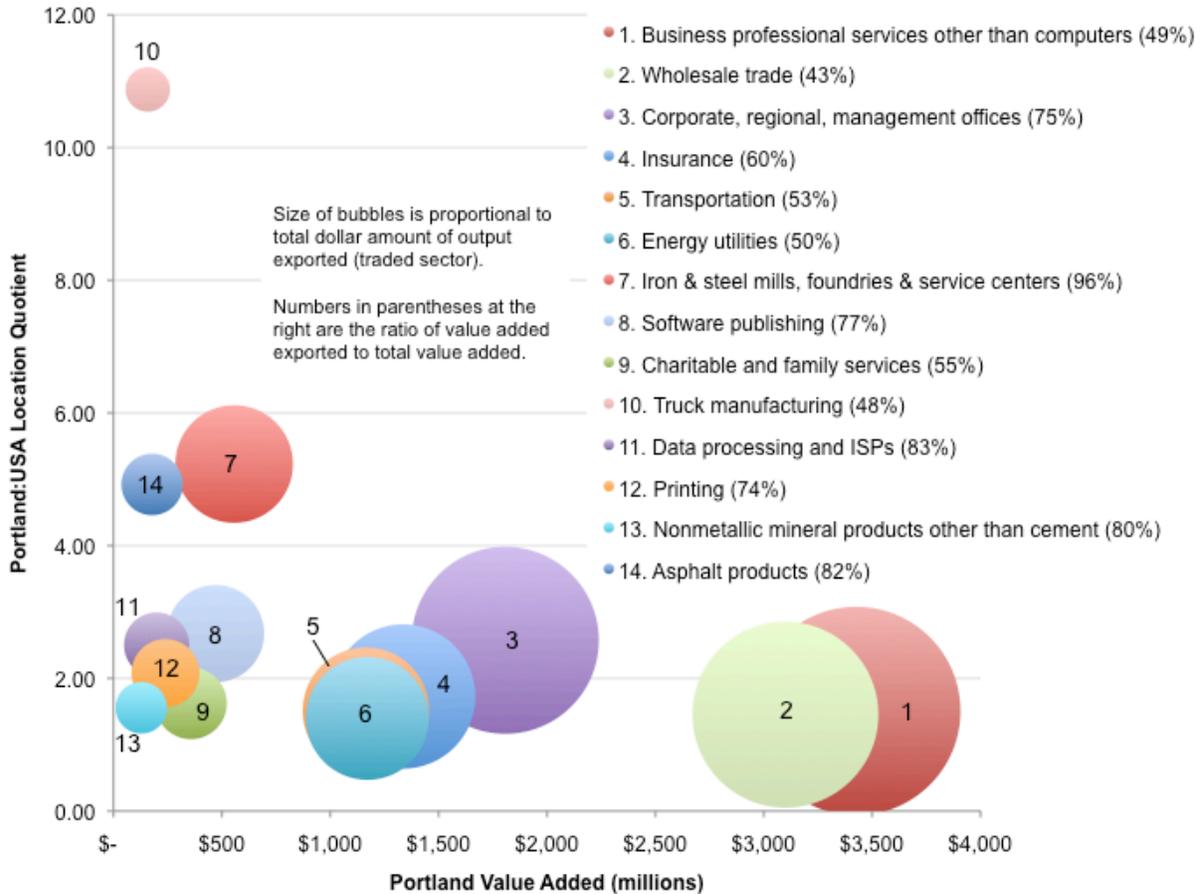
- Activewear and outdoor gear probably performs best on all measures. It has the highest LQ at 1.66, the biggest differential in value added growth between Portland and the nation, and a local effect of \$55M (2007 dollars).
- Cleantech is the only cluster with a negative local effect (-\$140M), indicating that it did not grow as fast in Portland as it did in the nation. But it is also the biggest cluster in terms of total value added, and very nearly matched national growth rates. Additional research could help to identify why this cluster is not keeping up with national trends, as well as the degree to which data errors contribute to our lack of understanding of the true performance of this cluster.

