Washington State Janitorial Workload Study

Appendix C:

Economic Scan of the Janitorial Services Industry in Washington State

SHARP Publication #102-57-2020

June 30, 2020

Safety & Health Assessment & Research for Prevention (SHARP) Program

Washington State Department of Labor & Industries

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This work was supported by the Washington State Legislature and by the Safety and Health Assessment & Research for Prevention (SHARP) Program at the Washington State Department of Labor and Industries.

Table of Contents

Tables

Figures

Economic Scan of the Janitorial Services Industry in Washington State

Executive Summary

The janitorial services industry in Washington State specializes in providing commercial cleaning services primarily to office buildings, public facilities such as restaurants, and healthcare facilities. In addition, in some districts, the cleaning of elementary and secondary schools is provided by contractors classified in this industry. In 2016, this industry had an annual payroll in Washington State of over $400 million (County Business Patterns, 2016). Almost 70% of this payroll was employed in the King-Snohomish-Pierce county region. According to Washington State Employment Security Department records, over 18,000 individuals worked within this industry in the second quarter of 2017 (Washington State ESD, 2017).

The majority of commercial cleaning work is performed by workers employed by specialized janitorial services firms who contract either directly with clients, or with a building management firm that provides a range of building management services to clients. An example of such an arrangement would be when a large software company—the “lead firm”—contracts with a building management firm to arrange for security, grounds keeping and cleaning services to be provided. In turn, the building management firm contracts with several separate vendors to supply these services. These vendors may be independent owner-operated firms or they may be franchised

outlets of a large branded janitorial service company. In the latter case, the right to provide cleaning services to the lead firm's premises is sold to a franchisee in exchange for an account purchase fee, a set percentage of the sales (i.e. royalties) as well as fees for management services (including marketing and contracting). In either case, it is only the janitorial services firm that hires and manages the workforce. They are also responsible for complying with all applicable wage/hour, occupational safety and health and environmental regulations.

The details of the cleaning contract, such as frequency, scope and performance standards to be met, are shaped first by negotiations between the lead firm and the building management firm before bids are solicited from vendors. Consequently, the firm that controls the worksite and determines the scope of the work—the lead firm—is separate from the firm that employs and supervises the workers.

This organizational structure, termed "fissured" or "outsourced", became widespread in the late 20th century as part of a broad set of organizational changes that saw large, multifunctional firms shed many "non-core" activities that had been performed in-house by the firm's own employees. These activities included human resource management, food services, security, grounds keeping, and janitorial services. The aim of this shift was to allow the firm to focus on its core production and sales functions. The benefits to the lead firm included a better ability to vary its size in response to demand fluctuations, to take advantage of scale economies in the purchase of services from specialized vendors, and to reduce labor costs for ongoing, non-core activities. The source of labor cost reduction arises from the fact that workers who are directly employed in a large multifunctional firm had both higher wages and better non-wage compensation than did

their counterparts working for small, specialized contract cleaning firms. Janitors working for large multifunctional firms would receive the same health care and retirement packages as did “core function” workers. By shedding these activities, lead firms could exclude such workers from participation in such benefits programs and convert a compensation and supervision issue into a single price to be settled by contracting with a vendor in a competitive market (Boden, Spieler, & Wagner, 2016; Weil, 2014). They also shed responsibility for bearing the costs of worker recruitment/retention for payment of any increase in workers’ compensation insurance due to worker injuries on-site. Empirical estimates of the wage reduction realized by firms that outsource such non-core activities range from 4-7% (Dube & Kaplan, 2010) to 15-17% (Berlinski, 2008). These studies also found that outsourced janitorial workers were much less likely to receive employer-sponsored health insurance coverage.

Small janitorial services firms contracting with clients in a competitive market with low barriers to entry for new start-ups are under significant pressure to keep costs low. If they are franchisees, they also must control costs while still following the franchisor’s required standards of performance as well as paying fees for royalties, management and any interest payments on capital borrowed from the franchisor. Such constraints on their revenues may result in a focus on production at the expense of reduced attention to compliance with standards for occupational safety and health as well as wage and hour rules. The purpose of this project will be to assess whether such pressures affect safety performance of janitorial services contractors, and how such performance may be improved.

The economic scan uses a variety of existing data sources to characterize the Janitorial Industry across Washington State. Descriptive demographic information was pulled from the American Community Survey of the U.S. Census Bureau. Industry and occupation classifications used throughout the scan were the Census Occupation code (4220), and the North American Industry Classification System (NAICS) code (56). Employment and earnings (including number of full-time equivalent employees (FTE) and headcount employment, number of firms, & hourly earnings for firms) were extracted for employers reporting hours in Washington Industrial Insurance Risk Class 6602-02 or 6602-03 and NAICS 561720. Where available, data were broken out geographically and reported for the following areas: Statewide, Puget Sound (Pierce, King, Snohomish, Thurston, Kitsap, Island, San Juan, Skagit, Whatcom and Mason counties), Metro (King, Snohomish, Pierce, Clark and Spokane counties) and for firms with Out-of-State headquarters. Additional employment and earnings data sources included the WA Dept. of Labor & Industries Workers' Compensation employer tables linked to earnings and headcount data from the Washington State Employment Security Department Quarterly Unemployment Insurance tables. Additional supporting data on hourly wages were extracted from the Bureau of Labor Statistics Occupational Employment Statistics (OES) program. National data showing the shift of janitorial employment towards a concentration within the janitorial services industry derived from OES tables for years 1997 through 2017.

Additional metrics examined were:

- Output Per Hour: the value of output of the services that are produced by a janitorial worker in an hour of work; tracked by the Bureau of Labor Statistics Office of Productivity and Technology.

- Worker Turnover: the percentage of a given firm's workforce that is replaced by new workers when comparing one year with the following year; using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey.
- Employer Survival: the percentage of employers active in a baseline year who are still active in the following year; using data from the WA Dept. of Labor and Industries industrial insurance databases for 2005 through 2018.
- Seattle-area Commercial Office Space Supply: information on the amount of office space was abstracted from market reports issued by a private commercial real estate brokerage for the Seattle regional market.

Conclusions

The janitorial services industry employs over 18,000 individuals and has a payroll of over $400 million in Washington State. Although janitorial work has always been low-wage, the outsourcing of janitorial work at firms across many industries has shifted most janitorial work to a large number of small, specialized janitorial contractors that compete to provide janitorial services to clients. This has led to a reduction in wages and benefits for janitorial workers. Janitorial work is precarious, with high turnover rates for both janitorial workers and janitorial service firms. Janitorial output per hour has been constant since 2002 and wage growth has tracked closely with the rate of inflation. The workforce is demographically diverse, with about 42% of individuals identifying as other than white/non-Latinx. Janitors working in the Puget Metro region earn higher wages than in rural regions. In recent years, the expansion of commercial office space in the Seattle area has outstripped the growth of the janitorial workforce. This may exert pressure to increase output per hour.

Introduction

The purpose of this overview of the janitorial services market is to obtain an understanding of the broader economic factors that condition the environment within which businesses and workers within the janitorial service industry interact and which have consequences for occupational safety and health. Factors affecting the janitorial services market include the shift from the use of in-house janitorial workers to the use of outside janitorial services contractors, the growth of franchising and the rapid expansion of commercial office space entering the Seattle-area market in recent years. These changes have affected the labor market for janitorial work by shifting from integrated employment within multifunctional enterprises, with opportunities for internal promotion, toward a low-wage/high turnover model within an industry characterized by a large and ever-changing number of small enterprises competing for cleaning contracts. In addition, the demographic profile of the janitorial workforce may affect the capacity of this workforce to resist unsafe working conditions.

Background

The janitorial services industry in Washington State specializes in providing commercial cleaning services primarily to office buildings, public facilities such as restaurants, and healthcare facilities. In addition, in some districts, the cleaning of elementary and secondary schools is provided by contractors classified in this industry. In 2016, this industry had an annual payroll in Washington State of over $400 million (County Business Patterns, 2016). Almost 70% of this payroll was employed in the King-Snohomish-Pierce county region. According to Washington State Employment Security

Department records, over 18,000 individuals worked within this industry in the second quarter of 2017 (Washington State ESD, 2017).

The majority of commercial cleaning work is performed by workers employed by specialized janitorial services firms who contract either directly with clients, or with a building management firm that provides a range of building management services to clients. An example of such an arrangement would be when a large software company—the “lead firm”—contracts with a building management firm to arrange for security, grounds keeping and cleaning services to be provided. In turn, the building management firm contracts with several separate vendors to supply these services. These vendors may be independent owner-operated firms or they may be franchised outlets of a large branded janitorial service company. In the latter case, the right to provide cleaning services to the lead firm’s premises is sold to a franchisee in exchange for an account purchase fee, a set percentage of the sales (i.e. royalties) as well as fees for management services (including marketing and contracting). In either case, it is only the janitorial services firm that hires and manages the workforce. They are also responsible for complying with all applicable wage/hour, occupational safety and health and environmental regulations.

The details of the cleaning contract, such as frequency, scope and performance standards to be met, are shaped first by negotiations between the lead firm and the building management firm before bids are solicited from vendors. Consequently, the firm that controls the worksite and determines the scope of the work—the lead firm—is separate from the firm that employs and supervises the workers.

