BEA Working Paper Series, WP2022-12

First Quarter Wages and Employment by Industry for Small Businesses Using Establishment-Based Size Classes, 2012–2021

Authors Tina Highfill and Richard Cao, U.S. Bureau of Economic Analysis

Author of Contact Tina.Highfill@bea.gov

Date October 2022

Abstract Quarterly Census of Employment and Wages data from the U.S. Bureau of Labor Statistics, disaggregated by number of employees in an establishment, are used to estimate first-quarter wages and employment by industry for small, medium, and large businesses between 2012 and 2021. This is the first set of size-class estimates from the U.S. Bureau of Economic Analysis that are based on the number of employees at an establishment, or individual business location, as opposed to the total number of employees in a company or enterprise. The distributions of wages and employment by establishment size class tell a different story about the composition and scope of small businesses in the U.S. compared to enterprise-based small business statistics. Establishment-based size classes show almost half (48.6 percent) of 2017q1 wages were generated by businesses with less than 100 employees, but enterprise-based size classes put this share at only 28.4 percent. Additionally, the establishment classification shows only 16.4 percent of wages were attributable to businesses with 500 or more employees, while the enterprise classification shows 52.1 percent, corresponding to the strong influence multi-establishment companies have in many industries. These differences underscore the importance of considering classification when interpreting small business statistics.

Keywords Small business, establishments, wages, employment, QCEW

JEL codes E01, O51

Bureau of Economic Analysis
U.S. DEPARTMENT OF COMMERCE

The views expressed in this paper are those of the authors and do not necessarily represent the U.S. Bureau of Economic Analysis, or the U.S. Department of Commerce.

1. INTRODUCTION

Data describing economic activity for small businesses are available using a variety of definitions and classification types, reflecting the multiple, valid perceptions of what constitutes a "small business." Some data use the total number of employees in a company to classify small businesses, other datasets use the number of employees in individual establishment, while others use a monetary classification such as firm revenue (U.S. Census Bureau, 2017; U.S. Bureau of Labor Statistics, 2018; ADP Research Institute, 2022; OECD, 2018). Deciding which classification of data to use depends on what question is being asked, whether researching the effect of tax laws on output for businesses with revenue of less than $1 million per year, the impact on wages of a new regulation that only applies to companies with 20 or more employees, or how employment for corporations with less than 100 employees in the U.S. compares to corporations of that size in Canada and Europe.

Since 2017, the Bureau of Economic Analysis (BEA) has released four papers describing experimental estimates of small business economic statistics using different size classes and classification types covering years 1998–2017 (Highfill and Strassner, 2017; Highfill, et al., 2020; Highfill, Cao, and Jouard, 2021; Georgi, Morrow, and Highfill, 2021). In three of those papers, BEA classified small businesses using the number of employees in an enterprise using U.S. Census Statistics of U.S. Business (SUSB) data, which reflect the total number of employees in a company across all business locations. In one paper, small businesses were classified using IRS data on revenue earned at the firm-level, which encompasses the total revenue for a single tax unit across all business locations (an enterprise can be comprised of multiple firms). These classification choices were based mainly on precedent from the Small Business Administration, other statistical agencies, and public perception of what constitutes a small business (U.S. Small Business Administration, 2018; Leung and Rispoli, 2011; Karlinksy, 2007; Miller, 2020).

In this paper, we use Quarterly Census of Employment and Wages (QCEW) data from the Bureau of Labor Statistics (BLS) disaggregated by number of employees in an establishment to estimate first quarter wages and employment by industry for small, medium, and large businesses between 2012 and 2021 (U.S. BLS, 2021). This is BEA's first set of size-class estimates that are based on the number of employees at an establishment (i.e., individual business location). Establishment-based size classes allow for analyses that are not possible with enterprise- or firm-based statistics, including a better understanding of industries dominated by franchises. Under the enterprise classification, a business franchise is included in the "large" size class if there are 500 or more employees in the entire company,

regardless of how many people are employed at an individual establishment or by a single franchise owner. Under the establishment classification, a franchise location will be classified as small, medium, or large depending on the level of employment for that specific business location.

The QCEW data have other advantages over other datasets available by business size. First, BEA's industry-level employment and wages statistics are mostly based on the QCEW data, making it the ideal data source for allocating BEA wage and employment statistics by size class. Also, the QCEW data are much more timely than other size-class data, available with only a one-year lag. The Census SUSB enterprise-based data are available with a lag of over 2 years—2019 is the most current data available as of August 2022, meaning the impact of the COVID–19 pandemic on small enterprises is still unknown for SUSB data users. Likewise, firm-level data from IRS suffer from both substantial lag and accessibility issues.

