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Portland's Food Economy: Trends and Contributions

Jamaal Green

Portland State University, jamgreen@pdx.edu

Greg Schrock


Portland State University, gschrock@pdx.edu

Jenny H. Liu

Portland State University, jenny.liu@pdx.edu

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Portland's Food Economy: Trends and Contributions

Report to the City of Portland Bureau of Planning and Sustainability, with support from the PSU Institute for Sustainable Solutions and the Bullitt Foundation

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Jamaal Green, Graduate Research Assistant and IGERT Fellow
Nohad A. Toulan School of Urban Studies and Planning
jamgreen@pdx.edu

Greg Schrock, PhD, Assistant Professor
Nohad A. Toulan School of Urban Studies and Planning
gschrock@pdx.edu

Jenny Liu, PhD, Assistant Professor and Associate Director
Northwest Economic Research Center
jenny.liu@pdx.edu



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Portland's Food Economy: Trends and Contributions

Executive Summary

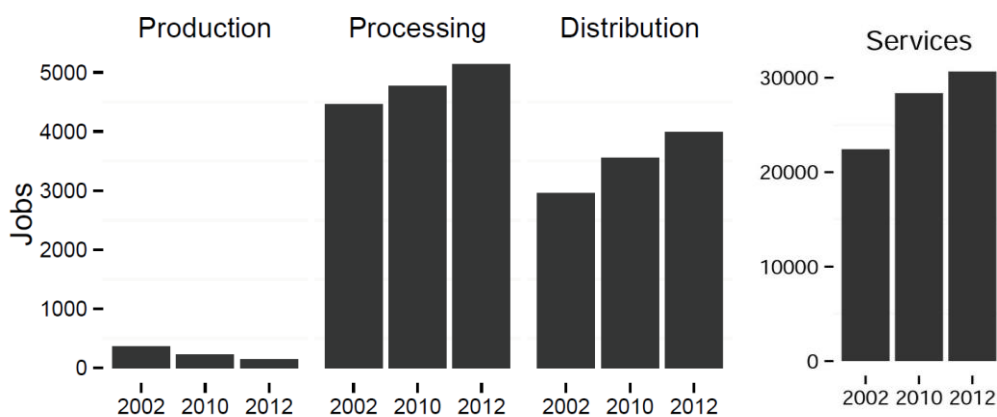
From the fertile fields of the Willamette Valley to the fine dining and brewpubs of Portland, food is a defining feature of our culture, and, increasingly, our economy. Over time, the Portland metropolitan region has grown and transitioned toward a more fully developed food economy that employs tens of thousands of workers throughout the food supply chain—quite literally spanning from farm to table.

In recent years, numerous cities have sought a better understanding of their food economy and how planning and policy can support it more effectively as part of their sustainable development efforts. Toward that end, this report analyzes the Portland regional food economy and its trends and contributions to overall economic vitality and development.

Key Findings

- **The food economy is an important employer in the Portland region.** Over 100,000 people were employed in the food economy throughout the 5-county (Multnomah, Washington, Clackamas, Yamhill, Columbia) Portland region in 2012. Overall, this means that 11.6 percent of all workers in the region were employed in the food industry. In the city of Portland, almost 40,000 food economy jobs account for just over 10 percent of all employment.
- **The food economy has experienced robust job growth in recent years.** Between 2002 and 2012 food economy employment grew by nearly one-third in the city of Portland. More recently, food employment growth outpaced non-food employment growth for the city by nearly double, growing 6.9 percent compared to 3.5 percent, between 2010 and 2012.

Figure 1. Food Sector Employment Change, City of Portland, 2002-2012



Source: Author's calculations from QCEW data.

- **Food economy jobs grew faster in the city’s Urban Renewal Areas (URAs) than citywide.** Between 2010 and 2012, food economy employment increased more than four times faster within the city’s URAs than for the city of Portland overall. Among URAs, the Interstate Corridor has the largest number of total food economy jobs, while the Central Eastside has the largest number of food processing and distribution jobs.
- **The food economy is regional in character, with different functions throughout the region.** Agricultural production activities predominate in Yamhill, Clackamas, and Washington Counties, while Multnomah County – and Portland in particular – specializes in food distribution and service activities. Food distribution is clustered around major highways as well as freight centers and food processors in industrial areas.
- **Compensation levels in the food economy varies greatly by sector.** Average annual wages in the food economy are about \$25,000 – about half the average for all industries – but range from approximately \$20,000 in food services to nearly \$50,000 in food distribution. Food processing and distribution, in particular, offer relatively well-paid jobs to workers without postsecondary degrees.
- **Portland’s food economy employs a diverse workforce.** The food economy employs greater proportions of persons of color and non-citizens than the overall regional workforce. People of color tend to be clustered in particular sectors, such as agricultural production, and women make up relatively small proportions of workers in all sectors except for food services.
- **Several food economy industries show competitive advantage in the city and the region.** Between 2010 and 2012, grocery stores, restaurants, and certain food manufacturing – including coffee roasting – experienced faster job growth in Portland than nationally. Some of this may reflect growing demand for local businesses, as well as increasing export activity.
- **The food economy contributes 33,000 additional jobs and \$22 billion dollars in output.** Through the multiplier effects of local businesses, the food industry is responsible for approximately 167,092 direct and indirect jobs in the region, producing approximately \$6 billion dollars in income and nearly \$22 billion dollars in output for the state overall. In addition, it contributed nearly \$600 million to local governments throughout the region in property taxes and fees.

I. Introduction and Project Overview

From the fertile fields of the Willamette Valley to the fine dining and brewpubs of Portland, food is a defining feature of our culture, and, increasingly, our economy. The rediscovery of food as an important part of our regional cultural identity reconnects us with a 200-year agricultural tradition in the Willamette Valley and the state of Oregon. The Willamette Valley in particular is known for its diverse agricultural production, producing over 170 commodity crops ranging from grass and legume seed to wine grapes and oats. While agricultural and food production are historically viewed as a function of rural areas, urban centers like Portland have long served important roles in the distribution and value-added processing of food. Over time, the Portland metropolitan region has grown and transitioned toward a more fully developed food economy that employs tens of thousands of workers throughout the food supply chain—quite literally spanning from farm to table.

But the region’s food economy faces challenges as well as opportunities. As development pressures drive increased land values and rents in areas like Portland’s Central Eastside, the need to balance its legacy as the city’s “produce row” with its future as a multi-use employment district stand in increasingly stark relief. And as reports such as the recent Portland Plan point to the critical importance of social and racial equity and household economic prosperity, the quality of employment opportunities offered within the food economy should be a high priority.

At the same time, Portland and Multnomah County, through their Climate Action Plan, recognize the importance of food to local sustainability efforts. This takes a variety of forms, from the promotion of low-carbon food alternatives, sustainable business practices, and more intensive development of industrial areas such as the Central Eastside, to addressing food justice and employment access barriers faced by communities of color and low-income populations. A more sustainable Portland food economy will be a more competitive and economically vital one that will also address persistent social and economic disparities in our community.

In recent years a number of U.S. and Canadian cities have sought a better understanding of their food economy and how planning and policy can support it more effectively¹. One critical aspect of this is understanding a city’s local and

¹ Pansing, Cynthia, Arlin Wasserman, John Fisk, Michelle Muldoon, Stacia Kiraly & Tavia Benjamin. (2013). *North American Food Sector, Part Two: Roadmap for City Food Sector Innovation and Investment*. Arlington, VA: Wallace Center at Winrock International.

regional assets, liabilities and trends with respect to food-related businesses. Through this report we hope to expand the knowledge base around Portland's food economy, helping to support further research and policy development initiatives on the part of public, private and community stakeholders to the food economy.

Project Goals and Research Questions

The primary goal of this report is to document the scope, growth, and contribution of the food economy to the city of Portland and the region. Specifically, this report addresses the following research questions:

- What is the “food economy,” and how is it defined?
- What is the size of Portland's food economy, and how has it changed in recent years?
- How is the food economy distributed spatially within the city and the region? How is this changing?
- What kind of employment opportunities does Portland's food economy offer? How do they compare to the broader economy?
- Who works in Portland's food economy?
- How has Portland's food economy performed relative to national trends?
- What is the broader impact and contribution of the Portland food economy to the overall regional economy, and to state and local government finances?

Data and Methods

The primary data source used in this report is the Quarterly Census of Employment Wages (QCEW), obtained from the City of Portland Bureau of Planning and Sustainability (BPS) via the Oregon Employment Department (OED). QCEW data is drawn from quarterly filing of employers covered under the Unemployment Insurance program, which represents nearly 97 percent of all employment in the United States. It provides detailed information on employment and quarterly wage levels by industrial code. Because it is reported by business establishments, QCEW reflects the total number of jobs, not the number of employed workers; individuals with multiple jobs would be counted separately within each business establishment. QCEW does not cover self-employed persons or other sole proprietorships.

We supplemented the QCEW with data from the OED's Occupational Employment Survey on occupational composition and wage levels; data from the American Community Survey on workforce demographics; and finally, data from the IMPLAN input-output model on regional output, incomes, and tax revenues.

In this report we define the “Portland region” as the five Oregon counties that are part of the Portland-Vancouver-Hillsboro metropolitan statistical area – Clackamas, Columbia, Multnomah, Washington, and Yamhill. Although Clark and Skamania counties in Washington State are part of the metropolitan region, we were unable to obtain employment data for those geographies.

Defining the Food Economy

The first task was to define what we mean by the “food economy.” After reviewing the literature and consulting with BPS staff, we adopted an approach that spans farm to table, comprising 31 North American Industrial Classification System (NAICS) codes across four broad sectors:

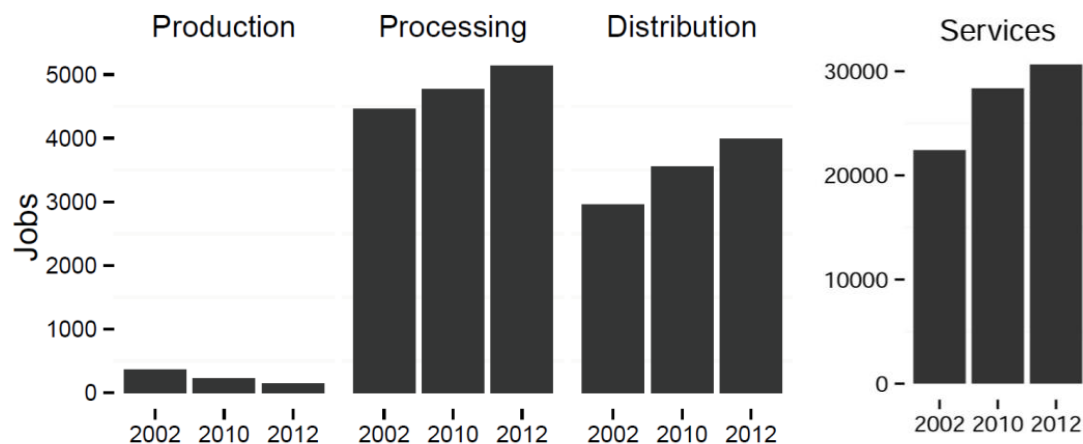
- Production: Cultivation of agricultural commodities (e.g., fruits, vegetables, grains, livestock, fishing) and supporting services.
- Processing: Value-added manufacturing of agricultural inputs into food and beverage products, for further processing, or to wholesale or retail customers.
- Distribution: Storage, transportation and wholesale trade of basic and processed agricultural products for further processing or to end consumers.
- Services: Preparation and sales of food and beverage products to end consumers (e.g., grocery stores, restaurants).

A list of the NAICS industry codes by food economy sector are provided in Section III.

II. City of Portland's Food Economy

The food economy represents a substantial part of the city of Portland's employment base. With nearly 40,000 jobs in the city across its four sectors, the food economy represents approximately 10 percent of all jobs in Portland. Food economy employment has grown considerably in the past decade, adding nearly 10,000 jobs between 2002 and 2012, for a growth rate of 32 percent (Figure II.1). Between 2010 and 2012, food economy jobs grew at 7.2 percent, twice the rate of non-food jobs during that time. As the figure below demonstrates, food services – grocery stores, specialty food retailers, and restaurants – represent the vast majority of food employment. Within the city, food service represents 77 percent of total food economy employment, higher than the 69-percent share regionally.