This organizational structure, termed “fissured” or “outsourced”, became widespread in the late 20th century as part of a broad set of organizational changes that saw large, multifunctional firms shed many “non-core” activities that had been performed in-house by the firm’s own employees. These activities included human resource management, food services, security, grounds keeping, and janitorial services. The aim of this shift was to allow the firm to focus on its core production and sales functions. The benefits to the lead firm included a better ability to vary its size in response to demand fluctuations, to take advantage of scale economies in the purchase of services from specialized vendors, and to reduce labor costs for ongoing, non-core activities. The source of labor cost reduction arises from the fact that workers who are directly employed in a large multifunctional firm had both higher wages and better non-wage compensation than did their counterparts working for small, specialized contract cleaning firms. Janitors working for large multifunctional firms would receive the same health care and retirement packages as did “core function” workers. By shedding these activities, lead firms could exclude such workers from participation in such benefits programs and convert a compensation and supervision issue into a single price to be settled by contracting with a vendor in a competitive market (Boden et al., 2016; Weil, 2014). They also shed responsibility for bearing the costs of worker recruitment/retention for payment of any increase in workers’ compensation insurance due to worker injuries on-site. Empirical estimates of the wage reduction realized by firms that outsource such non-core activities range from 4-7% (Dube & Kaplan, 2010) to 15-17% (Berlinski, 2008). These studies also found that outsourced janitorial workers were much less likely to receive employer-sponsored health insurance coverage.

Small janitorial services firms contracting with clients in a competitive market with low barriers to entry for new start-ups are under significant pressure to keep costs low. If they are franchisees, they also must control costs while still following the franchisor's required standards of performance as well as paying fees for royalties, management and any interest payments on capital borrowed from the franchisor. Such constraints on their revenues may result in a focus on production at the expense of reduced attention to compliance with standards for occupational safety and health as well as wage and hour rules. The purpose of this project will be to assess whether such pressures affect safety performance of janitorial services contractors, and how such performance may be improved.

Sources & Methods

Demographics:

- Demographic information (share of employment by male/female, race/ethnicity, unionization, and age) is descriptive data extracted from the American Community Survey of the US Census Bureau.
- Occupational classification is by Census Occupation code (4220). Industry classification is by North American Industry Classification System (NAICS) code (56).

Employment and Earnings:

- Employment and earnings data are descriptive data. Full-Time Equivalent employees (FTE) and headcount employment, number of firms, and hourly earnings were extracted for firms reporting hours in Washington Industrial Insurance Risk Class 6602-02 or 6602-03 and NAICS 561720.

    - Data were broken out geographically and reported for the following areas: Statewide, Puget Sound (Pierce, King, Snohomish, Thurston, Kitsap, Island, San Juan, Skagit, Whatcom and Mason counties), Metro (King, Snohomish, Pierce, Clark and Spokane counties) and for firms with Out-of-State headquarters.
- Primary data sources used were the WA Dept. of Labor and Industries (L&) workers' compensation (WC) employer data linked to earnings and headcount data from Washington State Employment Security Department Quarterly Unemployment Insurance database.
- Additional supporting data on hourly wages were extracted from the Bureau of Labor Statistics Occupational Employment Statistics (OES) program.
    - National data showing the shift of janitorial employment towards a concentration within the janitorial services industry was also derived from OES data tables for years 1997 through 2017.

Output per Hour:

- Output per hour is defined as the value of output of the services that are produced by a janitorial worker in an hour of work. This is tracked by the Bureau of Labor Statistics Office of Productivity and Technology. Data are available at the national level for most NAICS industries, and we compare productivity trends in janitorial services to those in another labor-intensive and low-wage industry: full-service restaurants.

Worker Turnover:

- Worker turnover is defined as the percentage of a given firm's workforce that is replaced by new workers when comparing one year with the following year. The formula used was adopted from that of the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey, and applied to firms in the janitorial

services industry at three different time periods: pre-Great Recession (2006-2007); Great Recession (2010-2011) and Post-Recession (2017-2018).
    - Eligible employers included any “active” firms reporting employment in BOTH industrial insurance risk class 6602-03/05 AND NAICS 561720.
    - "Active" is defined as employing at least 1 FTE and having total payroll greater than zero.
- We also compared worker turnover in the janitorial services industry, using the same definitions, to that in three other industries considered similar in terms of wage or educational requirements: Security Guards, Landscaping, and Residential Framing.

Employer Survival:

- Defined similarly to worker turnover, this measure tracks the percentage of employers active in a baseline year who are still active in the following year. Data were extracted from the L&I industrial insurance databases for 2005 through 2018.
    - Eligible employers included any “active” firms reporting employment in BOTH industrial insurance risk class 6602-03/05 AND NAICS 561720.
    - "Active" is defined as employing at least 1 FTE and having total payroll greater than zero.
- As with worker turnover, we looked at survival rates for employers in landscaping, housekeeping services, and residential framing. We also compared survival rates across a variety of time intervals, from 1-year to 10-year intervals. Finally, we compared employer survival rates across time by employer size categories.

Seattle-area Commercial Office Space Supply:

- Information on the amount of office space was abstracted from market reports issued by a private commercial real estate brokerage for the Seattle regional

market—an area that encompasses King, Pierce and Snohomish counties—as well as for King County submarkets. The growth in this supply from 2013-2018 was calculated and compared to the growth of janitorial employment in the Seattle and regional markets, defined by FTE and headcount of workers.

- FTE data are drawn from the L&I industrial insurance databases and defined as employed in risk classes 6602-03 or 6602-05 and in NAICS industry 561720.
- Headcount data are drawn from the Bureau of Labor Statistics Occupational Employment Statistics (OES) program and defined as total individuals employed in SOC 37-2011 in any NAICS industry.

Results

Demography

- Workers of Hispanic/Latinx ethnicity are over-represented amongst Janitorial Services.
- Janitorial Services workers have a lower average level of education than other occupations.

Table 1 describes the demographic profile of the janitorial services workforce across all industries in the US as a whole for 2017 as reported by respondents to the American Community Survey of the Census Bureau (American Community Survey, 2017). It also compares these characteristics with those of the workforce in all occupations combined. The contrast is evident; as compared to the workforce as a whole, the janitorial workforce is older, more likely to be male, and has a higher proportion of Black/African-American or Hispanic/Latinx workers than is the case for all occupations combined. Workers of Asian ethnicities are under-represented in janitorial services. Janitors are

slightly less likely to be union members, but it is important to note that this data covers janitorial workers in all industries combined. Given the large fraction of public-sector workers covered by union contracts, we would expect a lower percentage of janitorial workers in the private sector would be represented by unions.

Table 1: Demographic Characteristics of the Janitorial Workforce vs All Occupations, United States, 2017.

	Share of Employment (%)	
	Janitorial	All Occupations
Female	35.2	46.9
White	72.5	78.4
Black/African-American	18.6	12.1
Asian	3.8	6.2
Hispanic/Latinx	31.7	16.9
Union represented	10.1	11.9
Median Age	47.7	42.2

Source: American Community Survey, 2017. Census Occupation Code 4220, ANY industry

Table 2 presents a more detailed demographic profile for Washington State janitorial services workers as compared to the United States as a whole. This table also compares workers in janitorial services to workers in all occupations combined, both in Washington State and in the US as a whole.

Note that in Table 2 only janitorial workers in the Administrative and Support, Waste Management and Remediation Services sector (NAICS 56), are included. This excludes janitors in schools, hospitals and public administration, and is more representative of the workforce found in the contract janitorial services industry that has become predominant in the office-cleaning industry since the 1980s. As compared to workers in all occupations combined, the janitorial workforce is much more likely to be

Hispanic/Latinx. It is also somewhat more likely to be Black/African-American. In Washington State, a higher proportion of janitors are Asian than in the workforce as a whole. As compared to the overall workforce, workers in the janitorial services industry

Table 2: Demographic Characteristics of Janitorial Workers vs All Occupations, Washington State vs United States, 2006-2010.

	Share of Employment (%)			
	Washington State		**United States**	
	Janitors	**All Occupations**	**Janitors**	**All Occupations**
Female	45.1	46.6	46.0	47.2
White, non-Hispanic/Latinx	58.0	75.9	39.7	67.0
Hispanic/Latinx (any race)	23.9	9.3	40.1	14.6
Asian	8.3	7.3	2.4	4.8
Black/African-American, non-Hispanic/Latinx	5.4	3.2	15.9	11.3
Other	4.3	4.3	1.9	2.3
Education				
Less than high school	23.3	9.1	29.3	11.0
High school	38.8	22.3	43.3	26.6
Some college/associate	31.5	35.9	22.7	31.8
Bachelor's degree	5.4	21.1	3.9	19.7
Graduate/Professional	1.0	11.5	0.8	11.0

Source: American Community Survey, Five-Year Tabulation, 2006-2010. Occupation 4220 within NAICS 56. "Other" includes Native Hawaiian, American Indian/Native Alaskan, and individuals of two or more races/ethnicities.

have lower levels of educational attainment. Over 62% of such janitorial workers have a high school degree or less, as compared to 31% of workers overall.

In comparison with the United States as a whole, janitorial workers in Washington State are more likely to be white/non-Hispanic or Asian, and less likely to be Hispanic\Latinx

or Black\African-American. They are also more likely to have a higher level of education: 38% of Washington State janitorial workers have at least some post-secondary education, as compared to only 27% of janitorial workers in the US as a whole.

Employment and Earnings of Workers in Janitorial Services[1]

- Janitors working in the Puget Metro region earn higher wages than in rural regions.
- Over three-quarters of janitorial services firms employ fewer than 10 workers.

The number of firms active in janitorial services at any given time can vary depending upon how one defines the industry. We define the industry as including all businesses employing at least one FTE worker per quarter employed within the risk classes assigned to janitorial work.[2] Because we focus on the commercial cleaning industry, we include only the portion of the janitorial workforce that is employed for firms classified as belonging to the Janitorial Services industry (North American Industrial Classification System Code NAICS 561720). For the second quarter of 2017, the following table describes total employment, median employment per firm (FTE), earnings per FTE and earnings per hour for janitorial workers.

For the whole of Washington State, the median hourly wage was $13.95 per hour, with half of all workers earnings between $12.34 and $17.08 per hour. Table 3 also shows

[1] Data on employment and earnings in this report include only those workers in a formal employment relationship. Therefore, janitorial workers classified as “self-employed”, or who work in the underground economy, are excluded.
[2] Washington State’s Industrial Insurance risk classification class 6602-02 or 6602-03.

that the typical firm in this industry is very small, with half of firms employing between 2 and 10 full-time-equivalent workers, and with total FTEs in these active firms at 7,750.