The ultimate goal of these research papers and different vintages of experimental small business estimates is to lay the framework for an official small business satellite account that will provide a timely and consistent time series of small business economic statistics. For BEA to estimate timely small business statistics, using establishment-level data will likely be necessary given the lag in enterprise and firm-level data. Additionally, many non-wage economic statistics and private vendor data sources are only available on an establishment basis, again making the use of establishment-based statistics necessary if BEA intends to develop more comprehensive small business statistics such as gross domestic product (GDP).

What we show in this paper is the QCEW-based estimates of wages and employment by size class tell a different story about the scope and distribution of small businesses in the U.S. compared to firm-based and enterprise-based small business statistics. If policymakers or researchers use data categorized by establishment size to understand the small business economy, their takeaway will be very different than if they use enterprise-level statistics. Specifically, establishment-based size classes show almost half (48.6 percent) of 2017q1 wages were generated by businesses with less than 100 employees, but enterprise-based size classes put this share at only 28.4 percent. These differences are even more severe for many industries, underscoring the importance of considering business size classification when interpreting small business statistics.

2. METHODOLOGY

The main data source used in this paper is the QCEW data from the BLS. The QCEW provides estimates of wages and employment by state, North American Industry Classification System (NAICS) industry, and establishment size for the first quarter of each year. For our purposes, we did not use the state level data and focus on national totals. Within the QCEW data files, quarterly levels are provided for wages and monthly levels for January, February, and March are provided for employment. The arithmetic mean was calculated for the three months to derive a quarterly employment level. The data are broken out into nine different size ranges (per establishment): 1–4 employees, 5–9 employees, 10–19 employees, 20–49 employees, 50–99 employees, 100–249 employees, 250–499 employees, 500–999 employees, and 1,000+ employees. All size ranges were used for our calculations.

Quarterly nominal wages and employment by industry data from BEA's national accounts were used as the U.S. industry totals for 2012q1–2021q1. BEA defines wages as money paid in regular intervals to employees by employers and defines employment as both part-time and full-time employees, as well as temporary (seasonal or short-term) employees, and employees on paid vacation or other paid leave. Wages are presented in nominal terms and are not adjusted for inflation. In BEA's national accounting framework, non-employers receive proprietor's income, a category distinct from wages. Therefore, wage and employment estimates exclude businesses with no employment during the entire year.

Since BEA only publishes annual estimates of employment by industry, a quarterly series of employment by industry was derived. To do this, a Denton interpolation was performed using BLS's Current Employment Statistics as the indicator and annual employment as the controls. As a result, the U.S. industry employment totals are considered experimental and lesser quality than official BEA published statistics. Additionally, employment totals for 2021 were unavailable for three sectors: agriculture, forestry, fishing, and hunting, excluding farms (NAICS 11); management of companies and enterprises (NAICS 55); and other services, except government (NAICS 81). Since these industries tend to skew either small (NAICS 11 and 81) or large (NAICS 55), the employment results summarized below sometimes exclude the 2021q1 data.

QCEW has data available up to the 6-digit NAICS level. To start with, we extracted the QCEW data at the three-digit NAICS, which is consistent with BEA's industry publication level. To calculate wages and employment by business size and industry, BEA's national estimates of wages and employment by

industry were distributed using the QCEW distribution of wages and employment by industry and establishment size.

In some instances, QCEW industry data by establishment size were suppressed to prevent the identification of individual businesses. Since the overall industry totals in the QCEW include the values of the suppressed wages or employment, the difference between the industry total and the sum of the unsuppressed data is the total suppressed value. The suppressed value was allocated to the suppressed cells using the previous years or nearest unsuppressed year to determine the relative proportion. Previous years were checked first. If that check failed and there were no previous years with available unsuppressed data, then later years were checked. In a few cases, a particular industry and establishment size combination was suppressed for all periods in the dataset, leaving no "nearest year" to provide a distribution to break the suppression. In these instances, the number of establishments was used instead to proportionally allocate the suppressed value.

Following BEA's previous nomenclature, we describe businesses with employees 1–99 employees as small, businesses with 100–499 employees as medium, and businesses with 500+ employees as large.