Figure II.1. Food Sector Employment Change, City of Portland, 2002-2012

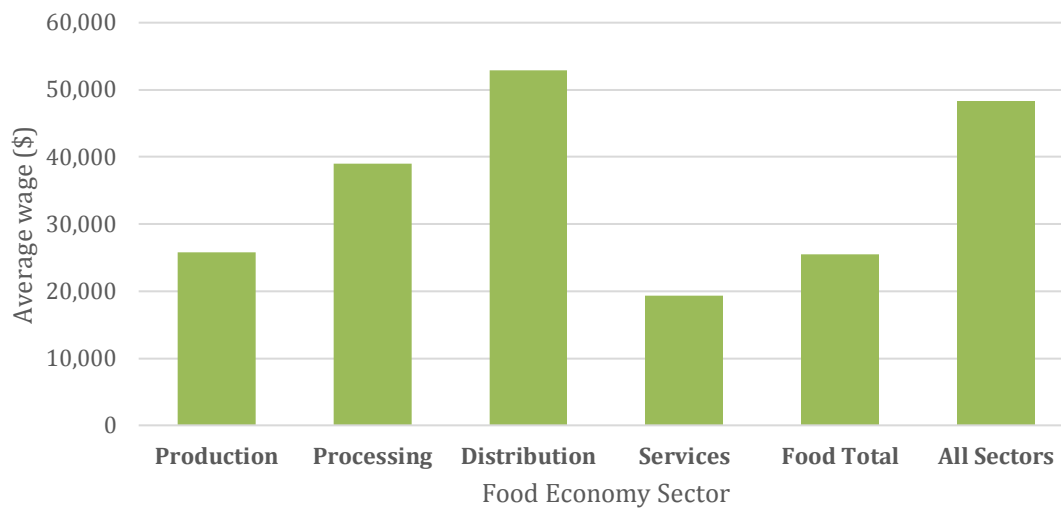


Source: Author's calculations from QCEW data

Wages

The food economy's impressive employment growth is tempered somewhat by the modest wages most of its workers receive. The average annual wage for food economy jobs in the city of Portland is approximately \$26,000, approximately half of the citywide all-industry average wage of nearly \$50,000 (Figure II.2). This figure is considerably diminished by the food services sector, where average wages are just under \$20,000. Compensation in other sectors of the food industry is substantially higher. Although none exceed the all-industry average wage level, salaries in sectors like distribution, processing and production are competitive relative to other sectors accessible to workers without a postsecondary degree, such as manufacturing and transportation. And while pay in food services is relatively low, it is comparable to sectors like retail trade where part-time employment is common.

Figure II.2. Average Wages by Food Economy Sector, City of Portland, 2012



Source: Authors' calculation of QCEW data

Employment Geography

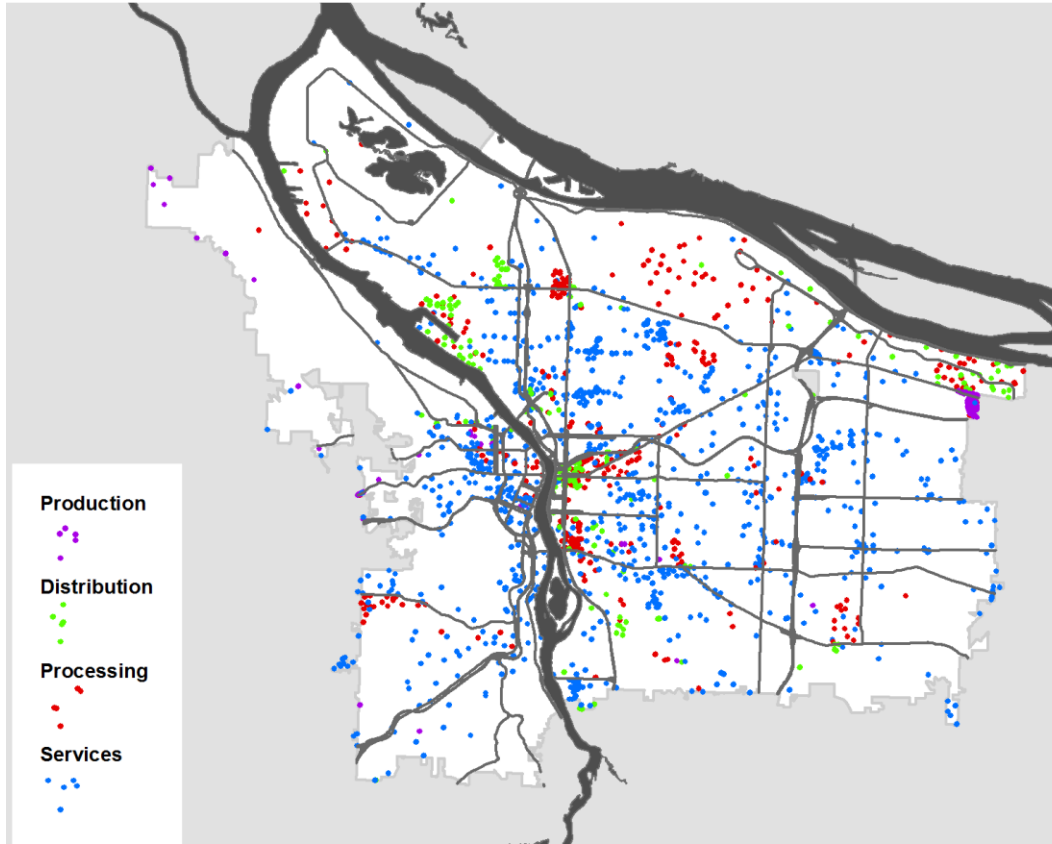
The different sectors of the food economy have their own particular spatial patterns of employment density within the city (Figure II.3). Food services, being the largest food economy sector, is heavily concentrated in the urban core, including downtown, inner Northwest, and the inner Eastside, as well as along commercial corridors further outside of the central city. Food processing and distribution are much more spatially concentrated in industrial areas near the core, and along the Columbia Corridor, where transportation infrastructure and industrial real estate is most plentiful.

Urban Renewal Areas (URA) and Enterprise Zones (E-Zone) are important hubs for food economy jobs, especially in processing and distribution (Table II.1)². URAs, which capture increased property tax revenue for reinvestment and redevelopment purposes, held 44 percent of total food economy jobs in 2012 while making up a little less than 15 percent of the total area of the city (Figure II.4)³. Distribution jobs were most heavily concentrated in URAs (47 percent), followed by food service (46 percent) and processing (33 percent). A somewhat smaller share (29 percent) of food economy jobs are found in the city's two E-Zones with only 22 percent of food

² A map of URAs and E-Zones in the city of Portland is provided in the Appendix. Neighborhood Prosperity Initiative (NPI) areas are not included in this analysis.

³ Note that the estimation of areas covered by URAs is for the total area of the city. This calculation does not correct for non-developable areas but URAs and E-Zones remain outsized employment areas.

Figure II.3. Food Employment Density by Sector, City of Portland, 2012



Source: QCEW data provided by the Bureau of Planning and Sustainability; shapefiles from RLIS.

service jobs located there. However, half of food processing and nearly 60 percent of food distribution jobs are found in these zones. This is not surprising since E-Zones, which offer employers tax incentives for new capital investment and job creation, are mostly located along industrial land in the North Willamette and Columbia corridors.

Table II.1. Food Employment Shares and Growth by URA and Enterprise Zone, City of Portland, 2010-2012

	2012 Jobs				Job Growth, 2010-12		
	URA	% of Sector	E-Zone	% of Sector	URA	E-zone	Citywide
Production	7	5%	7	5%	40%	0%	-34%
Processing	1,698	33%	2,575	50%	20%	0%	8%
Distribution	1,896	47%	2,330	59%	26%	52%	13%
Services	14,040	46%	6,641	22%	40%	68%	8%
Total	17,641	44%	11,553	29%	36%	43%	8%

Source: Calculations by author from QCEW data provided by the Bureau of Planning and Sustainability

Food economy employment increased more than four times faster within URAs and E-Zones than the city of Portland overall between 2010 and 2012. This was driven largely by a 40 percent increase in food service employment within the city’s URAs, reflecting increased commercial and residential development in areas like the Interstate Corridor and the River District. But food processing and distribution jobs both grew within URAs by twice the citywide rates.

Specific URAs show wide variation in the overall number and share of food economy jobs (Table II.2). The Interstate Corridor had the largest number of total food economy jobs (3,597) in 2012, but Lents Town Center had the highest proportion of its jobs in the food economy (17.7 percent). The Central Eastside represents the largest cluster of food processing and distribution jobs, with approximately 1,600 in these two sectors and over 2,700 food economy jobs overall, representing nearly one in six jobs within the area.

Table II.2. Employment by Urban Renewal Area and Food Economy Sector*, City of Portland, 2012

URA	Proc- essing	Distrib -ution	Serv- ices	Food Total	Serv % of Food Jobs	Total Jobs	Food % of Total Jobs
Lents Town Center	121	50	1,248	1,426	88%	8,042	17.7%
Central Eastside	787	809	1,150	2,746	42%	17,632	15.6%
Interstate Corridor	372	295	2,930	3,597	81%	28,862	12.5%
Gateway Regional Center	21	0	1,213	1,234	98%	10,193	12.1%
River District	45	29	2,419	2,493	97%	23,100	10.8%
Airport Way	291	175	513	979	52%	9,795	10.0%
South Park Blocks	0	5	1,579	1,584	100%	18,298	8.7%
Oregon Convention Center	3	0	1,132	1,135	100%	15,404	7.4%
Downtown Waterfront	57	7	1,569	1,633	96%	22,819	7.2%
Willamette Industrial	0	524	3	527	1%	7,457	7.1%
North Macadam	1	2	284	287	99%	9,745	2.9%
Total URAs	1,698	1,896	14,040	17,641	80%	171,347	10.3%

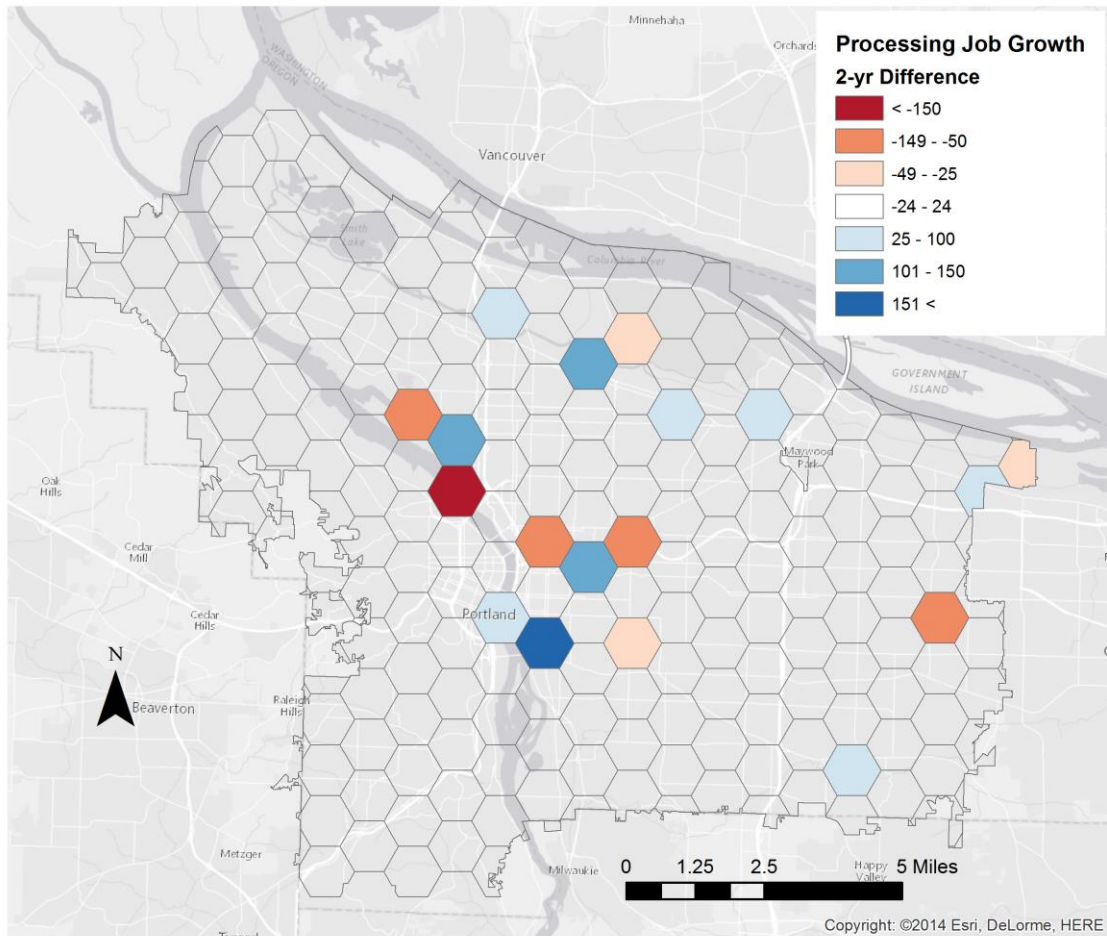
* Food production not shown due to small employment totals.

Employment Change

A more granular assessment of spatial patterns of food economy employment change can be achieved by dividing the city into a series of equally-sized hexagons, where each hex is approximately 0.75 square miles in area. By mapping the change in food-related employment by sector within these hexes, we can observe where “hot spots” are emerging.