We expected that firm size, and worker earnings, would vary depending upon geographic location of the firm.

Table 3: Washington State total FTE employment, number of active firms, employment per firm, and earnings, Janitorial Services,

Account HQ	Total FTE Employment	Number of Firms	Median FTE employment per firm (Q1, Q3)	Median Hourly Earnings per FTE (Q1, Q3)
Statewide	7,750	580	3.67 (2.0, 9.9)	$13.95 ($12.34, $17.08)
Puget	4,615	350	3.53 (2.0, 9.8)	$15.14 ($12.86, $18.50)
Metro	4,655	345	3.76 (2.0, 10.0)	$15.04 ($12.76, $18.19)
Puget Metro	4,173	281	3.71 (2.0, 10.5)	$15.78 ($13.23, $19.17)
Puget Non-metro	443	69	3.32 (2.2, 7.2)	$13.15 ($11.78, $15.26)
Other Non-metro	521	96	3.25 (2.0, 6.1)	$12.85 ($11.68, $15.06)
Out-of-state	2,131	70	8.13 (2.6, 26.1)	$13.74 ($12.18, $16.77)

[1] At firms with FTE greater ≥ 1 and total earnings > $0. Q1 and Q3 are first and third quartiles. Data from L&I workers compensation database.

This expectation was borne out. As Table 3 shows, firms in the Metro region (King, Pierce, Snohomish, Clark and Spokane counties) were larger than firms outside these areas *(mean size=14.9 vs 6.3 FTE; p <0.05).* Firms in counties bordering Puget Sound were also larger. Firms with account headquarters outside of the state (n=70) were the largest of all. Their median size was 8.1 FTE vs 3.67 FTE for all in-state firms. This may

reflect the presence of national-scope janitorial services firms with multiple branch locations in the state. The level of income paid to janitorial workers followed the same pattern: highest hourly wages were those paid in the Puget Metro area (King, Pierce and Snohomish counties), while the lowest hourly wages were those reported for non-metro counties outside the Puget Sound area. The hourly wage in the Puget Metro region was nearly 23% higher than that for the rural counties.

As the employment data shows, the number of FTEs working statewide in janitorial services in 2017, second quarter was 7,750 (see Table 3). However, this gives an incorrect impression of the total number of individual workers managed by the typical firm in that time period. This is due to the high rate of worker turnover and the low number of hours worked per quarter by the typical worker. When we extracted all individual workers identified as employed for at least one hour of work during the quarter from the Employment Security Department database, the following picture emerges:

Table4: Washington State total headcount employment, number of active firms, employment per firm, and earnings, Janitorial Services, 2017Q2[1]

Total Headcount Employment	Number of Firms	Median headcount employment per firm (Q1, Q3)	Median Quarterly Earnings per Head (Q1, Q3)	Median Hourly Earnings per Head (Q1, Q3)
18,070	1,417	4.33	$4,228	--
		(2.0, 10.3)	($2,531, $6,365)	--

[1] At firms with FTE greater ≥ 1 and total earnings > $0. Q1 and Q3 are first and third quartiles. Data from ESD Quarterly Unemployment Insurance database. Earnings per head were not available in QUI data.

The number of individual workers who at some point in the second quarter of 2017 worked for a janitorial services firm was 18,070. This is almost triple the FTE-based estimate. Note as well that the number of firms with at least one individual working in the quarter is also much higher than when we used the FTE measure as a threshold to define “active firm”. Both of these differences highlight the amount of turnover both of workers and firms, especially among the very small-sized firms in the industry. Median headcount per active firm is 4.33. Once again the size of firms and the quarterly earnings per worker in the metro regions were statistically significantly greater than those in rural areas, with a difference in earnings of 25%. Janitorial workers in the Puget Metro counties received total earnings per worker nearly 38% greater than their peers working in the rural counties of the state.

Another view of the geographic variation in janitors’ hourly wages can be seen from the Bureau of Labor Statistics Occupational Employment Statistics data for 2017 (BLS, 2017) (Table 5).

Table 5: Wages Across Washington State Urban Geographic Regions, Janitors vs All Occupations.

	Median Hourly Wage		Janitors' Wage as % of All Occupations
	All Occupations	Janitors	
National	$ 18.12	$ 12.02	66%
WA State	$ 21.36	$ 15.08	71%
Seattle/Bellevue/Everett	$ 24.30	$ 15.07	62%
Tacoma/Lakewood	$ 19.79	$ 16.39	83%
Spokane Valley[3]	$ 18.03	$ 14.11	78%
Urban Regional Wage Variation, Janitors vs All Occupations			

[3] Spokane Valley is defined as Spokane, Stevens and Pend Oreille counties.

	All Occupations	Janitors
WA State	100	100
Seattle/Bellevue/Everett	114	100
Tacoma/Lakewood	93	109
Spokane Valley	84	94

The first part of Table 5 shows median hourly wage by national, statewide and selected urban geographies. This shows that, at the national level, janitors' wages are about 66% of that of all occupations combined. In Washington State as a whole, janitors' wages are somewhat higher relative to all occupations, ranging from a low of 62% of all occupations in the Seattle/Bellevue/Everett region to a high of 83% of all occupations in the Tacoma/Lakewood region. These two endpoints reflect both the difference in occupational mix of these two regions, with Tacoma having a more working class character, and the perhaps surprising fact that janitors' median wages in the Tacoma/Lakewood area are higher than in the Seattle region. The second part of Table 5 shows how janitors' wages vary across the state as compared to all occupations. Median wages for all occupations combined show a regional range from a premium of 114% of the statewide median in the Seattle region to a low of 84% in the Spokane area. For janitors, this regional variation is more compressed, ranging from 109% in Tacoma to 94% of the median statewide wage in the Spokane area. Again, janitors in the Seattle region do not seem to share in that area's relatively high wages for other occupations.

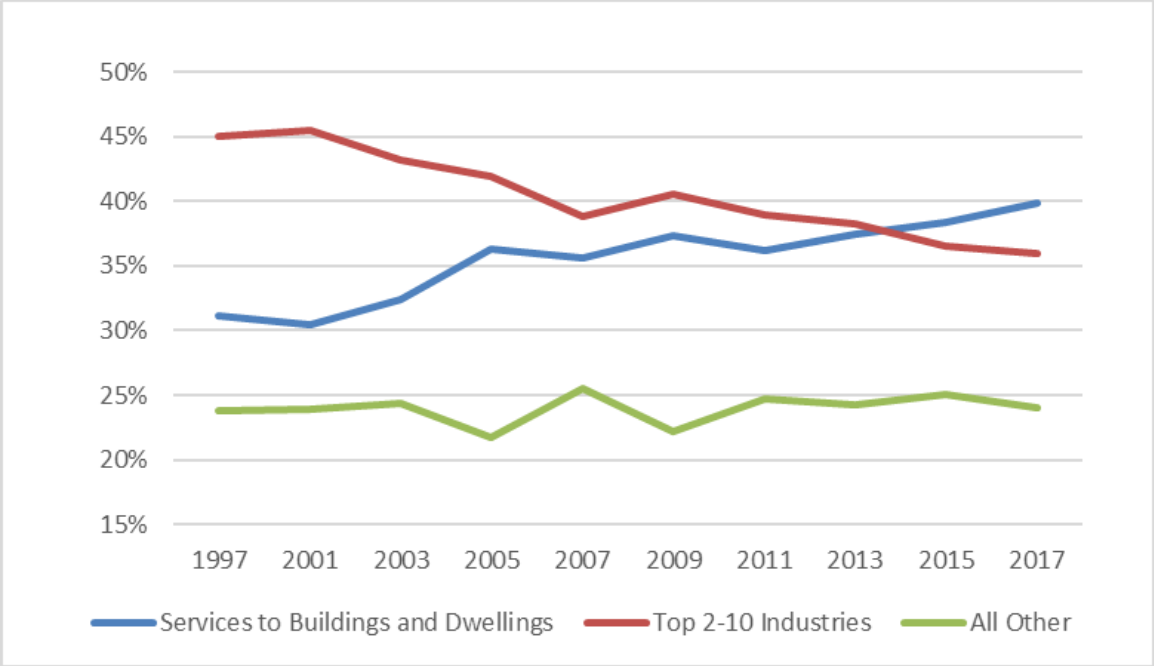
National Data on Trends in Employment, Wages and Demographics in Janitorial Services.

- Janitorial work has been become concentrated within the Janitorial Services industry.
- Local and state governments have outsourced janitorial work to the Janitorial Services industry.
- Private sector janitorial services workers are paid a substantially lower wage than public sector janitorial workers.

Weil (2014) and others have noted that janitorial work, along with landscaping, security and payroll administration, is among the functions that once were performed largely within firms across many industries. For example, employers in industries as diverse as manufacturing and retail once employed janitorial workers directly. The advantages of such arrangements, such as having the ability to deploy such workers directly, began to erode as the costs of transacting with outside firms for such staff decreased. At the same time, it became apparent that by doing so, the host firm could also exchange the allied costs of employment, such as human resource management, health insurance, taxes and absenteeism losses, for a single price paid to an outside vendor. Frictionless adjustment in the labor force would allow for better alignment with shifting levels of demand for the firm's output. National data on the share of janitorial employment by industry supports the view that such an outsourcing away from integrated employment of janitors and toward the contract janitorial services industry has happened. Figure 1 shows the share of janitorial employment by three-digit NAICS industry since 1997. As the figure shows, the share of all janitorial employment accounted for by the janitorial services industry has grown steadily from 30% to 40% over the period from 1997 to

2017. This change has come largely at the expense of a declining share of janitorial employment in the next largest janitor-employing industries. Among these are Elementary/Secondary Schools, Real Estate, Local Government (excluding schools), Colleges, and General Medical/Surgical Hospitals. Note that the share of all janitorial employment outside of the top ten janitor-employing industries has been quite stable at 23-25%. As of 2017 more janitors were working for a contract janitorial services firm than at the next ten largest industries combined.