ANALYSIS OF SECTOR GROUPINGS

While the focus of ECO's work was sector level, we did consider some possible combinations of sectors to see if there might be other potential clusters that the City should consider as it moves forward with its economic development strategy.

ECO did NOT complete a full analysis to identify clusters based on the value added data; this would have required qualitative and other research that was outside of our scope. But given the breadth and depth of data available to us, we did complete a purely quantitative exercise to identify the groups of sectors that appear to be: (1) making the strongest contribution to the Portland economy in terms of value added, and (2) to be most concentrated in the City relative to the nation. We identified groups of industries that have a location quotient of at least 1.5 and make up at least 0.25% of the City's total value added. Exhibit ES.4 provides an overview of the results.

Exhibit ES-4. City of Portland industry groups based on value added, 2007



Source: ECONorthwest, 2009, based on 2007 IMPLAN data. See text of full report and appendices for information about methods and assumptions.

ECO also evaluated conducted shift-share analyses for these 14 industry grouping, and found that business and professional services, insurance, transportation, iron and steel mills, software publishing, data processing and ISPs, nonmetallic mineral products other than cement, and asphalt products all grew at a rate faster than would have been expected given national trends for the industry groupings. These industry groupings are large, concentrated, and growing more quickly than national averages.

IMPLICATIONS AND NEXT STEPS

The results of this analysis generally support the clusters that the City has identified.

- The clusters perform well on nearly every measure of specialization considered in this study. Most of them grew faster in Portland than in the nation. Most have strong LQs, indicating concentration of

value added in Portland relative to the nation. Most grew faster than the Portland economy as a whole.

- At the industry level, many of the ten top sectors (based on an index that combines all measures of specialization considered in this evaluation) are included in one of the City's clusters.

The sector-level analysis suggests several other strong and growing industry sectors (or groupings of industry sectors) that the City might also consider for policy initiatives.

- Several of the biggest (in terms of value added and employment) and most concentrated groupings of industry sectors are not included in any of the City's clusters.⁴ Business and professional services, insurance, asphalt products, and transportation are examples. These are sectors that support other sectors; growth in the City-identified clusters might indirectly cause, or at least facilitate, growth in these sectors. Because they are so large and concentrated, however, a more specific strategy might be appropriate to support the continued strength of these sectors.
- More discussion would be needed about exactly what type of policies might be appropriate to support these potential industry groupings, and how the City might help target growth in them.

More work should be done to identify the cause of changes in value added.

- An advantage of a shift-share analysis is that it quantifies the portion of change in an industry that occurred at a local level that cannot be attributed to national trends. In other words, it identifies the amount of change that was caused by some factor in the local environment (which could be an economic development policy, a comparative advantage, or the presence of a particularly strong firm with strong leadership that captures a broad market share). While the data and results are interesting in the aggregate, interviews or qualitative research would be necessary to understand what is happening in Portland that is causing an industry to grow differently here than nationally. Such an evaluation might be particularly important for the industry sectors that are in the City's clusters, as it may suggest additional policy initiatives that would help to support growth in the clusters.

⁴ Wholesale trade is NOT a good example of this; IMPLAN lumps together many smaller NAICS industries in this "sector" with out a good avenue for disaggregation. Some of the smaller NAICS codes that are joined into the IMPLAN code for wholesale trade probably ARE included in some of PDC's clusters.

- Some of the biggest sectors, in terms of value added, are underperforming relative to national trends. Management of companies and enterprises, real estate establishments, and wholesale trade businesses are examples. The fact that these large industry sectors did not keep up with national trends accounts for a significant portion of Portland's lower overall growth rate relative to the nation. Because these industry sectors contribute a relatively big part of the total value added in Portland's economy and are relatively concentrated in Portland and its downtown core, additional analysis should be done to determine why they are growing more slowly in Portland than in the nation.