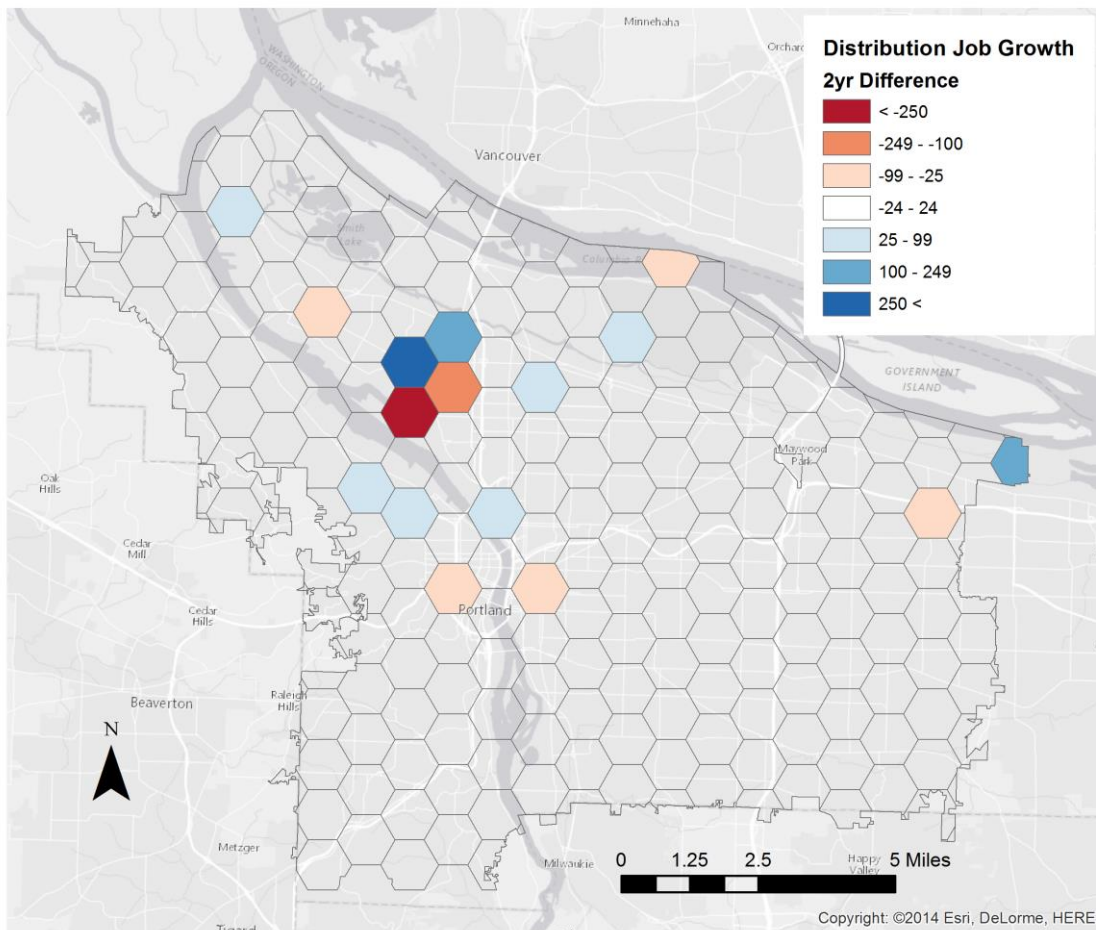
Food processing, which grew eight percent citywide between 2010 and 2012, shows a mixed pattern of job gains and losses throughout the city (Figure II.2). The largest gain in employment was registered on the southern end of Central Eastside, with other areas of the inner Eastside, Rose Quarter and Columbia Corridor showing gains also. At the same time, the largest job decline was observed along the Willamette River north of downtown, and in isolated pockets on the Eastside.

Figure II.2. Food Processing Employment Change, City of Portland, 2010-12



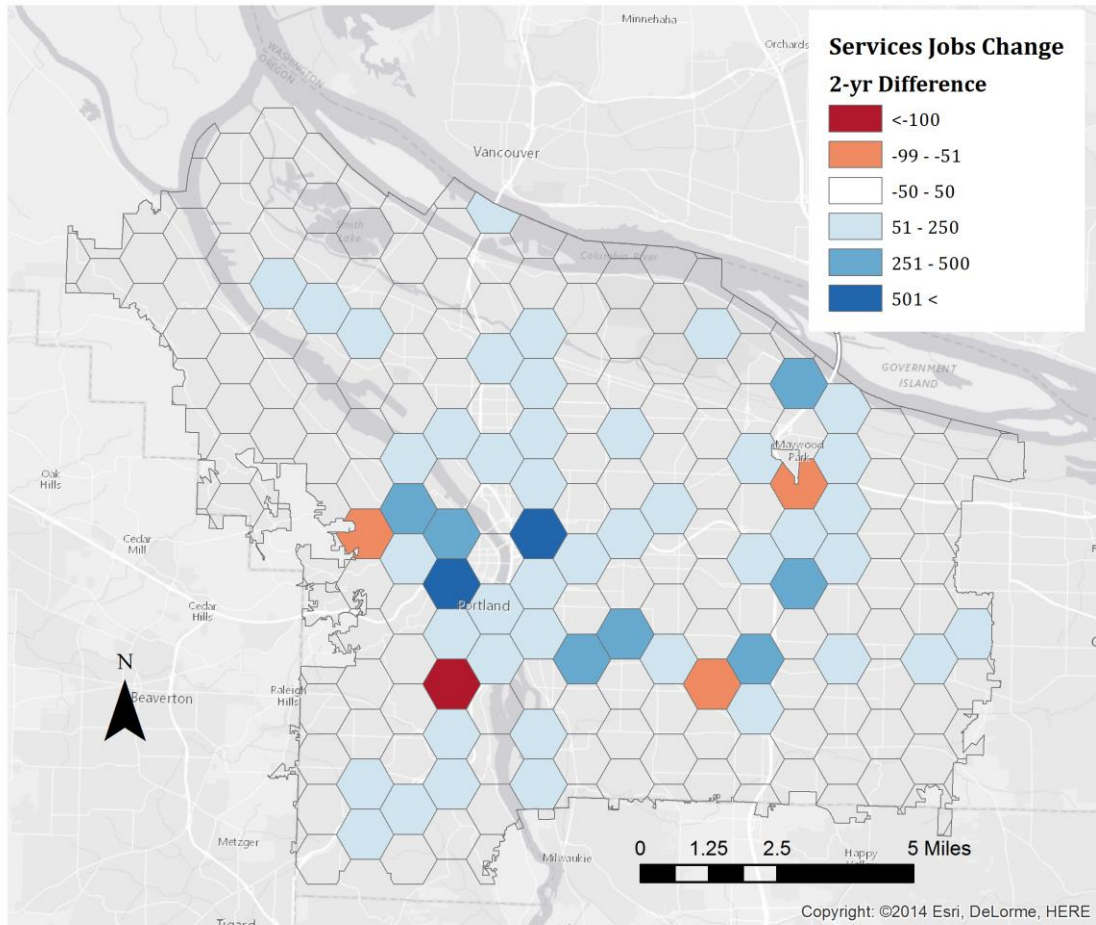
Similarly, food distribution showed a mix of job gains and losses between 2010 and 2012, with the largest changes, both positive and negative, observed in North Portland between I-5 and the Willamette River (Figure II.3). Employment gains occurred in centrally-located areas like the Rose Quarter and Northwest Industrial Area, as well as peripherally-located areas like Rivergate and Airport Way. This suggests that despite increasing land costs, central locations with close proximity to the urban core will remain important for some food distributors, while others will opt for less expensive locations with good transportation access.

Figure II.3. Food Distribution Employment Change, City of Portland, 2010-12



Finally, food services showed a much more broad-based pattern of employment growth across the city between 2010 and 2012 (Figure II.4). Job gains were most evident near the urban core, including downtown, the Rose Quarter, and the Pearl District and Northwest Portland. Areas of Southeast Portland, both inner and outer along 82nd Avenue, showed gains, as did the Cascade Station area in outer Northeast

Figure II.4. Food Services Employment Change, City of Portland, 2010-12



Portland near the airport. Substantial job losses were isolated to four areas, and likely reflected closures of large food retail establishments such as grocery stores.

III. Portland’s Regional Food Economy, by Sector

In this section we analyze the composition and characteristics of each of the four sectors of the Portland regional economy: food production, processing, distribution and services.

A. Food Production

Key Findings

- Over 11,000 food production jobs existed in 2012 throughout the Portland region, a figure that increased by just over one percent from 2010. All of that growth came from the southern portion of the region, with Yamhill and Clackamas Counties showing robust employment growth while Washington, Multnomah, and Columbia Counties lost food production employment.
- The Portland region is slightly more concentrated in agricultural production employment overall compared to the rest of the country, and is highly focused on crop production and related support activities, as opposed to animal production.
- Food production employment is marked by relatively low wages, low formal education and training requirements, and high presence of immigrant workers.

Defining Food Production

The food production sector is comprised of five NAICS industry codes encompassing the production and cultivation of crops and support services (Table III.A.1). Support services can include aerial spraying or dusting services to artificial insemination services for livestock production.

Table III.A.1. Food Production Industry Codes

NAICS	Industry
111	Crop Production
112	Animal Production
114	Fishing, Hunting and Trapping
1151	Support Activities for Crop Production
1152	Support Activities for Animal Production

Employment Trends

The food production sector has just over 11,000 jobs in the Portland region, and the region has significant concentrations of employment in multiple sub-industries, particularly crop production and support services. While a sizable employer

segment, food production job growth remained relatively stable between 2010 and 2012, growing only 1.1 percent (Table III.A.2). However, this aggregate figure masks significant variations across counties within the region. Yamhill County experienced double-digit job growth (11.2 percent) over this period, while Clackamas County – which has the largest number of agricultural production jobs in the region – grew by just over three percent. Multnomah and Washington Counties experienced significant declines over this period, perhaps reflecting increased development pressure within those areas.

Table III.A.2. Food Production Jobs by County, 2010-2012

County	2010	2012	% Growth 2010-12
Clackamas	3,737	3,851	3.1
Columbia	200	184	-8.0
Multnomah	1,683	1,530	-9.1
Washington	2,861	2,768	-3.3
Yamhill	2,402	2,672	11.2
Portland metro total	10,883	11,005	1.1

Employment Geography

The Portland region overall has limited concentration of food production employment except in crop production (Table III.A.3). However, each county in the region, excepting Multnomah, has at least one sub-industry with a significant employment concentration. The region has a clear strength in crop production and its attendant support services in multiple counties. Yamhill is a particular regional standout with impressive Location Quotients (see box below) in three sub-sectors showing its clear specialization in agricultural production and processing.

Table III.A.3. Food Production Location Quotients by Detailed Industry, Portland Region, 2012

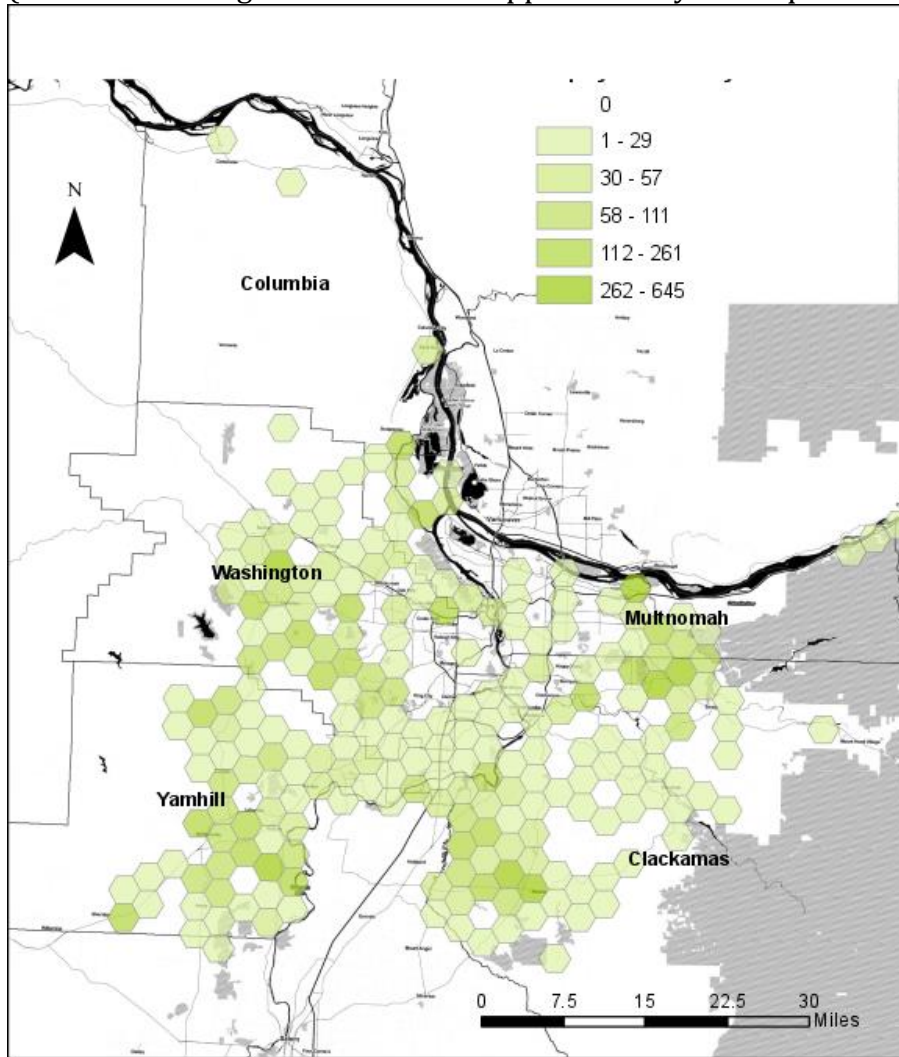
Industry	CLACK	COL	MULT	WASH	YAM	METRO
Crop Production	4.2	0.5	0.7	2.0	12.5	2.0
Animal Production	1.0	0.2	0.0	0.1	2.4	0.3
Fishing, Hunting and Trapping	1.1	0.0	0.2	0.0	0.4	0.3
Support Activities for Crop Production	1.6	5.9	0.0	0.4	7.2	0.7
Support Activities for Animal Production	2.0	0.0	0.0	0.4	0.9	0.5
Food Production total	2.8	1.9	0.3	1.1	8.5	1.3

Key: CLACK: Clackamas County; COL: Columbia County; MULT: Multnomah County; YAM: Yamhill County; METRO: 5-county Portland regional total

A **Location Quotient (LQ)** is a measure of relative concentration comparing employment in one location compared to a reference region, usually the United States overall. The LQ is calculated by taking the ratio of the share of employment in a particular industry in a region compared to the share of employment of that industry in the reference region. For example, if crop production represent 3.2 percent of a county's total employment, and 1.6 percent% of total employment nationally, the LQ would be $(3.2/1.6) = 2.0$.