Figure 1 Share of National Janitorial Employment by Industry, 1997-2017

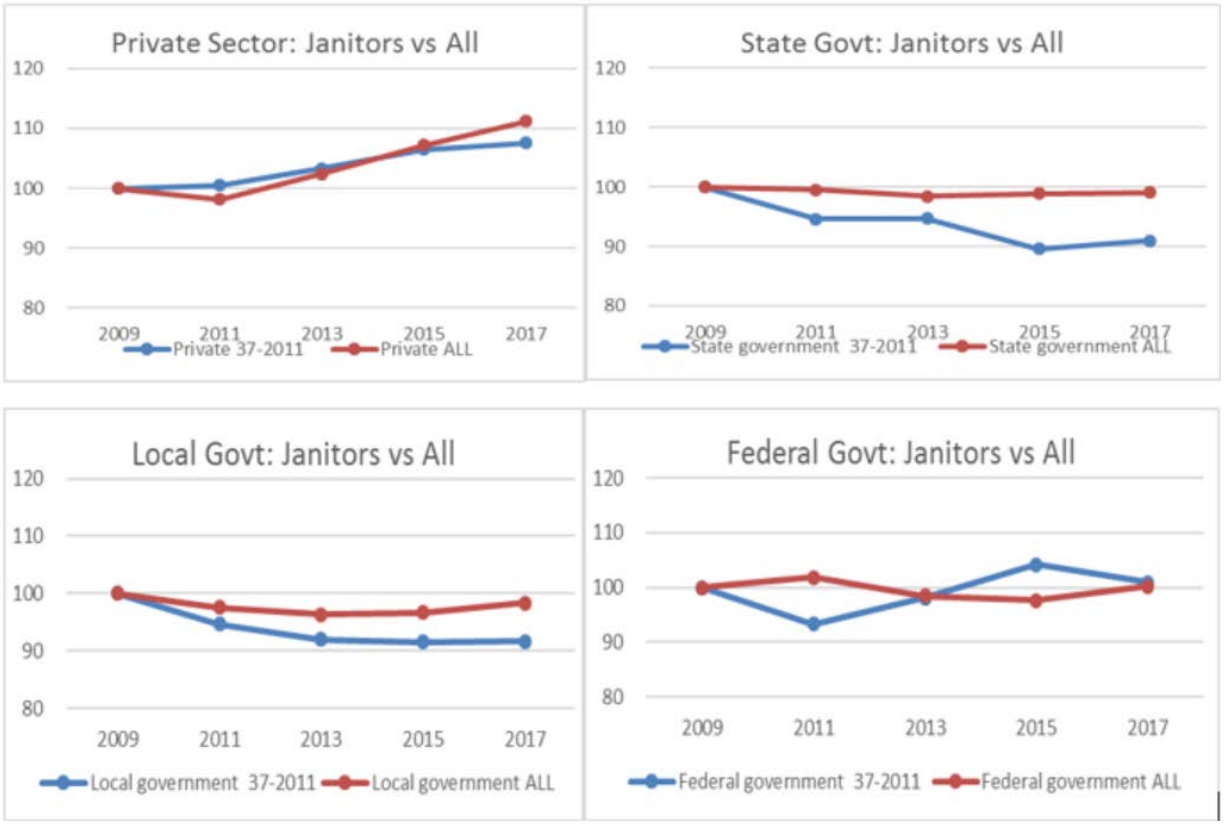


Source: Occupational Employment Statistics (Bureau of Labor Statistics). SOC 37-2011 employment share by 3-digit NAICS industry.

Since the second largest employer of janitorial workers is Elementary/Secondary Schools, a public sector industry, the trend seen in Figure 1 should lead us to expect that there would also be a decreasing level of employment of janitors in the public sector and a rising level of employment in the private sector. This is in fact the case, as

can be seen in Figure 2. Within both state and local government we see a decreasing level of janitorial employment over this time period, even though overall employment was constant. It should be borne in mind that in many of these public sector jurisdictions, the workforce is unionized. As janitorial work is outsourced to private sector vendors in a competitive market, workers' opportunity to affect working conditions, including safety and health, may be reduced.

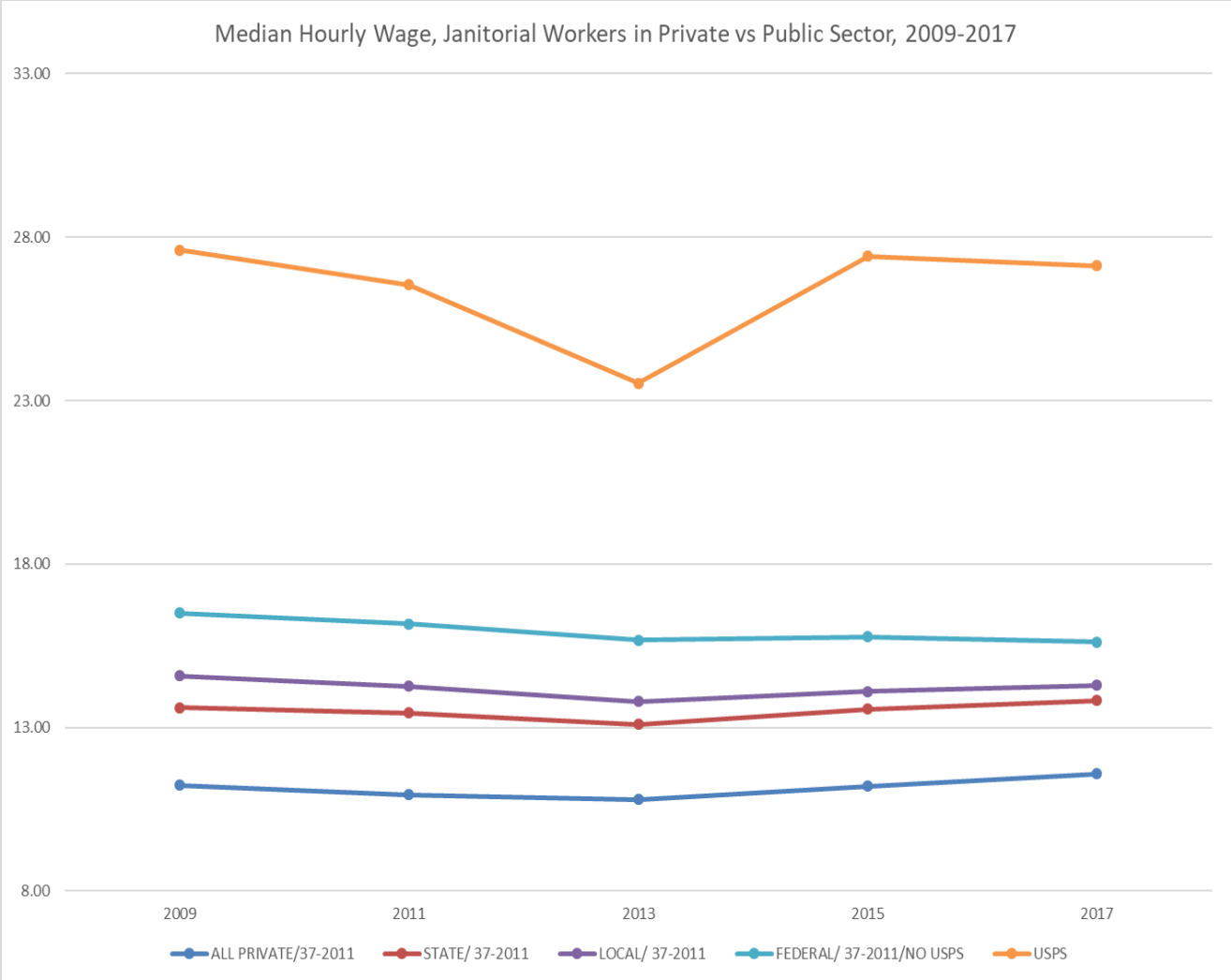
Figure 2 Time trend of janitorial employment vs overall employment, by employer status



Source: Occupational Employment Statistics (Bureau of Labor Statistics).

It is certainly the case that outsourcing peripheral functions such as janitorial work can be a cost-saving decision for large public-sector agencies such as public school districts and local governments.

Figure 3 Time trend of janitorial wage rates in private versus public sector entities, 2009-2017



Source: Occupational Employment Statistics (Bureau of Labor Statistics).

Figure 3 shows median wage rates at the national level for janitorial workers in the private versus all three levels of the public sector from 2009 through 2017, with the federal sector broken out between United States Postal Service (USPS) workers and all other federal agencies. Workers employed directly by the federal government apart form

the USPS as part of the federal civil service earn a median hourly wage of almost $16 per hour (2017 $). Workers doing janitorial tasks for the USPS, with a separate union contract, earn a substantially higher median wage of about $27 per hour. State and local government janitorial workers earn roughly $14 per hour. This is in contrast to private sector janitorial wage rates of less than $12 per hour. This gap in earnings is an underestimate of the true difference in compensation levels between public- and private-sector janitorial workers since private sector janitorial workers are much less likely to receive benefits such as paid sick leave, health insurance or retirement benefits from their employer. All of these benefits are commonly offered for public sector workers. In addition, levels of union representation are much higher among public sector janitorial workers than for their peers in the private sector, which may give such workers greater voice in setting working conditions such as work schedules and safety.