3. RESULTS

This paper focuses mainly on the most current years of data, 2021q1 for wages and 2020q1 for employment, and any changes that have occurred in size-class shares or industry distributions since 2012q1. An emphasis is mostly on wages because many relationships are similar between the wages and employment estimates, though instances where this is not the case are emphasized. Results are highlighted for the smallest size class, establishments with 1–4 employees, since this is the first time BEA has estimates for this smallest size category. The industry-level results are mostly discussed at the overall sector level (i.e., 2-digit NAICS) for ease of reporting. The complete data tables covering three-digit NAICS industries for wages and employment for the 10-year period are available on BEA's small business website. Appendix table 1 provides a list of the NAICS sector-level codes and descriptions.

The results section is divided into 4 areas. First, the shares of 2012q1–2021q1 wages and 2012q1–2020q1 employment attributable to each size class are summarized. Next, the size class shares of

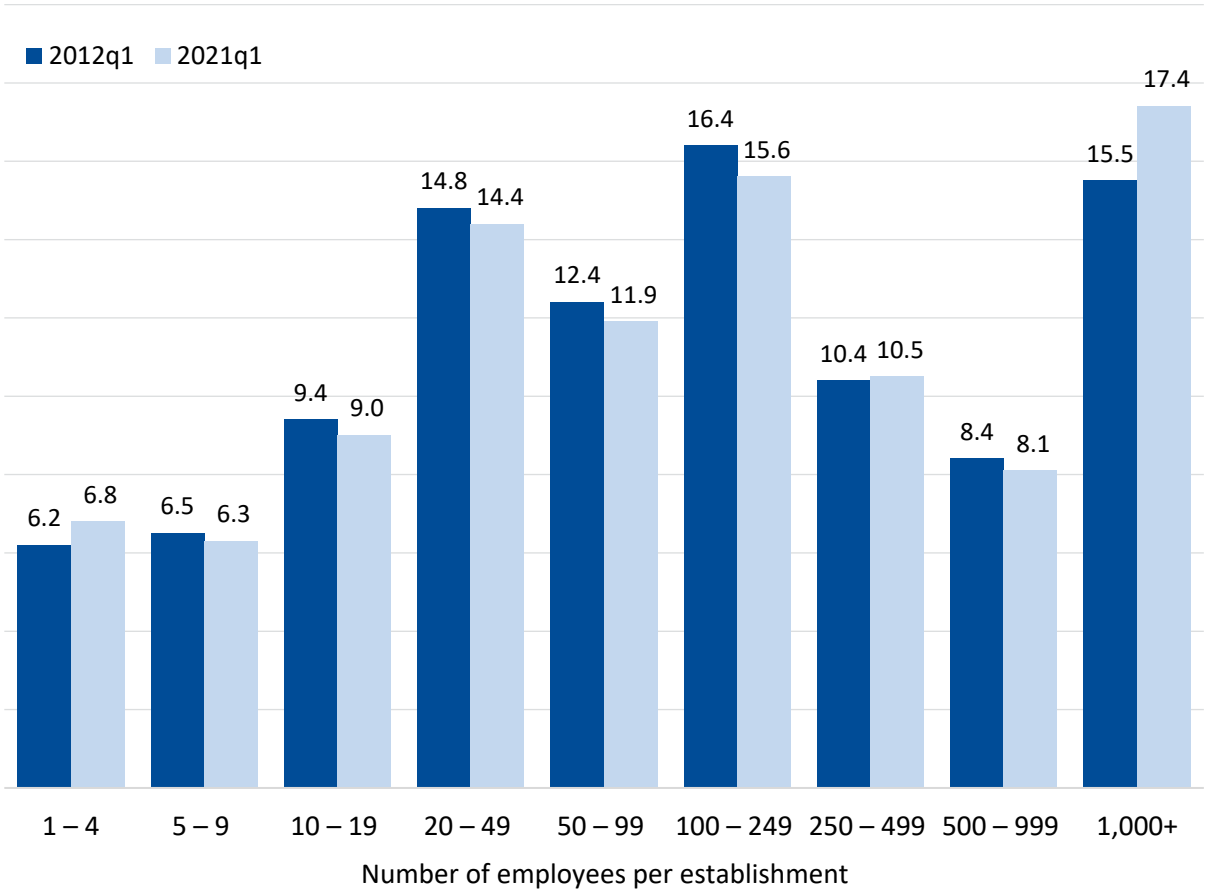
2021q1 wages and employment within industries are summarized to understand how industries differ in terms of composition by small, medium, and large businesses. Then, the industry shares of 2021q1 wages and 2020q1 employment within size classes are examined to give a sense of what industries are most prominent in each size class. Last, to determine for which industries the establishment and enterprise classification differ the most, the 2017q1 estimates are compared to existing BEA estimates for 2017 that use enterprise-level statistics to classify size classes.