In order to highlight areas where the region has a clear employment specialization, industries with an LQ greater than 1.5 are bolded.

Figure III.A.1. Food Production Employment Density, Portland Metro, 2012
(Note: Each hexagon has an area of approximately 11.1 square miles.)



Source: Author's calculation of QCEW data.

It should be no surprise that food production is mostly distributed on the periphery of the Portland region, ringing the urbanized area (Figure III.A.1), especially along the southern and eastern edges in Washington, Clackamas, Multnomah, and Yamhill counties. The intensity of production activity, particularly crop production, is a testament to state land use policies – especially Urban Growth Boundaries – that regulate the preservation of agricultural land.

Wages and Workforce Characteristics

Food production work is defined by its relative low pay (Table III.A.4). At just under \$26,000, the average wage for food production jobs is significantly below the average wage for the food economy overall as well as the overall average wage for the region. These low wages reflect the manual nature of the work; according to OED, nearly two-thirds of food production jobs, including the largest occupation (Farmworkers and Laborers), do not require any formal education, and only four percent of jobs require any form of postsecondary training (Table III.A.5). Despite the ongoing trends toward mechanization and automation, food production remains a labor intensive enterprise.

Table III.A.4. Food Production Annual Wages by County, 2012

County	Employment	Total Payroll	Average Wage
Clackamas	3,851	\$100,474,438	\$26,090
Columbia	184	\$4,894,743	\$26,602
Multnomah	1,530	\$40,435,807	\$26,429
Washington	2,768	\$71,534,632	\$25,843
Yamhill	2,672	\$67,442,794	\$25,241
Portland region total	11,005	\$284,782,414	\$25,878

The food production workforce is overwhelmingly male (75 percent), with Latinos and non-citizens represented at a rate more than five times their overall share of Portland’s regional workforce (Table III.A.6). This is hardly a new phenomenon, reflecting the historical reliance on migrant workers by agricultural producers. Not surprisingly, reflecting the sector’s low wages, food production workers live in households near or below the federal poverty threshold at rates almost double the overall the regional economy overall, and receive employer-sponsored health insurance at half of the average rate.

Table III.A.5. Occupational Characteristics of Food Production Jobs, Portland Region, 2012

SOC	Occupational title	Employment	Typical entry education	Median wage, 2014
45-2092	Farmworkers and Laborers for Crops, Nurseries, and Greenhouses	4,184	Less than high school	\$9.67
45-2099	Agricultural Workers, All Other	558	HS diploma or equiv	NA
45-2091	Agricultural Equipment Operators	332	HS diploma or equiv	\$16.84
45-2041	Graders and Sorters, Agricultural Products	288	Less than high school	\$9.58
45-1011	Supervisors and Managers of Farming, Fishing, and Forestry Workers	207	HS diploma or equiv	\$22.11
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	198	Less than high school	\$12.25
11-9013	Farmers, Ranchers, and Other Agricultural Managers	192	HS diploma or equiv	\$34.50
37-3013	Tree Trimmers and Pruners	174	HS diploma or equiv	NA

Source: Oregon Employment Department, Occupational Employment Statistics program. Data is for Clackamas, Multnomah, and Washington counties only.

Table III.A.6. Selected Demographic and Socioeconomic Characteristics of Food Production Workers, Portland Region, 2010-12

Characteristic	Production (% of workers)	Food Economy Total (%)	Portland Region Total (%)
Female	25	44	46
White, non-Hispanic	46	65	77
Hispanic/Latino, all races	52	23	10
Persons of color total	54	35	23
Non-US citizens	47	20	9
Household in/near (<200% of) poverty	42	40	22
Has employer-provided health insurance	37	53	73

Source: Authors' analysis of 2010-12 3-year American Community Survey Public Use Microdata Series.

B. Food Processing

Key Findings

- The Portland region had nearly 11,000 food processing jobs in 2012, an increase of 7 percent between 2010 and 2012, led by double-digit percentage increases in Multnomah and Yamhill counties. This employment increase was accompanied by a drop in average establishment size, potentially signaling the growth of small food processors within the region.
- Multnomah County leads the region in total food processing employment and specializes in bakeries and tortilla manufacturing and “other” food processing, for example, coffee roasters. In terms of employment concentration, Yamhill County is the regional standout, having nearly four times the concentration in food processing employment as the rest of the country, with a high concentration in beverage manufacturing.
- Food processing jobs are clustered spatially, near food production locations on the urban periphery but also in centrally-located industrial lands within the city of Portland with good market and transportation access.
- Food processing jobs have modest education and training requirements as well as moderate wage levels typical of manufacturing production jobs.

Defining Food Processing

Food processing is defined as the transformation of agricultural or livestock products into intermediate or final products. The food processing sector is comprised of ten NAICS industry codes within the manufacturing sector (Table III.B.1).

Table III.B.1. Food Processing Industry Codes

NAICS	Industry
3111	Animal Food Manufacturing
3112	Grain and Oilseed Milling
3113	Sugar and Confectionery Product Manufacturing
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing
3115	Dairy Product Manufacturing
3116	Animal Slaughtering and Processing
3117	Seafood Product Preparation and Packaging
3118	Bakeries and Tortilla Manufacturing
3119	Other Food Manufacturing
3121	Beverage Manufacturing

Employment Trends

The region had nearly 11,000 food processing jobs in 2012, with more than half of those jobs located in Multnomah County. Between 2010 and 2012 the food processing employment grew at nearly seven percent in the Portland region, well surpassing overall regional employment growth (Table III.B.2). However, job growth was quite uneven, with Washington and Clackamas counties experiencing declines while Multnomah and Yamhill counties witnessed double-digit percentage growth. Interestingly, the number of food processing establishments grew by nearly 23 percent during this time, resulting in a substantial decline in the average establishment size. This suggests a high degree of entrepreneurship and new firms entering into the food processing sector.

Table III.B.2. Food Processing Jobs by County, 2010-2012

County	2010	2012	% Growth, 2010-2012
Clackamas	1,342	1,279	-4.7
Columbia	*	*	*
Multnomah	5,484	6,090	11.1
Washington	1,811	1,782	-1.6
Yamhill	1,475	1,657	12.3
Portland metro total	10,100*	10,800*	6.9

* Figures for Columbia County not disclosed because they do not meet QCEW confidentiality thresholds (four or more establishments and no establishment with greater than 80% of total employment). Regional totals rounded to nearest hundred to prevent inference of missing data.

Employment Geography

Overall, the Portland region is roughly on par with the U.S. average in concentration of food processing jobs, although some counties have clear specializations in particular industries (Table III.B.3). Though the region does not have a large concentration of processing employment overall, it does have clear concentrations in bakery and tortilla manufacturing (NAICS: 3118) and other food manufacturing (NAICS: 3119). The “other food” industry is driven by the concentration of coffee roasters in the area, a clear high-growth industry. The robust development of food processing employment from 2010 to 2012 signals an industry that is competitive (see section IV below) and has real potential to continue to grow and drive regional food employment. Regionally, Yamhill County leads the way in terms of food processing employment concentration with a LQ greater than two in four industries. Of particular note is Yamhill’s LQ of 18 for beverage manufacturing, reflecting its national— and increasing international— prominence in winemaking. Despite the

large concentration of craft brewers in the city of Portland, the LQ for the beverage industry in Multnomah County is just below one.

Table III.B.3. Food Processing Location Quotients by Detailed Industry, Portland Region, 2012

Industry	CLACK	COL	MULT	WASH	YAM	METRO
Animal Food Manufacturing	0.2	0.0	0.4	0.0	0.9	0.3
Grain and Oilseed Milling	2.5	0.0	0.4	0.0	0.0	0.6
Sugar and Confectionery Product Manufacturing	0.2	0.0	0.4	0.1	8.4	0.6
Fruit and Vegetable Preserving and Specialty Food Manufacturing	0.3	0.4	0.7	0.4	4.0	0.7
Dairy Product Manufacturing	0.9	0.0	1.2	1.3	1.5	1.2
Animal Slaughtering and Processing	0.2	0.0	0.1	0.1	1.0	0.2
Seafood Product Preparation and Packaging	0.4	0.0	0.0	0.0	0.0	0.1
Bakeries and Tortilla Manufacturing	1.4	0.2	2.1	0.6	1.0	1.5
Other Food Manufacturing	0.7	0.1	2.1	1.4	2.7	1.7
Beverage Manufacturing	0.1	0.1	0.9	0.5	18.0	1.2
Food Processing Total	0.6	0.1	1.2	1.1	3.6	0.8

Mapping the location of food processing employment (Figure III.B.1), we can see that while Yamhill County has the largest relative concentration, the largest clusters of food processing employment in the region are in Multnomah County. Food processing employment follows the region’s transportation and industrial land infrastructure, with large concentrations along the Willamette and Columbia Rivers. Suburban employment nodes are most evident along highway corridors like I-5, I-205 and Highway 217 in Washington County.

Wages and Workforce Characteristics

Food processing jobs, on average, pay moderate wages ranging from \$33,000 to \$46,000 annually across the region (Table III.B.4). While the regional average of \$39,000 is 24 percent below the average wage for all industries, it is relatively close to self-sufficiency levels for families. Just over half (51 percent) of food processing jobs require a high school degree or equivalent, while only 10 percent require postsecondary training, suggesting that food processing jobs are accessible to workers with a basic level of education. Median hourly wages for food processing jobs fall in the \$11 to \$15 range (Table III.B.5).

Figure III.B.1. Food Processing Employment Density, Portland Metro, 2012

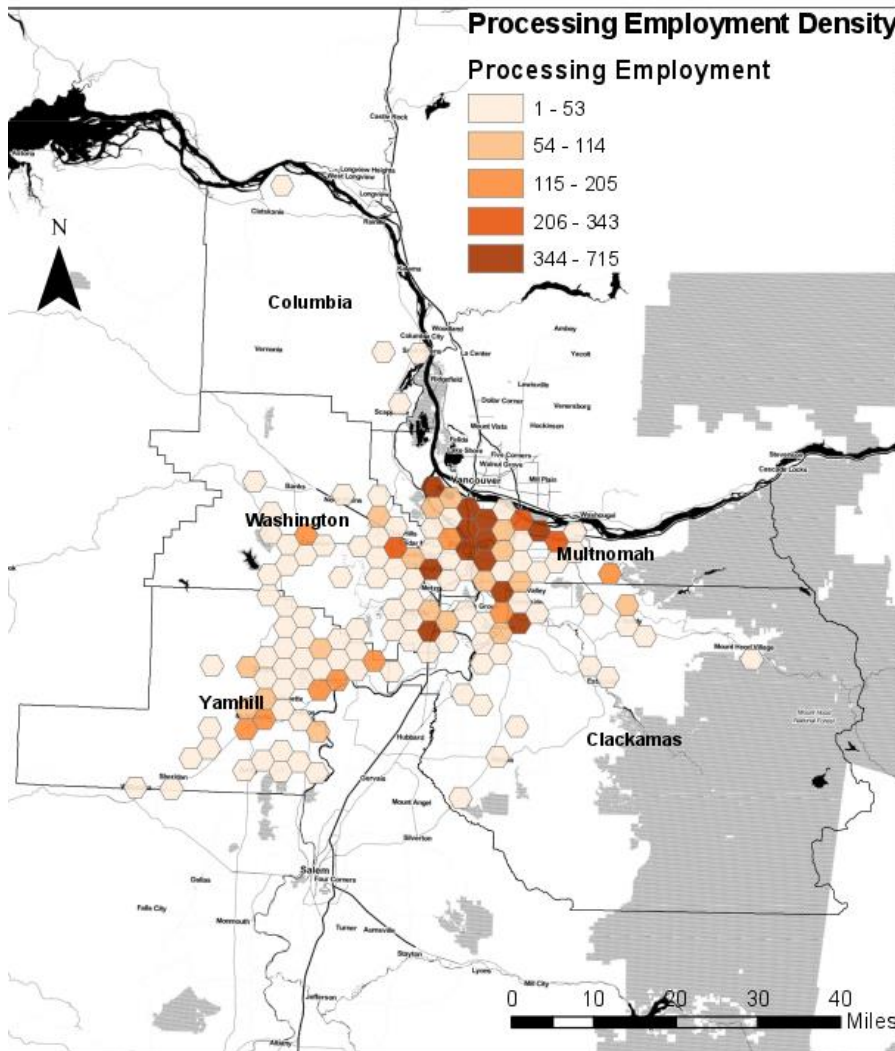


Table III.B.4. Food Processing Annual Wages by County, 2012

County	Employment	Total Payroll	Average Wage
Clackamas	1,279	\$59,426,703	\$46,463
Columbia	*	*	*
Multnomah	6,090	\$235,986,439	\$38,750
Washington	1,782	\$70,243,341	\$39,418
Yamhill	1,657	\$55,498,746	\$33,494
Portland metro total	10,800*	\$421,200,000*	\$39,000*

* Figures for Columbia County are not disclosed because they do not meet QCEW confidentiality thresholds (four or more establishments and no establishment with greater than 80 percent of total employment). Regional totals estimated to prevent inference of missing data.