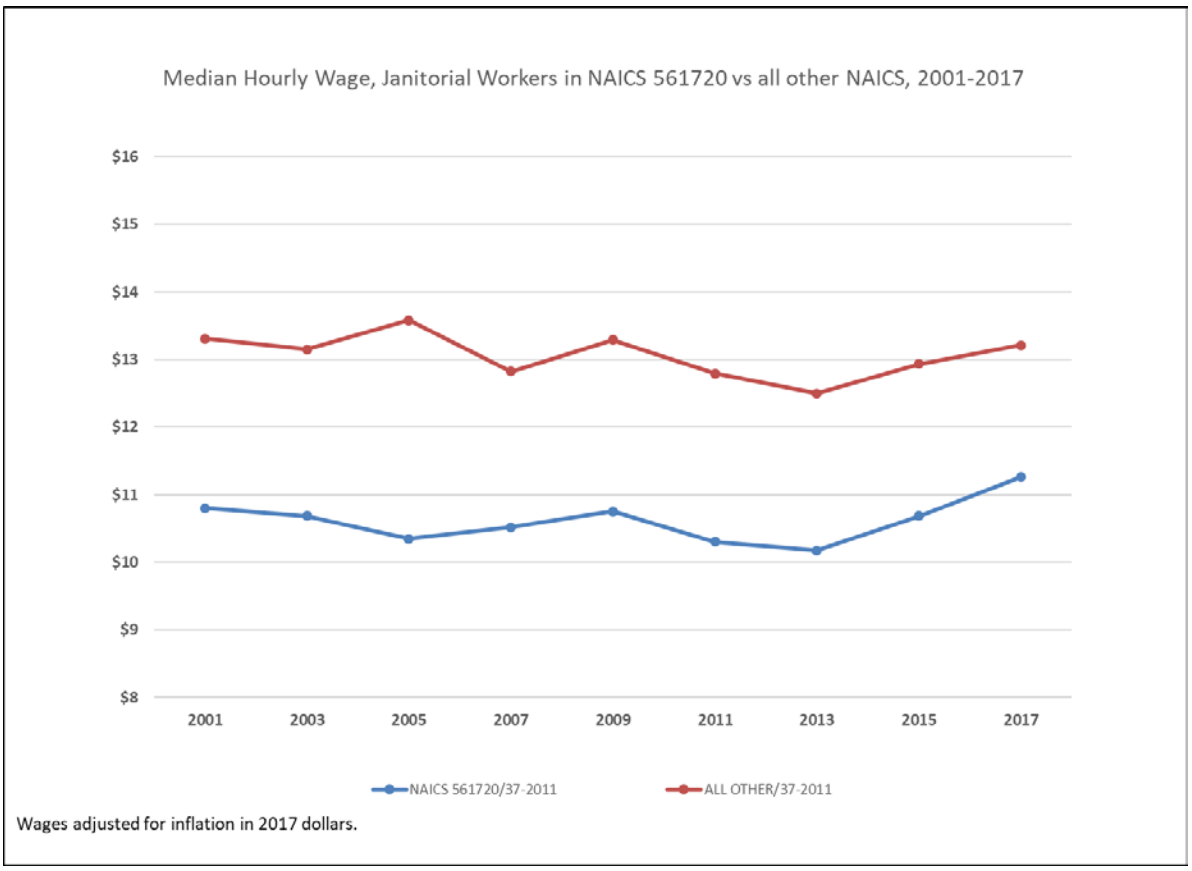
Wage Deficit in Contract Janitorial Services Industry vs Janitors in other Industries

- Median hourly wages for janitorial workers in NAICS 561720 are lower than for janitorial workers in all other NAICS industries.
- Causes: shared gains in integrated firms; lack of union representation in janitorial services

The effect of wage compression inside a large, integrated firm would imply that wage levels for janitorial workers in industries other than the contract janitorial services industry should be higher. Within an organization, concerns over equity and morale across different segments of the workforce often lead to a flattening of differences in pay levels across job categories. For example, if technological change in one job

category within an integrated manufacturing firm leads to an increase in productivity, that does not mean that the benefits of the gain are confined to wage increases for workers only in that job category. Such gains tend to be shared across the organization. Over time, this can result in janitorial workers inside an integrated manufacturing firm being paid a substantial premium over the wage levels of janitorial workers in a specialized janitorial contract firm where productivity increases are slow. As this premium grows, it creates an incentive among the large integrated firms to shed these non-core functions to outside vendors in order to reduce costs, and to be able to raise wages of their core workers in step with productivity increases (Dube and Kaplan, 2010). To test the degree to which outsourcing of janitorial work could result in labor cost reduction we analyze median wage data for janitors working in the janitorial services industry (NAICS 561720) as compared to janitors working within establishments in other industries such as education, retail, manufacturing or healthcare.

Figure 4 Difference between Hourly Earnings of Janitorial Workers in NAICS 561720 vs All Other NAICS, 2001-2017



Source: BLS Occupational Employment Statistics program

The results, in Figure 4, show that janitorial workers in the contract janitorial services industry earn a median hourly wage that varies between 76% and 85% of the wage of their counterparts working in all other industries. A large part of this difference is driven by the existence of substantially higher wages in the public sector NAICS industries, as Figure 3 showed. However, even when we compare the contract janitorial services

sector with private sector establishments in all other industries, a difference of about 5-8% remains.

Trends in Labor Productivity in Janitorial Services

- Output per hour for janitorial services workers has not grown since 2002.
- Wage growth has kept pace with inflation

One way to measure the change in the overall pace of work in an industry, at a very aggregate level, is to simply track the value of output of the goods or services that are produced by a worker in an hour of work. This is one of several measures gathered by the BLS/BEA productivity program. Data are available at the national level for most NAICS industries apart from construction and the public sector. Figure 5 and Figure 6 show, respectively, labor productivity (indexed at 2007=100) in janitorial services as compared to full-service restaurants, and labor productivity as compared to hourly earnings for janitorial workers.

The trend in productivity for janitorial workers was increasing fairly rapidly in the period from 1987 through 2003, after which the value of output per hour of work has remained flat (Figure 5). This is in contrast to the profile for restaurant work, which has a much more gradual rise in productivity.

Compensation for janitors has tracked closely the rate of the rise in productivity, though with a more rapid rise in the years of economic recovery from the Great Recession (Figure 6).

It is impossible to judge, given only the data here, whether the increase in productivity is a by-product of the outsourcing of janitorial work to competitive contract janitorial firms. It is possible that such a change could have resulted in an increase in worker load as represented by an increase in output per hour of work. On the other hand, if technological change occurs in the sense that janitors are being equipped with more efficient tools, output per hour could rise without a rise in physical load for the janitor.

Figure 5 Output per hour Worked, Janitorial Services vs Restaurants, 1987-2016

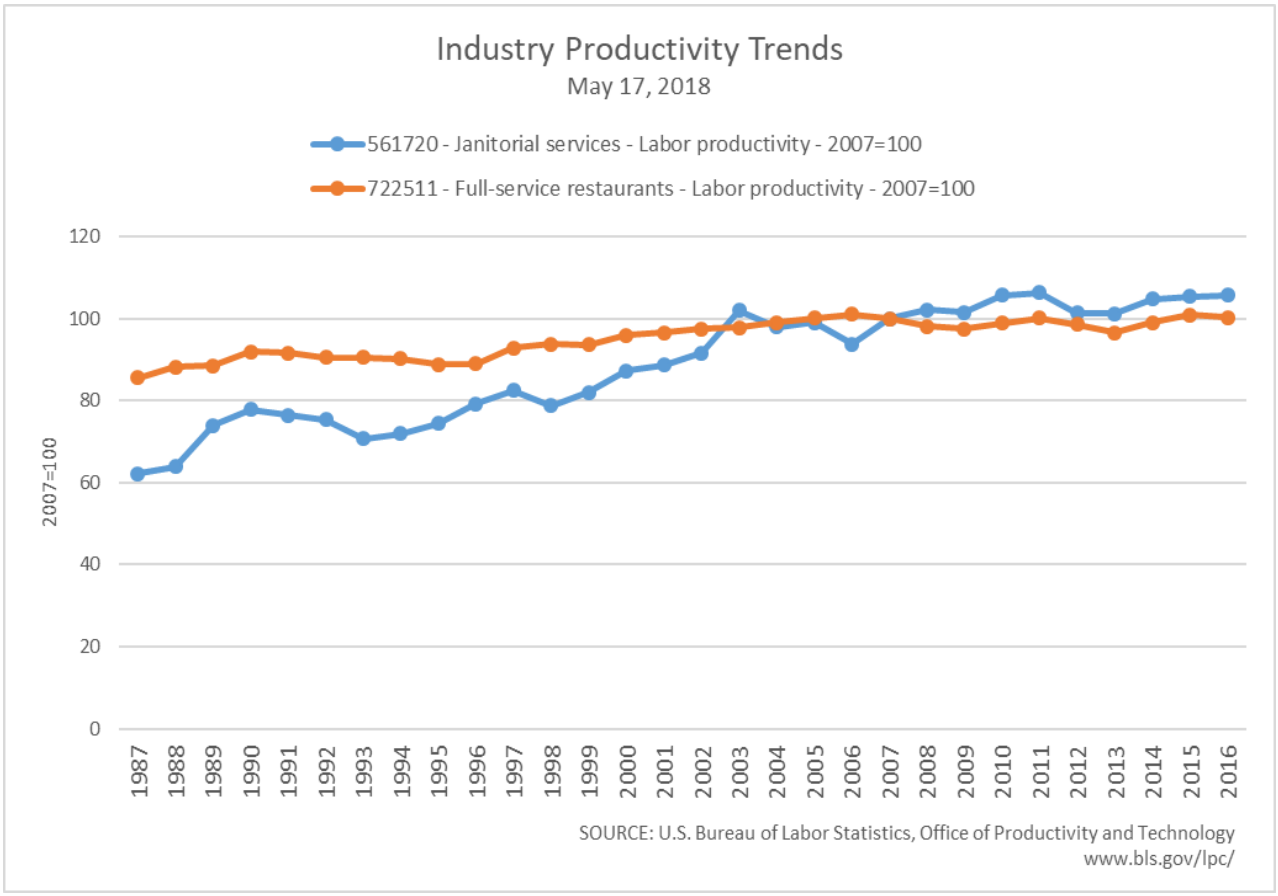
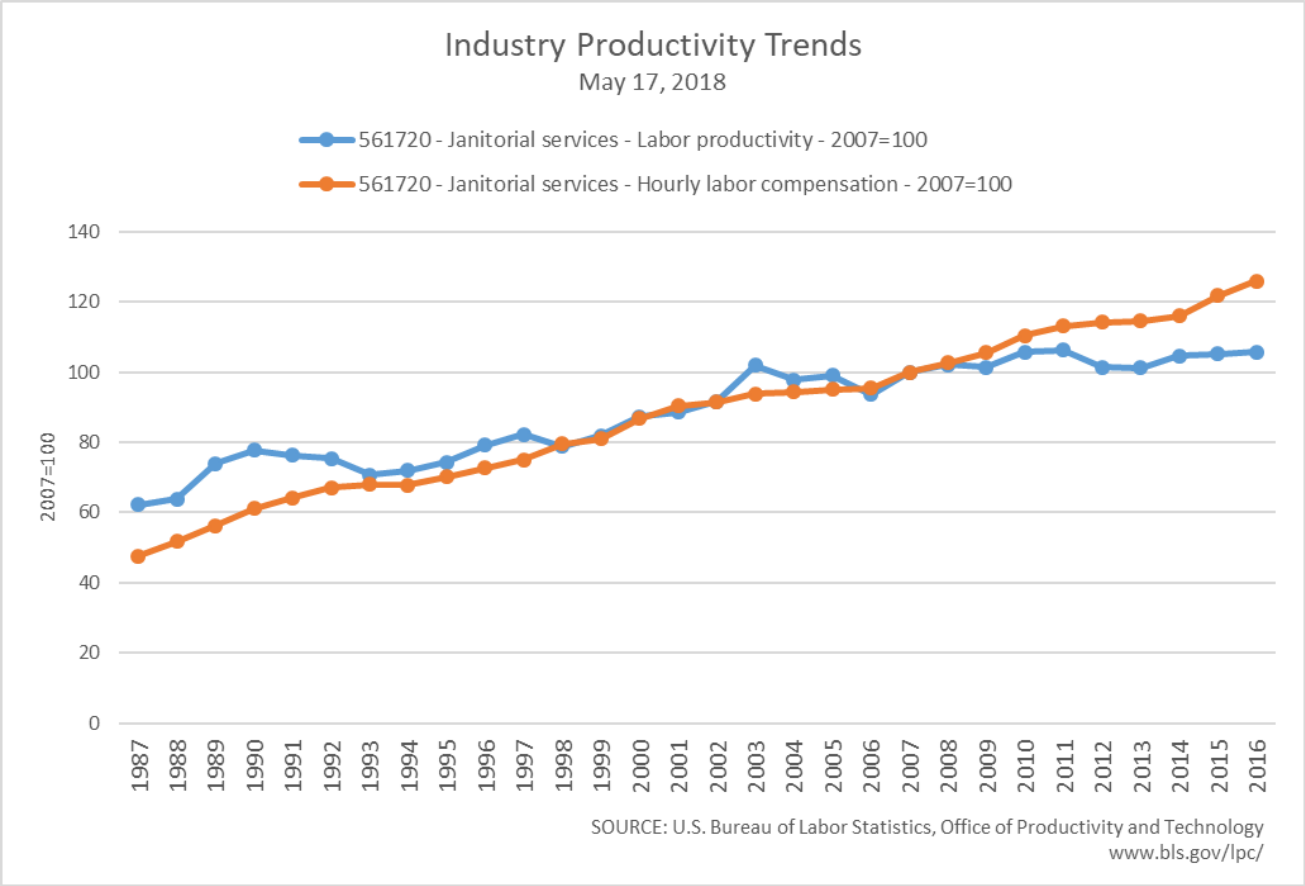


Figure 6 Trends in Janitorial Labor Earnings as Compared to Output per Hour, 1987-2016



This question lies at the heart of the current research project and will require close observation and measurement of janitorial work as well as interviews and focus groups with janitorial workers. Another possibility is that greater usage of human resource management techniques such as “flexible” scheduling, part-time, and on-call shift-work might mean that a given amount of janitorial output is being achieved with a lower level

of paid work-hours. In this way, janitorial service firms shift the uncertainty of market demand onto workers, only deploying them just when they are needed for a job.

In 2008, the growth rates for hourly compensation and productivity began to diverge and continue to do so through 2016. In standard economic models of labor markets, productivity increases tend to be linked closely with compensation increases. But in periods of excess unemployment, workers lose the leverage to bargain for higher wages. Recent years have seen levels of unemployment reaching postwar lows even for jobs at the lower end of the wage rate. So it is unsurprising that compensation for janitorial workers has begun to rise, even beyond rates expected given the rise in productivity.

Worker Turnover

- Worker turnover among janitors is high at nearly 50% per year.
- Turnover rate is similar to that of other low-wage occupations.

Similar to many physically challenging, low-wage occupations, janitorial services work is characterized by significant levels of worker turnover. This is defined as the percentage of a given firm's workforce that is replaced by new workers when comparing one year with the following year. It is measured as the sum of worker separations and worker hires divided by the sum of the total workforce in the two years being compared:

Turnover = (Hires + Separations)/(Year 1 Workforce + Year 2 Workforce)[4]

We measure turnover at three different periods in the past dozen years. First, just prior to the Great Recession of 2008-2010 when unemployment was low and opportunities to switch jobs were plentiful. Then during the early stages of the recovery from the recession, 2010-2011, when unemployment rates were still over 9%. Finally, we look at 2017-2018, when once again job market conditions had improved for workers.

Table 6: Washington State Janitorial Services Worker Turnover[1,3], 2006-2018.

YEARS COMPARED	CONTINUING WORKERS (headcount)	SEPARATED WORKERS (headcount)	HIRED WORKERS (headcount)	TURNOVER (Active Firm)	TURNOVER (INDUSTRY)[4]
2006-2007	**3882**	**5112**	**4854**	**56.2%**	**53.6%**
2010-2011	**5455**	**4856**	**4280**	**45.6%**	**43.1%**
2017-2018	**6981**	**6495**	**6527**	**48.3%**	**42.2%**

1. Janitorial Services Industry= appears in BOTH industrial insurance risk class 6602-03/05 AND NAICS 561720
2. "Active" means employing at least 1 FTE and payroll greater than zero.
3. Workers with earnings in bottom 1% or Top 1% of distribution were dropped.
4. Turnover measured at industry level.

Source: Washington State ESD, Quarterly unemployment insurance wage tables.

One limitation of this metric is that if we wish to know the turnover rate at each firm it requires that only firms that survive from one year through the next can be used. If a firm goes out of business, obviously, all of its workers are “separated” as well. Similarly, if a new firm opens in the second year of the comparison, all of its workers would be “hires”. In neither case can we compare such firms to those that operate continuously throughout the period. As we discuss in the next section, there is a substantial degree of turnover among janitorial firms. Therefore, our measurement of worker turnover will be

[4] Formula adopted from Bureau of Labor Statistics JOLTS Survey Technical Note located at httpa://www.bls.gov./news.release/jolts.htm.

an underestimate of the true level. Nevertheless, the trend over time is a good measure of the overall attractiveness of janitorial work relative to other occupations available to workers at this level of the labor market.

As Table 6 shows, just prior to the Great Recession of 2008-2010, turnover in janitorial services is about 56% per year when measured at the firm-level, and 54% at the industry level. By the late stages of the recession turnover had fallen by roughly 10 percentage points, reflecting the reduced opportunities for workers to leave an employer in order to find a better job. As business conditions decline, quit rates and hiring rates fall. By 2017-2018, labor market demand in many industries had greatly improved. In the janitorial services industry, turnover rates of workers at the firm level had recovered some of the way back to pre-recession levels but continue to be lower than their historic levels, though still between 42% and 48% per year. This lower turnover may reflect several factors: a delay in workers' re-evaluation of their labor market prospects, an expansion of overall employment in janitorial services accompanied by a decline in layoffs, or a rise in janitors' wage rates as compared to comparable occupations outside of janitorial services. Another possibility is that the relatively high and growing proportion of immigrant workers in the industry may reduce their ability to move out of this industry.

By themselves, these turnover rates may raise concerns about levels of job satisfaction among workers in this industry. Such rates of departure mean that employers must be constantly engaged in recruitment of replacement workers. This in turn raises concerns with how well-trained these new workers could be to cope with safety and health risks. On the other hand, it is important to bear in mind that leaving one job usually means starting another, and that therefore it is important to compare the turnover rates in

janitorial services with those in other low-wage/low-skilled sectors of the workforce which would provide alternatives for workers considering leaving their janitorial work. As examples, we calculated turnover rates for workers in the Security Services, Landscaping, and Residential Framing industries for 2017-2018. These are shown in Table 7:

Table 7: Washington State Worker Turnover[1,2], Landscaping and Security Services, 2017-2018

Industry	CONTINUING WORKERS (headcount)	SEPARATED WORKERS (headcount)	HIRED WORKERS (headcount)	TURNOVER (Active Firm)	TURNOVER (INDUSTRY)[3]
Janitorial Workers	**6981**	**6495**	**6527**	**48.3%**	**42.2%**
Security Guards[4]	**5776**	**6118**	**5881**	**50.4%**	**43.8%**
Landscaping Services[4]	**5435**	**5263**	**5029**	**48.6%**	**43.0%**
Residential Framing[4]	**2368**	**2554**	**2753**	**52.8%**	**45.4%**

1. "Active" means employing at least 1 FTE and payroll greater than zero.
2. Workers with earnings in bottom 1% or Top 1% of distribution were dropped.
3. Turnover measured at industry level.
4. Industry definitions: “security guards” = NAICS 561612 and risk class 6601-01/02; “landscaping” = NAICS 561730 and risk class 030801; residential framing = NAICS 238130 and risk class 05100.
Source: Washington State ESD, Quarterly unemployment insurance wage tables.