Table III.B.5. Occupational Characteristics of Food Processing Jobs, Portland Region, 2012

SOC	Occupational title	Employment	Typical entry education	Median wage, 2014
51-9111	Packaging and Filling Machine Operators and Tenders	876	HS diploma or equiv	\$14.02
51-3092	Food Mixing and Blending Machine Operators and Tenders	610	HS diploma or equiv	\$13.19
51-3011	Bakers	567	Less than high school	\$14.57
53-7064	Packers and Packagers, Hand	430	Less than high school	\$9.83
51-1011	Supervisors and Managers of Production and Operating Workers	311	HS diploma or equiv	\$27.84
53-7063	Machine Feeders and Offbearers	278	Less than high school	\$11.46
51-9198	Production Worker's Helpers	221	Less than high school	\$13.40
51-9199	Production Workers, All Other	217	HS diploma or equiv	\$13.05

Source: Oregon Employment Department, Occupational Employment Statistics program. Data is for Clackamas, Multnomah, and Washington counties only.

The food processing workforce is relatively diverse, with slight overrepresentations of men and persons of color, and significant overrepresentation of immigrants and non-citizens (Table III.B.6). To some extent these patterns are typical of lower-paying manufacturing sectors. However, reflecting the food processing’s moderate wage scales, household poverty rates of sector workers are relatively close to regional averages – and well below the average for the food economy overall – and rates of employer-provided health insurance are comparable as well.

Table III.B.6. Selected Demographic and Socioeconomic Characteristics of Food Processing Workers, Portland Region, 2010-12

Characteristics	Food Processing (% of workers)	Food Economy Total (%)	Portland Region Total (%)
Female	37	44	46
White, non-Hispanic	65	65	77
Hispanic/Latino, all races	22	23	10
Persons of color total	35	35	23
Non-US citizens	24	20	9
Household in/near (<200% of) poverty	28	40	22
Has employer-provided health insurance	72	53	73

Source: Authors’ analysis of 2010-12 3-year American Community Survey Public Use Microdata Series.

C. Food Distribution

Key Findings

- Food distribution is the smallest sector within Portland’s food economy, employing just under 10,000 workers as of 2012 and showing stable employment since 2010. However, Multnomah and Washington counties showed substantial growth during that time.
- Food distribution employment tends to cluster along major transportation corridors, including highways, rail, and water transportation.
- Distribution jobs pay the highest of all food economy sectors, at an average of \$53,000 per year, despite relatively modest education and training requirements.
- Food distribution is the least diverse sector in terms of its workforce, which is predominately male and white.

Defining Food Distribution

Food distribution includes establishments that sell and hold intermediate products, in the case of wholesale traders, as well as warehouse establishments that focus on holding and moving goods, particularly refrigerated warehousing. The food distribution sector is comprised of six NAICS industry codes within the wholesale trade and transportation sectors (Table III.C.1).

Table III.C.1. Food Distribution Industry Codes

NAICS	Industry
4244	Grocery and Related Product Merchant Wholesalers
4245	Farm Product Raw Material Merchant Wholesalers
4248	Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers
42491	Farm Supplies Merchant Wholesalers
49312	Refrigerated Warehousing and Storage
49313	Farm Product Warehousing and Storage

Employment Trends

Food distribution is the smallest sector within Portland’s food economy, with just under 10,000 jobs in 2012. Job growth was relatively flat between 2010 and 2012, growing by only 1.1 percent regionally, although Washington and Multnomah counties experienced much faster growth during that time, while Clackamas County lost several hundred jobs. The differential performance across the region may reflect differences in the specific industries where counties specialize, as noted

below.

Table III.C.2. Food Distribution Jobs by County, 2010-2012

County	2010	2012	% Growth 2010-2012
Clackamas	3,781	3,365	-11.0
Columbia	*	*	*
Multnomah	4,243	4,599	8.4
Washington	1,262	1,408	11.6
Yamhill	263	250	-4.9
Portland metro total	9,500*	9,600*	1.1

* Figures for Columbia County are not disclosed because they do not meet QCEW confidentiality thresholds. Regional totals estimated to prevent inference of missing data.

Employment Geography

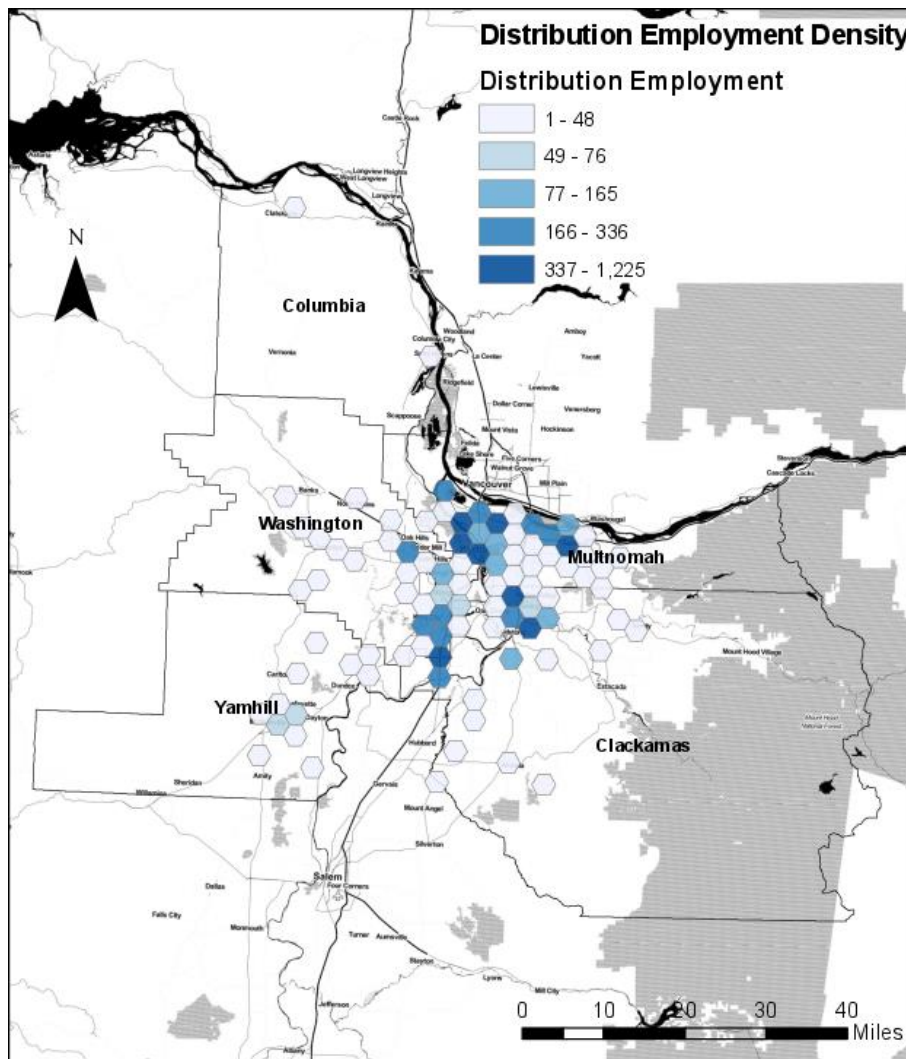
The Portland region has a competitive advantage and high concentration of distribution establishments given its place as a transportation and logistics nexus for the West Coast and the Pacific Rim. Still, the region as a whole is only slightly more concentrated in food distribution employment than the U.S. overall (Table III.C.3). However, individual counties do specialize within the distribution sector. Yamhill County specializes in farm- and agriculture-related warehousing and distribution activities; Washington County has the largest concentration of grocery distribution; and Multnomah County focuses on in beer, wine, and distilled spirits wholesaling.

Table III.C.3. Food Distribution Location Quotients by Detailed Industry, Portland Region, 2012

Industry	CLACK	COL	MULT	WASH	YAM	METRO
Grocery and Related Product Merchant Wholesalers	3.2	0.0	1.0	0.8	0.1	1.2
Farm Product Raw Material Merchant Wholesalers	0.1	0.0	0.3	0.1	0.7	0.2
Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers	1.0	0.0	2.2	0.0	0.1	1.3
Farm Supplies Merchant Wholesalers	1.1	0.6	0.4	0.3	5.9	0.7
Refrigerated Warehousing and Storage	0.7	1.3	0.6	0.4	1.5	0.6
Farm Product Warehousing and Storage	0.0	0.0	0.3	0.0	0.0	0.1
Food Distribution Total	2.4	0.1	1.0	0.5	0.8	1.1

Not surprisingly, employment density patterns within food distribution are heavily shaped by transportation infrastructure, especially road infrastructure (Figure III.C.1). In addition to the cluster along the Willamette River in Portland, there are distinct nodes in southern Washington County along I-5, Clackamas County along I-205, and Multnomah County along I-84. This reflects the tendency for distribution activities to seek relatively inexpensive locations (given the need for significant square footage) with high degrees of accessibility within and beyond the metropolitan region.

Figure III.C.1. Food Distribution Employment Density, Portland Metro, 2012



Wages and Workforce Characteristics

Food distribution jobs are the highest paid among the four food economy sectors, with average annual wages in excess of \$53,000 (Table III.C.4), a figure that surpasses the average wage for all (food and non-food) jobs within the Portland region. There is relatively little variation across the region in average wage levels, with each county within ten percent of the regional average. The high wages of the

Table III.C.4. Food Distribution Annual Wages by County, 2012

County	Employment	Total Payroll	Average Wage
Clackamas	3,365	\$188,913,438	\$56,141
Columbia	*	*	*
Multnomah	4,599	\$232,969,712	\$50,657
Washington	1,408	\$74,609,630	\$52,990
Yamhill	250	\$14,173,404	\$56,694
Portland metro total	9,600	\$510,700,000	\$53,197

* Figures for Columbia County are not disclosed because they do not meet QCEW confidentiality thresholds (four or more establishments and no establishment with greater than 80 percent of total employment). Regional totals estimated to prevent inference of missing data.

Table III.C.5. Occupational Characteristics of Food Distribution Jobs, Portland Region, 2012

SOC	Occupational Title	Employment	Typical entry education	Median wage, 2014
53-3031	Driver/Sales Workers	1,415	HS diploma or equiv	\$14.86
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	959	Less than high school	\$12.25
41-4012	Wholesale and Manufacturing Sales Representatives, ex. Technical & Scientific Products	909	HS diploma or equiv	\$28.54
53-3032	Truck Drivers, Heavy and Tractor-Trailer	641	Postsecondary training	\$19.30
53-7051	Fork Lift, Industrial Truck and Tractor Operators	602	Less than high school	\$16.39
43-5081	Stock Clerks and Order Fillers	546	Less than high school	\$13.55
53-7064	Packers and Packagers, Hand	257	Less than high school	\$9.83
53-3033	Truck Drivers, Light or Delivery Services	187	HS diploma or equiv	\$14.95

Source: Oregon Employment Department, Occupational Employment Statistics program. Data is for Clackamas, Multnomah, and Washington counties only.

food distribution sector are especially notable given that less than one-fifth of jobs require postsecondary training or credentials; many of the sector’s key occupations are within the transportation field, with median hourly wages ranging from \$12 to \$20 and up (Table III.C.5).

Food distribution has the least gender diversity among the four sectors, with a workforce that is over 80 percent male (Table III.C.6). Racially it is similar to the regional economy overall, with Latinos somewhat overrepresented, but it is the least diverse sector within the food economy. As a result of the sector’s high wages, it has the lowest share of workers in households at or near poverty, and the highest share with employer-provided health insurance.

Table III.C.6. Selected Demographic and Socioeconomic Characteristics of Food Distribution Workers, Portland Region, 2010-12

Characteristic	Food Distribution (% of workers)	Food Economy Total (%)	Portland Region Total (%)
Female	18	44	46
White, non-Hispanic	73	65	77
Hispanic/Latino, all races	18	23	10
Persons of color total	27	35	23
Non-US citizens	14	20	9
Household in/near (<200% of) poverty	20	40	22
Has employer-provided health insurance	78	53	73

Source: Authors’ analysis of 2010-12 3-year American Community Survey Public Use Microdata Series.

D. Food Services

Key Findings

- Food services is the largest sector of the food economy employing 68,885 people in 2012, making up over two-thirds of food workers and nearly seven percent of all workers in the Portland region. It showed significant job growth regionally from 2010 to 2012, and within all five counties.
- Food service employment shows strong “central place” tendencies, clustering near population and employment centers, such as downtown Portland and along suburban highways.
- Job compensation is relatively low, with average annual wages of less than \$20,000.