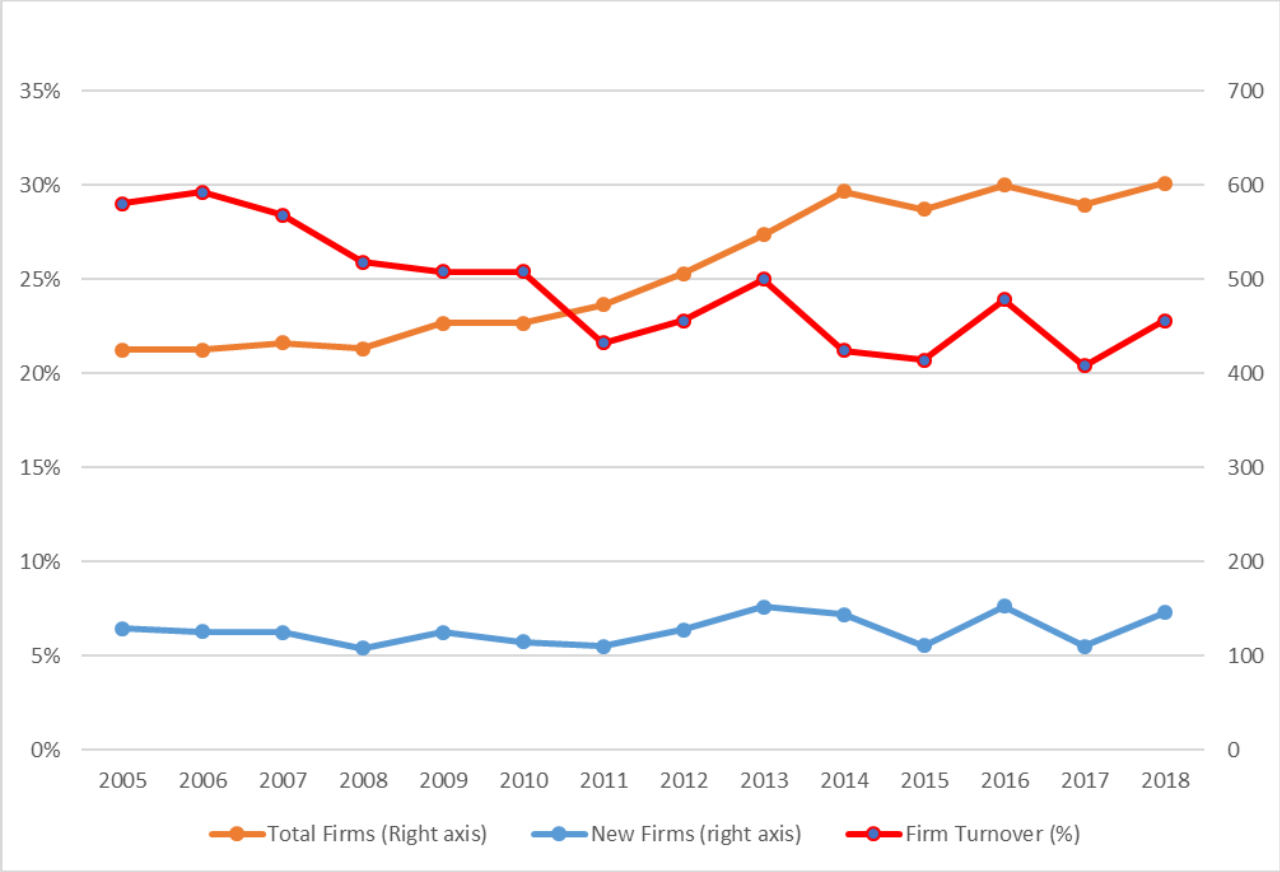
Worker turnover rates in these industries are very similar to those in janitorial services. As with janitorial services, these occupations are lower wage and lower-skilled in nature, without any prerequisite educational credentialing. This suggests that across this level of the workforce, the attachment of workers to particular employers is usually short-term, and therefore investments made by employers in their workers’ skills, including safety behaviors, is low.

Employer Turnover

- Turnover rates for janitorial services firms average 20-25% per year
- Survival rates are lower than those for landscaping or house-keeping.
- Small firms have much higher turnover rates than medium or large firms.

Another factor that may lead to increased injury rates is the length of time an employer has been in business. Unfamiliarity with the hazards of the industry can mean that hazard controls may take time to be put in place. Therefore, a high rate of new employer entry, and turnover, may be a cause of concern. Figure 7 shows that the total employment in janitorial services in Washington State rose sharply along with the total number of active firms following the end of the Great Recession. At the same time, the rate of turnover of firms in janitorial services decreased from 29% in 2004-2005 to 20-23% after 2014.

Figure 7 Washington State Janitorial Services Industry: Active Employers, New Employers, and Annual Firm Turnover, 2005-2018

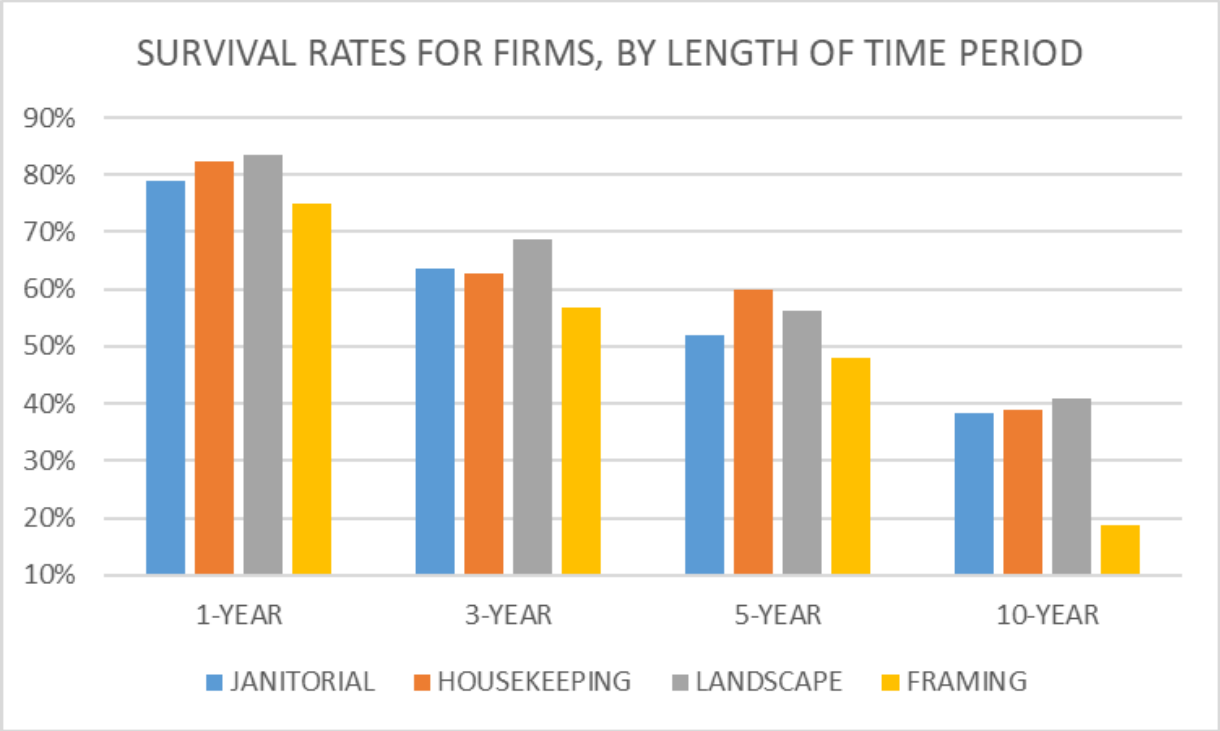


Janitorial Services Industry= firm appears in BOTH industrial insurance risk class 6602-03/05 AND NAICS 561720. Number of Employers and Workers in Q2 of each year. "Active" means employing at least 1 FTE and payroll greater than zero. Employers extracted from WA L&I data. Workers extracted from ESD wage files of firms matched to L&I accounts.

As with employee turnover, however, it is difficult to interpret these turnover data without some benchmark comparison to other industries. For this we looked at turnover rates in landscaping, housekeeping services, and residential framing. We chose the first two because, as with janitorial services, there is little in the way of fixed capital investment required to open a firm in these industries. We chose the latter because it is more influenced by swings in the business cycle and so may serve as a standard for high turnover. We compare establishment turnover rates across industries at 1, 3, 5 and 10

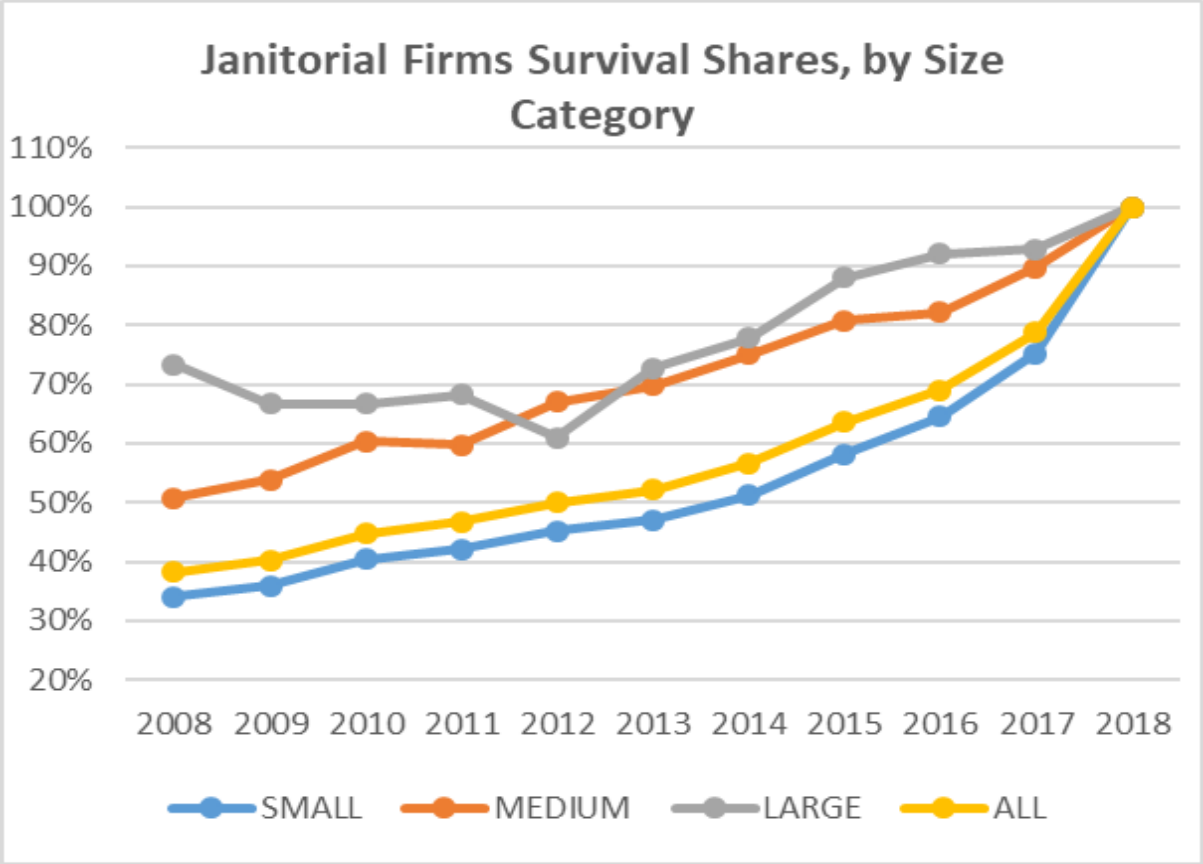
year intervals in order to see if the pattern of survival is similar across industries. Figure 8 has the results:

Figure 8 Survival Rates over 1- 3 and 5-year periods for firms in Janitorial Services compared to Housekeeping, Landscaping, and Residential Framing.



We also considered that the size of the business itself could well affect the rate of turnover: with larger businesses more likely to survive than small. One way to depict firm survival is to measure it as a function the length of the historical lookback and the size of the firm. This is shown for Janitorial Services in Figure 9.

Figure 9 Firm Survival by Year and Size Category



This figure shows the role that size plays in determining the length of time a firm stays in business and, therefore, the average tenure of the firm. Large firms (50 or more workers) are more than twice as likely to survive for ten years as small firms. The typical small firm in janitorial services has been in business for less than five years. This chart also shows that, up to five years, there is little difference in survival probability between large firms and medium firms. So the extent that firm size plays a role in worker safety and injury prevention, it is the small firms which make up 78% of the industry that should be of greatest concern.

Trends in Seattle-area office space supply as compared to janitorial labor supply.

- Growth in office space area within the Seattle Central Business District is outpacing the growth in the area's supply of janitorial services workers.

Comparing the growth of occupied office space relative to the growth in the janitorial labor supply available is a convenient method to measure the productivity of janitorial workers as well as the burden they face. If there has been no introduction of labor-saving technologies, the growth of square footage of office space requiring cleaning should require a similar growth in janitorial labor to absorb the additional work. Absent this, the burden of work for each janitor grows. Information on the amount of office space is available from private commercial real estate brokerages for the Seattle regional market—an area that encompasses King, Pierce and Snohomish counties. Within King County, data for total square feet of office space is available for several submarkets—such as the Seattle central business district (CBD) and its adjacent cities; the Eastside (Bellevue, Redmond and Kirkland); and South King County (Kidder Mathews, 2018-2019).

We obtain janitorial labor supply in the region from two separate sources. One is the Occupational Employment Statistics program of the Bureau of Labor Statistics, which is a headcount of individual janitorial workers in the Seattle-Bellevue-Tacoma region; and the other is the number of hours worked in the janitorial services risk class to the workers' compensation database of the Department of Labor and Industries. In the latter

case, employer-level data allows us to match more exactly the geographic area covered by the office space market data. The results are in Table 8:

Table 8: Office Space Market Supply and Janitorial Workforce, Seattle Region, 2013-2018.

Year	Office Supply (Region)	Office Supply (Seattle) *	Janitors Headcount SEA/BELL/ TAC (OES)	Janitors FTE KING/PIERCE/ SNOHOMISH (L&I)	Janitors FTE KING (L&I)	Janitors FTE Seattle* (L&I)	Janitors FTE Seattle† (L&I)
2018	192.9	85.7	25990	4354	3210	3177	7263
2017	184.7	79.1	25530	4376	3179	3150	7032
2016	177.2	72.7	23880	4045	2931	2900	6887
2015	171.9	67.0	21510	3978	2927	2899	7341
2014	164.9	63.3	22370	3830	2811	2782	6797
2013	156.7	57.1	20190	3484	2589	2559	6230
Annual % Growth	4.0	7.9	5.0	4.3	4.1	4.1	2.2

* "Seattle*" market is defined as Seattle city plus immediate neighbors (Burien, Seatac, Tukwila, Shoreline and Renton.
"Office Supply" is defined as total stock minus vacancies in millions of square feet.
OES: total individuals employed in SOC 37-2011 in any NAICS industry.
L&I: Total FTEs employed in risk classes 6602-03 or 6602-05 and in NAICS industry 561720.
† "Seattle†" market includes Seattle* plus all out-of-state employers with employees in WA. Several of the largest janitorial services companies are in this category.

At the regional level—including all of King, Pierce and Snohomish counties, the growth of the stock of occupied office space roughly matches the growth in the labor supply in the janitorial services industry. However, the growth of office space in the Seattle CBD and its close-in neighbors is exceeding the growth of janitorial labor supply by a wide margin. This would indicate that pressure on the available janitorial workforce to handle the work required by the occupied office space is likely growing in the Seattle CBD and close-in areas.

Conclusion

Although janitorial work has always been a lower wage occupation, the outsourcing of janitorial work has shifted this work to a large number of small, specialized janitorial contractors that compete to provide janitorial services to clients. Small janitorial services firms contracting with clients in a competitive market with low barriers to entry for new start-ups are under significant pressure to keep costs low. This has led to a reduction in wages and benefits for janitorial workers. In addition, janitorial work is precarious, with high turnover rates for both janitorial workers and janitorial service firms. The workforce is demographically diverse. And the demographic profile of the janitorial workforce may affect the capacity of this workforce to resist unsafe working conditions. All these factors may result in a focus on production at the expense of reduced attention to compliance with standards for occupational safety and health as well as wage and hour rules. The purpose of this project will be to assess whether such pressures affect safety performance of janitorial services contractors, and how such performance may be improved.

References

Steven Ruggles, Sarah Flood, Ronald Goeken, Josiah Grover, Erin Meyer, Jose Pacas and Matthew Sobek. U.S. Census Bureau. American Community Survey (ACS) 2003-2017 ACS 5-Year Public Use Microdata Sample. IPUMS USA: Version 10.0 [dataset]. Minneapolis, MN: IPUMS, 2020. https://doi.org/10.18128/D010.V10.0.

U.S. Census Bureau. Census Occupational Coding (2000): https://www.census.gov/topics/employment/industry-occupation/guidance/code-lists.html.

Executive Office of the President, Office of Management and budget. United States, 2017, North American Industry Classifcation System (NAICS) codes: https://www.census.gov/eos/www/naics/.

Washington State Department of Labor and Industries. Washington State Workers' Compensation Risk Class Information. https://lni.wa.gov/insurance/rates-risk-classes/risk-classes-for-workers-compensation/

U.S. Bureau of Labor Statistics. Labor Productivity and Costs. https://www.bls.gov/lpc/home.htm.

U.S. Bureau of Labor Statistics. Job Openings and Labor Turnover Survey. https://www.bls.gov/jlt/.

United States. (2016). County Business Patterns. U.S. Department of Commerce, Bureau of the Census, Data User Services Division. https://www.census.gov/programs-surveys/cbp.html.

Washington State. (2017). Quarterly unemployment insurance database, 2nd quarter, 2017. https://www.lni.wa.gov/.

Washington State Department of Employment Security. https://esd.wa.gov/.

Boden, L. I., Spieler, E. A., & Wagner, G. R. (2016). The Changing Structure of Work: Implications for Workplace Health and Safety in the US.

Weil, D. (2014). The FIssured Workplace: Why Work Became So Bad for So Many and What Can Be Done to Improve It. Cambridge, MA: Harvard University Press.

Dube, A., & Kaplan, E. (2010). Does Outsourcing Reduce Wages in the Low-Wage Service Occupations? Evidence from Janitors and Guards. ILR Review. 63(2):287-306. http://dx.doi.org./10.1177/001979391006300206.

Berlinski, S. (2008). Wages and Contracting Out: Does the Law of One Price Hold? British Journal of Industrial Relations. 46(1):59-75. http://dx.doi.org./10.1111/j.1467-8543.2007.00665.

United States. (2017). Occupational Employment Statistics, May 2017. U.S. Department of Labor, Bureau of Labor Statistics. Retrieved from https://www.bls.gov/oes/tables.htm.