Defining Food Services

Food services is comprised of 11 industrial codes for selling food and beverage products to consumers. These industries include meat and produce retailers, grocery and supplement stores, and restaurants and food services (Table III.D.1).

Table III.D.1. Food Services Industry Codes

NAICS	Industry
44521	Meat Markets
44522	Fish and Seafood Markets
44523	Fruit and Vegetable Markets
4453	Beer, Wine, and Liquor Stores
445291	Baked Goods Stores
445292	Nut and Confectionary Stores
44511	Supermarket and Other Grocery (except convenience) Stores
446191	Food (Health) Supplement Stores
72233	Mobile Food Services
722511	Full Service Restaurants
722513	Limited Service Restaurants

Employment Trends

Food services is the largest sector of the food economy; with nearly 69,000 jobs it comprises over two-thirds of all food economy jobs in the Portland region. It experienced broad-based job growth of over six percent from 2010 to 2012 (Table III.D.2), and was the only sector in which all five counties showed increases. Multnomah County led the way, with over eight percent job growth during that time period. Food service job development can be attributed to a variety of factors, including population growth and increased disposable income on the part of consumers following the Great Recession.

Table III.D.2. Food Services Employment Change by County, 2010-2012

Geography	2010	2012	% change 2010-2012
Clackamas	11,190	11,862	6.0
Columbia	966	993	2.8
Multnomah	32,926	35,680	8.4
Washington	17,370	17,729	2.1
Yamhill	2,389	2,521	5.5
Portland metro total	64,841	68,785	6.1

Employment Geography

Food services locations are generally local-serving establishments. As such, we would not generally expect any particular place to exhibit particularly high, or low, concentrations of food services employment. This holds for the vast majority of industries within the food services sector, but there are some standouts in particular counties and for the Portland region as a whole (Table III.D.3). Bakery and confectioner shops and mobile food services show high concentrations within the region and Multnomah County in particular; mobile food services likely reflects the rapid growth of food carts in Portland since the late 2000s⁴. Another major standout is Yamhill County’s 4.1 LQ in fruit and vegetable markets, a clear connection to the county’s strength in crop production.

Geographically, food services employment is strongly guided by what geographers call “central place” tendencies, locating near concentrations of consumer demand.

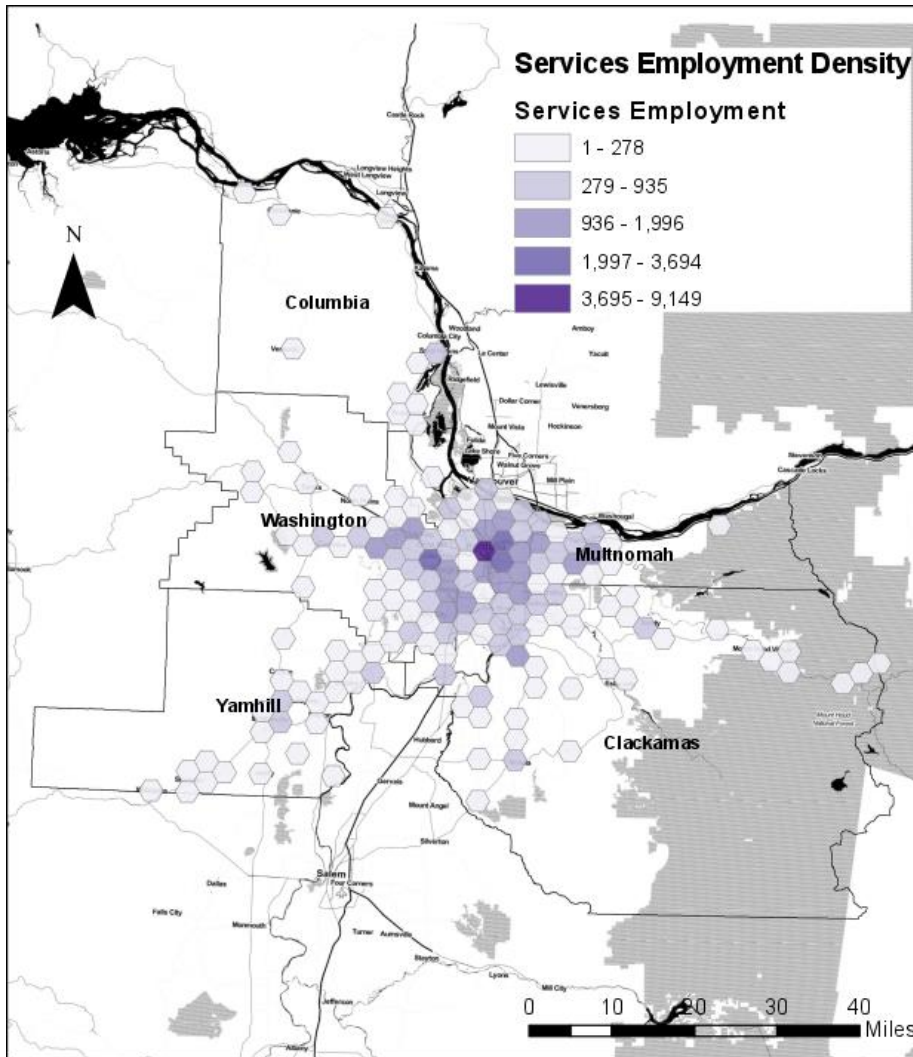
Table III.D.3. Food Services Location Quotients by Detailed Industry, Portland Region, 2012

Industry	CLACK	COL	MULT	WASH	YAM	METRO
Meat Markets	0.3	0.0	0.5	0.1	0.0	0.3
Fish and Seafood Markets	0.0	0.8	1.0	0.2	0.0	0.6
Fruit and Vegetable Markets	0.8	0.0	0.8	0.2	4.1	0.7
Beer, Wine, and Liquor Stores	0.7	1.3	0.6	0.4	1.5	0.6
Baked Goods Stores	0.7	0.0	2.6	0.5	0.0	1.6
Nut & Confectionary Stores	0.7	0.0	0.9	1.0	0.0	0.8
Supermarket and Other Grocery Stores	1.0	1.1	0.6	0.8	0.9	0.7
Food (Health) Supplement Stores	0.7	0.5	0.5	0.5	0.7	0.5
Mobile Food Services	0.7	0.0	2.6	0.5	0.0	1.6
Full Service Restaurants	0.8	0.8	1.1	0.7	0.6	0.9
Limited Service Restaurants	0.8	1.4	0.7	0.7	0.9	0.7
Food services total	0.8	1.0	0.8	0.7	0.8	0.8

⁴ Food carts vary with respect to their coverage in the QCEW database. Some multi-location carts are found within the database, while many operate as sole proprietorships with self-employed workers not covered by Unemployment Insurance.

Within the Portland region, the largest node of food services employment is found within downtown Portland and the inner Eastside (e.g., Rose Quarter and Lloyd District), serving both local and non-local (i.e., tourist) demand (Figure III.D.1). Within the western suburbs, there is a discernible node along Highways 217 and 26 in Washington County.

Figure III.D.1- Food Services Employment Density, Portland Metro, 2012



Wages and Workforce Characteristics

Among the four sectors of the food economy, food services has the lowest wage levels on average, with annual wages of less than \$20,000 (Table III.D.4). However, this overall average conceals smaller sub-segments such as grocery stores and full-

service restaurants that tend to pay higher wages. Although most food service occupations have median hourly wage levels in the \$9 to \$11 range (Table III.D.5), low annual wages are a reflection of high rates of part-time work within restaurants and food service establishments.⁵ It also reflects the modest education and training requirements for the sector; according to OED, nearly five of six food service jobs (85.4 percent) have no formal educational requirement, and only 2.7 percent require a postsecondary credential.

Table III.D.4. Food Services Annual Wages by County, 2012

County	Employment	Total Payroll	Average Wages
Clackamas	11,862	\$224,799,676	\$18,951
Columbia	993	\$15,758,919	\$15,870
Multnomah	35,680	\$702,625,436	\$19,692
Washington	17,729	\$345,478,724	\$19,487
Yamhill	2,521	\$43,880,821	\$17,406
Portland metro total	68,785	\$1,332,543,576	\$19,373

Table III.D.5. Occupational Characteristics of Food Services Jobs, Portland Region, 2012

SOC	Occupational Title	Employment	Typical Entry Education	Median Wage, 2014
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	12,020	Less than high school	\$9.49
35-3031	Waiters and Waitresses	11,547	Less than high school	\$9.38
35-2014	Cooks, Restaurant	6,188	Less than high school	\$10.86
41-2011	Cashiers	5,166	Less than high school	\$11.07
35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	3,746	Less than high school	\$9.55
35-1012	Supervisors and Managers of Food Preparation and Serving Workers	3,511	HS diploma or equiv	\$13.04
35-2021	Food Preparation Workers	3,288	Less than high school	\$10.11
35-9021	Dishwashers	2,683	Less than high school	\$9.45

Source: Oregon Employment Department, Occupational Employment Statistics program. Data is for Clackamas, Multnomah, and Washington counties only.

⁵ Bureau of Labor Statistics, "Industries at a Glance: Food Services and Drinking Places: NAICS 722," <http://www.bls.gov/iag/tgs/iag722.htm>.

Demographically, food services is unique because it is the only sector within the food economy with a majority female workforce; indeed, it is the only one where women represent more than one-third of workers (Table III.D.6). Persons of color, especially Latinos, and non-citizen workers are represented in food services at a rate more than ten percent higher than the regional workforce overall. Not surprisingly, the sector’s low wages result in nearly twice as high a rate of workers in households at or near the poverty line (45 percent, compared to 22 percent for the region overall), and over one-third lower rate of employer-sponsored health insurance (48 percent, compared to 73 percent). Again, these aggregate figures likely conceal significant variation within the food services sector since it is the largest sector, by far, but it strongly suggests that job quality represents one of the major challenges facing the food economy.

Table III.D.6. Selected Demographic and Socioeconomic Characteristics of Food Service Workers, Portland Region, 2010-12

	Food Services (% of workers)	Food Economy Total (%)	Portland Regional Total (%)
Female	52	44	46
White, non-Hispanic	66	65	77
Hispanic/Latino, all races	20	23	10
Persons of color total	34	35	23
Non-US citizens	17	20	9
Household in/near (<200% of) poverty	45	40	22
Has employer-provided health insurance	48	53	73

Source: Authors’ analysis of 2010-12 3-year American Community Survey Public Use Microdata Series.

IV. Portland's Food Economy: Regional Competitive Outcomes

Portland and the region enjoy a dynamic set of food industries that have witnessed positive employment growth in recent years. These are positive signs of industrial health and competitiveness. But the underlying factors are contributing to this growth are unclear. Is this rebound in the varied subsectors a consequence of a general economic recovery or some particular aspect unique to our region?

One way of approaching this question is through a *shift-share analysis*. A shift-share analysis deconstructs local economic growth into three factors: first, the *national share*, or an estimation of the effect that macro national economic context has on local growth⁶; second, *industrial mix*, or an estimation of the effect of how the specific industry is growing at the national level, above and beyond the overall national growth rate; and third, *regional share*, a residual that reflects the disproportionate growth or decline of an industry at the local level. If regional share is positive, it means that an industry is “gaining share” in terms of employment; if it is negative, it means that it is “losing share.” For this reason, regional share is considered a good barometer of an industry’s competitive performance within a region.

We conducted a shift-share analysis of detailed food economy industries for the city of Portland and the Portland region for the years 2010 to 2012. Although this is a relatively short period of time to examine change, it allows us to see which industries were performing stronger or weaker than the national average at the beginning of national economic recovery. For brevity, we depict the industries with the highest and lowest regional share totals. These are not the industries with the highest and lowest overall employment change, but the ones in which local/regional growth surpassed or fell short of the national average most significantly.

The basic formula for shift-share analysis:

Total Employment Shift:

$$NS_i + NM_i + LF_i$$

National Share:

$$NS_i = e_i^{t-1}((E^t - E^{t-1})/E^{t-1})$$

Industry Mix:

$$IM_i = e_i^{t-1}((E_i^t/E_i^{t-1}) - (E^t/E^{t-1}))$$

Regional Share:

$$RS_i = e_i^{t-1}((e_i^t/e_i^{t-1}) - (E_i^t/E_i^{t-1}))$$

Where e_i and E_i are industrial employment at the regional and national level, e and E are total employment at the regional and national level, and $t-1$ and t are the beginning and end of the study time period.

⁶ In theory shift-share analysis, like location quotient analysis, could use any region as its reference.

Results

Within the city of Portland, several food economy industries outperformed the national benchmark, adding hundreds of jobs each (Table IV.1). The industries experiencing the fastest regional growth within the city fall into three broad groups: supermarket retailers and wholesalers, restaurants, and “other” food manufacturing.

In general, supermarkets and restaurants are considered “local-serving” industries, and so faster local job growth could reflect rapid population and market growth, increased visitor demand, and the expansion of locally-owned businesses. All of these factors were likely at work in the city of Portland, as increased residential development and consumer demand brought new grocery retail investment throughout the city; increased tourism activity stimulated restaurant growth for both full-service and limited-service restaurants, especially in downtown Portland; and the expansion of local grocery retailers like New Seasons generated

Table IV.1. Food Economy Industries with Highest and Lowest Regional Share Changes, City of Portland, 2010-2012

NAICS	Industry	National Share	Industrial Mix	Regional Share	Total Employment Change
4244	Grocery and Related Product Merchant Wholesalers	89	-56	292	325
3119	Other Food Manufacturing	40	19	278	337
722513	Limited Service Restaurants	282	164	237	683
44511	Supermarket and Other Grocery (except convenience) Stores	185	-119	204	270
722511	Full Service Restaurants	695	332	177	1204
3118	Bakeries and Tortilla Manufacturing	77	-37	-15	26
42491	Farm Supplies Merchant Wholesalers	7	-4	-18	-15
3113	Sugar and Confectionery Product Manufacturing	4	-1	-28	-26
111	Crop Production	7	-3	-80	-75
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	19	-25	-192	-198

Source: Authors' analysis of QCEW data.

disproportionate job growth within the city.

The case of “other” food manufacturing (NAICS: 3119) is somewhat different as local manufacturing sector growth can likely be attributed to a greater extent to increased export activity. Most notably, this industry sector includes coffee roasters like Stumptown, which grew rapidly during this time period. While some of the growth may reflect “import replacement” (i.e., local demand shifting from imported to locally-produced goods), it also reflects the growing competitiveness and brand value of “Portland Made” products beyond the region.

Only a handful of industries lost employment share within the city of Portland. The only one with a “regional share” loss of greater than 100 jobs was Fruit and Vegetable Preserve Manufacturing (NAICS: 3114), an industry where all of the approximately 200 jobs lost between 2010 and 2012 could be attributed to loss of local share. As a manufacturing sector, this may reflect the closure of a single business.

A more detailed assessment of why certain food industries may benefit from being located in Portland is beyond the scope of this study, but these numbers show that Portland does possess some unique local characteristics that drive its growth in food employment.

Regionally, food employment growth has similar dynamics to the city of Portland (Table IV.2). The only addition here is crop-related support services (NAICS 1151), which added nearly 400 jobs above and beyond the national trends. This likely reflects the rapid growth of agricultural production activities in Yamhill and Clackamas Counties, although it is interesting to note that crop production employment itself (NAICS 111) experienced decline. Limited-service restaurants gained share regionally, but despite fast overall employment growth, full-service restaurants actually failed to keep pace with their national growth performance.

In addition to crop production and full-service restaurants, the Portland region lost share in the same Fruit and Vegetable processing sector as the city, as well as bakeries (NAICS 3118) and farm supplies wholesalers (NAICS 42491). These losses were relatively modest relative to the region’s growing sectors.

In conclusion, shift-share analysis gives us a window into the segments of the food economy where the city and region are experiencing employment growth and likely competitive advantages. This could serve as a starting place for further study of the factors promoting new business growth and expansion within Portland.

Table IV.2. Food Economy Industries with Highest and Lowest Regional Share Changes, Portland Metro Region, 2010-2012

NAICS	Industry	National Share	Industrial Mix	Regional Share	Total Employment Change
1151	Support Activities for Crop Production	33	46	372	451
44511	Supermarkets and other grocery (excluding convenience)	352	-156	350	546
722513	Limited Service Restaurants	508	742	312	1562
3119	Other Food Manufacturing	52	67	264	383
3116	Animal Slaughtering and Processing	12	-15	183	180
3118	Bakeries and Tortilla Manufacturing	91	-17	-112	-38
42491	Farm supplies merchant wholesalers	19	-7	-127	-115
3114	Fruit and Vegetable preserving and specialty food manufacturing	28	-43	-153	-168
722511	Full Service Restaurants	848	1104	-362	1590
111	Crop Production	244	0	-669	-425

Source: Authors' analysis of QCEW data.

V. Portland's Food Economy: Regional Economic Contribution

This section describes the economic impact analysis conducted to characterize the contribution of Portland's food economy to the regional and state-level economy. This analysis provides a quantitative benchmark measure of the scope and scale of the industry in terms of its economic contributions and activities (i.e., employment and wages) and fiscal (i.e., taxes) contributions at the local, regional, and state levels.

Economic Impact Analysis - Description of IMPLAN

Northwest Economic Research Center (NERC) used the data on employment and output changes as inputs for IMPLAN, an input-output (I/O) based economic model that estimates the total macroeconomic impacts resulting from changes at a detailed geographic and economic level. For instance, if a food manufacturing firm in Washington County increases its sales, it will require additional labor and additional intermediate inputs to meet the higher demand for its output. A portion of the new wages paid to the firm's employees will be spent on the output of other firms. Likewise, a portion of the new intermediate materials purchased by the expanding business will increase the sales of other firms, which will hire additional workers, who will spend some of their additional income, and so on. The direct impacts of the food industry aggregated from the 2012 QCEW dataset are NERC's primary inputs to IMPLAN.

IMPLAN models a region's economy as a highly

IMPLAN Impacts

The impact summary results are given in terms of employment, labor income, total value added, and output:

Employment represents the number of annual, 1.0 FTE jobs. These job estimates are derived from industry wage averages.

Labor Income is made up of total employee compensation (wages and benefits) as well as proprietor income. Proprietor income is profits earned by self-employed individuals.

Total Value Added is made up of labor income, property type income, and indirect business taxes collected on behalf of local government. This measure is comparable to familiar net measurements of output like gross domestic product.

Output is a gross measure of production. It includes the value of both intermediate and final goods. Because of this, some double counting will occur. Output is presented as a gross measure because IMPLAN is capable of analyzing custom economic zones. Producers may be creating goods that would be considered intermediate from the perspective of the greater national economy, but may leave the custom economic zone, making them a local final good.

interconnected network of firms and households spread across the state. It is constructed from Social Accounting Matrices (SAMs), which are based on the input-output tables of purchases and sales across industries available from the Bureau of Economic Analysis (BEA) and supplementary data from other publicly available sources. IMPLAN's matrices reflect the actual industry interactions within and between regions, and include the government sector which is often omitted from this type of analysis. Put simply, they present a map of the economy that illustrates the flow of money, resources, and employment through the sectors of a geographic area. IMPLAN thus simulates the wave of spending and hiring spurred by changes in one or more industries. In addition to results in the private sector, the model estimates impacts to disposable income and tax revenue.

The magnitude of these simulated changes relies on estimations of the historical relationships between households, industries, and the government sector. In the model, a production function for each industry describes the numerous resources from other industries and households each industry requires to produce its output. For example, the food processing industry requires both labor and intermediate goods produced by other industry to produce its own output. When the industry's sales increase, the specific number of additional employees it will hire and the amount of additional material inputs it purchases in IMPLAN's simulations are based on the past hiring and purchasing activity in that industry and region. Ultimately, IMPLAN's analysis produces results of three types: direct, indirect, and induced.

- **Direct Impacts:** These are defined by the model and placed in the appropriate industry. They are not subject to multipliers. In this case, revenue and employment were aggregated from the QCEW data as described previously and allocated to the appropriate industries.
- **Indirect Impacts:** These impacts are estimated based on national purchasing and sales data that model the interactions between industries. This category reflects the economic activity necessary to support the direct impacts of other firms in the supply chain – the “ripples” in the economy resulting from an initial direct impact.
- **Induced Impacts:** These impacts are created by the change in wages and employee compensation. Employees change purchasing decisions based on changes in their income and wealth.

Economic Impact Analysis – Results

The following table (Table V.1) shows the total economic effects of food-related industries within the five specified counties in the Portland metropolitan region (Clackamas, Columbia, Multnomah, Washington, and Yamhill Counties). In 2012, food-related industries contributed over 103,000 jobs directly in this region, which contributed more than 33,000 additional jobs at the indirect level. These 167,092 total jobs generated over \$6 billion in labor income and nearly \$22 billion in output in the state.

Table V.1. Food Economy Economic Impact Summary, Five Counties (Clackamas, Columbia, Multnomah, Washington, Yamhill)

Impact Type	Employment	Labor Income (millions)	Total Value Added (millions)	Output (millions)
Direct Effect	103,761	\$2,969	\$4,944	\$12,787
Indirect Effect	33,574	\$1,701	\$2,690	\$5,285
Induced Effect	29,757	\$1,330	\$2,295	\$3,897
Total Effect	167,092	\$6,000	\$9,929	\$21,968

The following figure breaks down the top ten industries by employment that are part of the food-related industry in this region. As expected, the *Food services and drinking places*, *Retail Stores – Food and beverage* and *Wholesale trade businesses* industry sectors are the largest contributors of jobs, totaling more than 90,000. *Real estate establishments*, *Management of companies*, and *Employment services* are industry sectors that support and provide services to the food industry, but may not be directly part of the food industry.

Figure V.1. Top 10 Industries by Employment



The food-related industry in the five-county region generates substantial tax revenue at the local, state, and national level as detailed in the table below (Table V.2). The fiscal impacts of the industry are estimated at roughly \$666 million in revenues for the Oregon state government, \$583 million for local governments, and over \$1.34 billion for federal taxes.

Table V.2: Portland Regional Food Economy, Statewide Tax (Fiscal) Impact

	Total
Oregon State	
State Personal and Corporate Income Taxes	\$218,049,173
Other State Taxes, fees, and licenses	\$448,633,439
Total	\$666,682,612
Local Governments	
Property Taxes	\$577,897,203
Other Local Taxes, Fees, and Licenses	\$5,970,896
Total	\$583,868,099
Federal Government	
Federal Personal and Corporate Income Taxes	\$511,709,271
Social Insurance and Excise Taxes	\$833,202,140
Total	\$1,344,911,411
TOTAL	\$2,595,462,122

The food industry is broken down further by the county in which businesses are located, and the economic impacts are summarized below. Multnomah County houses the largest food industry with 50,246 direct employees and 73,444 total employees, yielding an annual output of over \$10 billion. Washington County has the second largest food industry workforce with 24,509 direct employees and 31,795 total employees, with an annual output of \$3.6 billion.

Table V.3: Food Industry Economic Impact by County – Clackamas, Columbia, Multnomah, Washington and Yamhill Counties

	Impact Type	Employment	Labor Income	Total Value Added	Output
Clackamas	Direct Effect	20,531	\$650,374,228	\$1,041,565,321	\$2,227,591,394
	Indirect Effect	3,461	\$128,495,002	\$221,909,630	\$374,645,790
	Induced Effect	3,618	\$131,039,509	\$242,381,775	\$398,118,558
	Total Effect	27,610	\$909,908,739	\$1,505,856,725	\$3,000,355,741
Columbia	Direct Effect	1,251	\$22,848,812	\$33,779,565	\$71,487,332
	Indirect Effect	99	\$2,701,977	\$6,236,807	\$11,289,942
	Induced Effect	83	\$2,114,888	\$5,505,609	\$9,250,963
	Total Effect	1,434	\$27,665,677	\$45,521,982	\$92,028,237
Multnomah	Direct Effect	50,246	\$1,459,144,568	\$2,484,830,768	\$6,620,889,423
	Indirect Effect	12,506	\$745,340,943	\$1,134,603,947	\$2,084,173,133
	Induced Effect	10,691	\$495,845,013	\$836,770,063	\$1,416,207,724
	Total Effect	73,444	\$2,700,330,524	\$4,456,204,778	\$10,121,270,279
Washington	Direct Effect	24,509	\$648,621,692	\$1,068,428,464	\$2,723,777,121
	Indirect Effect	3,676	\$181,982,257	\$302,152,327	\$514,207,095
	Induced Effect	3,610	\$155,720,917	\$280,449,860	\$451,070,481
	Total Effect	31,795	\$986,324,866	\$1,651,030,651	\$3,689,054,697
Yamhill	Direct Effect	7,223	\$200,958,988	\$347,355,017	\$1,128,664,994
	Indirect Effect	1,063	\$33,702,756	\$53,250,128	\$97,650,022
	Induced Effect	876	\$28,843,554	\$58,020,974	\$98,747,666
	Total Effect	9,163	\$263,505,298	\$458,626,118	\$1,325,062,681

The tax revenue impacts can also be deconstructed by county. Fiscal impacts on both the state government and the local government levels are generally proportional to the size of the food industry in each county. However, tax contribution and impact depend on the particular sector of food industry and their ownership and usage of physical capital (e.g., manufacturing facilities, land or factories) relative to human capital (e.g., employees).

Table V.4: Food Economy Tax (Fiscal) Impact by County – Clackamas, Columbia, Multnomah, Washington and Yamhill Counties

	Clackamas	Columbia	Multnomah	Washington	Yamhill
Oregon State					
State Personal and Corporate Income Taxes	\$34,055,488	\$920,090	\$78,587,917	\$37,029,686	\$9,358,554
Other State Taxes, fees, and licenses	\$80,176,256	\$3,076,372	\$203,002,617	\$74,682,208	\$20,786,421
Total	\$114,231,744	\$3,966,462	\$281,590,534	\$111,711,894	\$30,144,975
Local Governments					
Property Taxes	\$104,735,608	\$4,061,372	\$265,777,701	\$96,621,951	\$26,935,542
Other Local Taxes, Fees, and Licenses	\$943,871	\$25,605	\$2,094,994	\$1,013,347	\$249,902
Total	\$105,679,479	\$4,086,977	\$267,872,695	\$97,635,298	\$27,185,444

The food industry can be classified into Distribution, Processing, Production, and Services. The economic impacts of these food industry sectors are summarized below. Unsurprisingly, most of food industry employment is concentrated in Services, with 72,305 people directly employed in this sector and 96,127 total employed. The second largest group of employment exists in the Processing sector which includes 10,822 direct employees and 35,431 total employees.

Table V.5 below details the input-output analysis multipliers for employment, labor income, total value added, and output by food industry sector. These multipliers represent a way of characterizing the total regional impact (including direct, indirect, and induced impacts) of an additional amount of direct contribution by the food industry to the overall state economy. For example, the multiplier of 1.88 within the Distribution sector means that for every job directly supported in the sector, an additional 0.88 jobs are supported through indirect and induced activity. The output multiplier of 1.58 in the Distribution sector means that for every dollar of output directly within the sector, an additional \$0.58 of output is generated through indirect and induced activity in the state. While most of the multipliers reported are between 1 and 2, we observe relatively high multipliers for employment, labor income, and total value added in the Processing sector, whereas the Services sector tends to have a relatively lower employment multiplier compared to other food industry sectors.

Table V.5: Food Industry Economic Impact by Industry Sector – Distribution, Processing, Production and Services

	Impact Type	Employment	Labor Income (millions)	Total Value Added (millions)	Output (millions)
Distribution	Direct Effect	9,629	\$615	\$1,203	\$1,938
	Indirect Effect	3,358	\$181	\$275	\$459
	Induced Effect	5,084	\$227	\$392	\$666
	Total Effect	18,071	\$1,022	\$1,870	\$3,062
Processing	Direct Effect	10,822	\$480	\$946	\$5,493
	Indirect Effect	16,089	\$849	\$1,334	\$2,838
	Induced Effect	8,520	\$381	\$657	\$1,116
	Total Effect	35,431	\$1,709	\$2,936	\$9,447
Production	Direct Effect	11,005	\$326	\$540	\$1,050
	Indirect Effect	3,548	\$134	\$181	\$347
	Induced Effect	2,910	\$130	\$224	\$381
	Total Effect	17,463	\$589	\$946	\$1,778
Services	Direct Effect	72,305	\$1,549	\$2,256	\$4,306
	Indirect Effect	10,579	\$538	\$899	\$1,641
	Induced Effect	13,243	\$592	\$1,021	\$1,734
	Total Effect	96,127	\$2,679	\$4,176	\$7,681

Table V.6: Food Industry Multipliers by Industry Sector – Distribution, Processing, Production and Services

	Employment	Labor Income	Total Value Added	Output
Distribution	1.88	1.66	1.55	1.58
Processing	3.27	3.56	3.10	1.72
Production	1.59	1.81	1.75	1.69
Services	1.33	1.73	1.85	1.78

VI. Conclusion

There is growing attention and interest on the part of planning agencies and public officials in better understanding the dynamics of local food economies. The motivations include concerns for public health and food security, the impacts of climate change on food systems and the livelihoods of food producers, and its contribution to a healthy and dynamic regional economy. In addition, there is a recognition that food is more than just a means to sustain life; it is also an important part of the history and culture of our communities. By better understanding the way in which the food economy has grown and changed in recent years, we can develop more effective tools to foster its vitality and expand its benefits in the future.

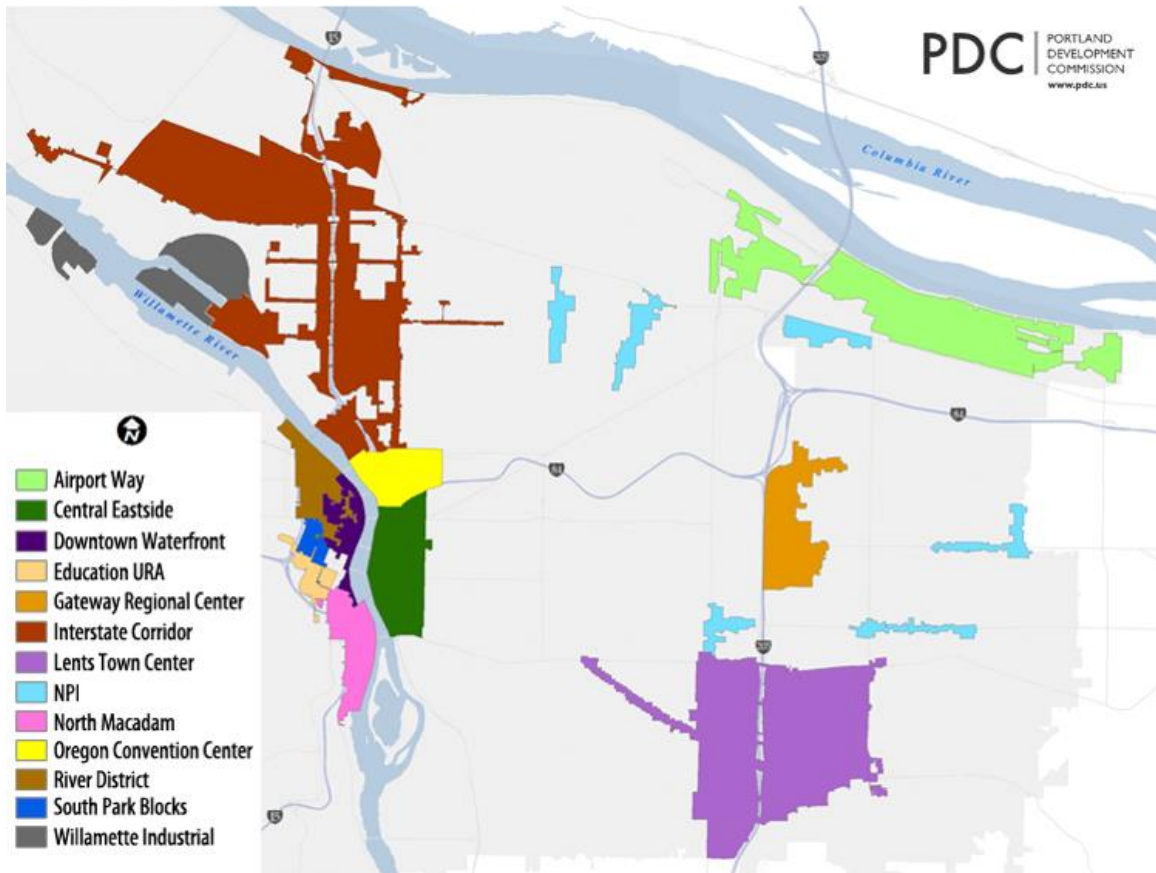
In this report we have analyzed important trends in the food economy of the city of Portland and the Portland metropolitan region. Overall, we conclude that the Portland region is blessed with a diverse and robust food economy, one that reflects its heritage and geographical endowments as a site of rich agricultural land and production; Portland's strategic location as a processing and distribution hub; and its status as a destination for an increasingly sophisticated array of urban dining and consumption opportunities. Compared with many regions of its size, Portland's food economy truly spans from farm to table.

Yet despite its impressive growth in employment in recent years, Portland's food economy has its challenges. The availability of industrial land in central locations within Portland has likely supported the growth of small-scale food processing and beverage companies who benefit from proximity to consumer markets; but increasing land prices may limit opportunities for new entrepreneurs. In addition, our analysis has shown that job quality in the food economy is a problem, especially within food production and food services; these sub-sectors, which disproportionately employ women and people of color, ultimately contribute to economic disparities within our city and our region.

This report poses as many questions as it does answers. Further work should explore in greater depth the factors that make Portland conducive to the creation and expansion of food economy businesses as well as what barriers exist and how they can be reduced, especially for marginalized and disadvantaged communities. Through strategic interventions in the areas of planning and economic development, the City of Portland and its partners can help support a local food economy that is even more robust, sustainable, and equitable.

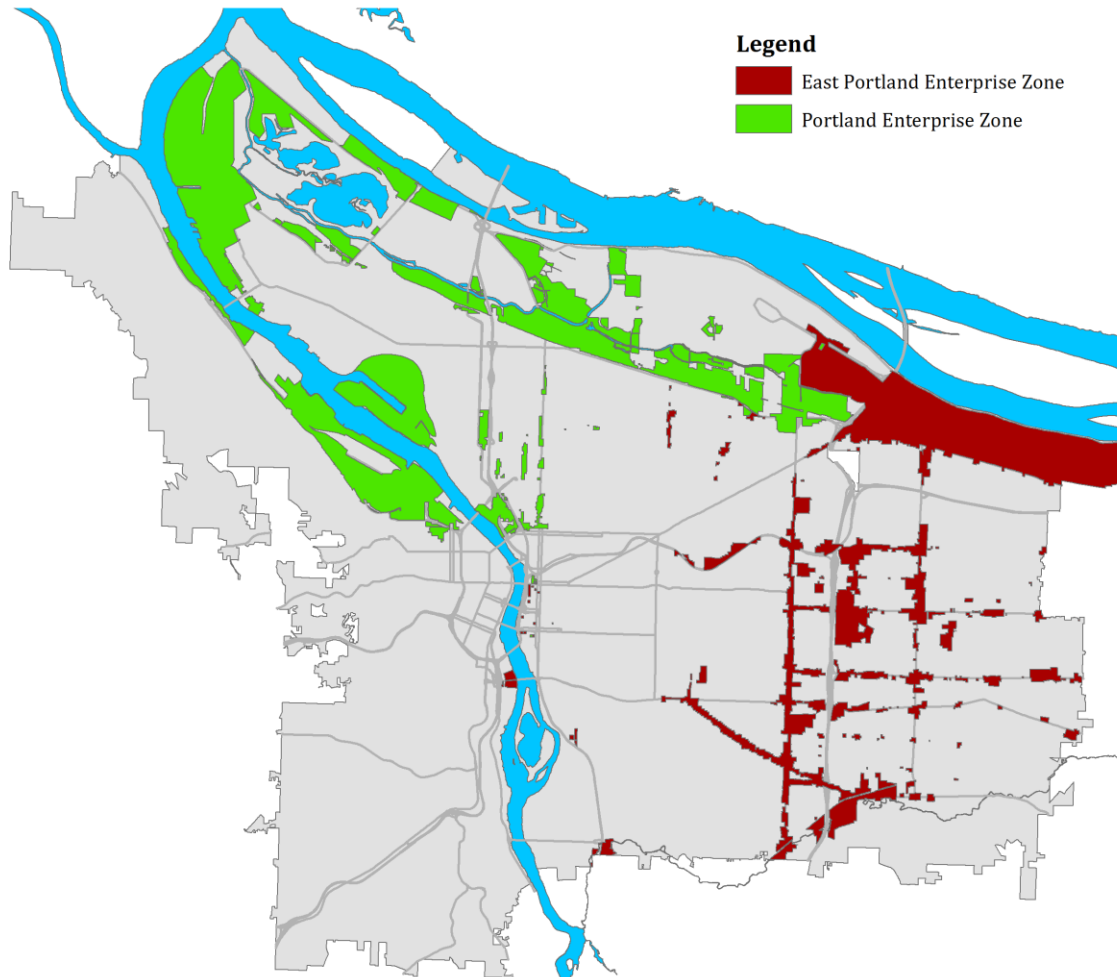
Appendix

Figure A1. Urban Renewal Areas, City of Portland



Source: Portland Development Commission

Figure A2. Enterprise Zones, City of Portland



Supplemental Data Tables

Table A1. Food Industry Employment by Typical Education and Training and Sector, Portland region, 2012

Ed/training level	Production	Processing	Distrib- ution	Services	Food Economy Total
Less than high school	64.1%	38.8%	32.0%	85.4%	74.3%
High school diploma or equivalent	31.5%	51.0%	49.0%	11.7%	20.5%
Postsecondary training (non-degree)	2.6%	2.8%	9.4%	1.7%	2.7%
Associate's degree	0.3%	0.5%	0.2%	0.0%	0.1%
Bachelor's degree or higher	1.4%	6.9%	9.4%	1.0%	2.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Oregon Employment Department, Occupational Employment Statistics program. Data is for Clackamas, Multnomah and Washington counties only.

Table A2. Demographic and Socioeconomic Characteristics of Food Economy Workforce, Portland Region, 2010-12

	Production (%)	Processing (%)	Distribution (%)	Services (%)	Food Economy Total (%)	Pdx Metro Workforce Total (%)
Gender						
Male	75	63	82	48	56	54
Female	25	37	18	52	44	46
Race/ethnicity						
White, non-Hispanic	46	65	73	66	65	77
African-American	0	3	1	1	1	3
Hispanic, all races	52	22	18	20	23	10
Asian	1	8	7	10	8	7
Other, including American Indian and multi-racial	1	2	2	3	2	3
Persons of color total	54	35	27	34	35	23
Citizen/language status						
Non-US citizens	47	24	14	17	20	9
English not primary language	55	35	21	29	31	18
Low/no English proficiency	32	13	7	10	12	4
Economic status						
Household in poverty	15	11	5	14	13	7
HH in/near (<200% of) poverty	42	28	20	45	40	22
Has employer-provided insurance	37	72	78	48	53	73
Has any health insurance	54	80	83	62	65	84
Uninsured	46	20	17	38	35	16

Source: Authors' analysis of 2010-12 3-year American Community Survey Public Use Microdata Series.