3.1 Share of Overall Wages and Employment by Size Class

3.1.1 Wages

The combined share of wages attributable to the five smallest size classes (1–99 employees) was 48.4 percent in 2021q1 (figure 1). The smallest size class, establishments with 1–4 employees, represented 6.8 percent of wages in 2021q1, increasing from 6.2 percent in 2012q1. The 5–9 employees size class was the category with the smallest share of wages in 2021q1, producing just 6.3 percent of total wages. Of the small categories, establishments with 20–49 employees produced the largest share of wages, 14.4 percent in 2021q1, down from 14.8 percent in 2012q1.

Figure 1. Share of Private Sector Wages by Business Size, 2012q1 and 2021q1 (%)

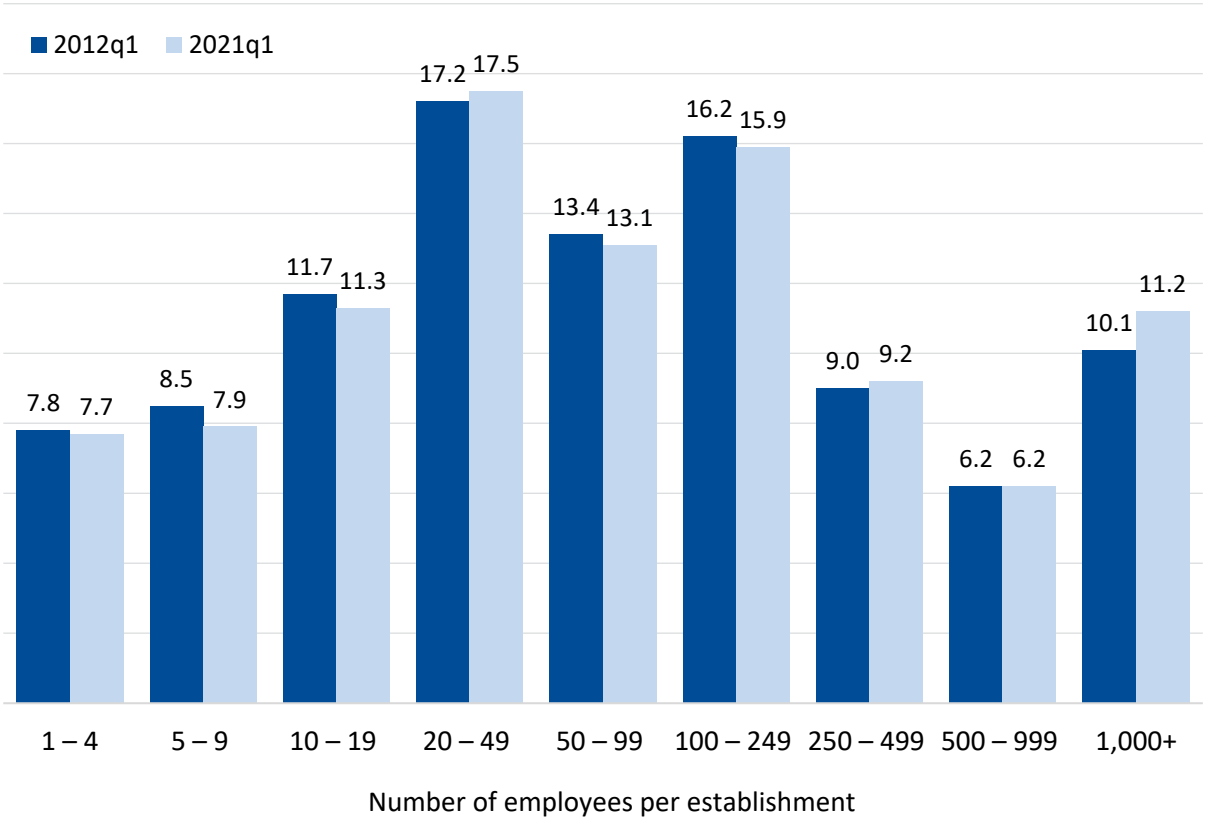


The individual size category that produced the greatest share of wages in 2021q1 was the 1,000+ employees size class at 17.4 percent, followed closely by the 100–249 employees size class at 15.6 percent. This relationship represents a switch from 2012q1, when the 100–249 employees size class garnered the largest share of wages (16.4 percent) and the 1,000+ employees size category was second largest (15.5 percent). The share of wages attributable to establishments with 1,000+ employees has been increasing steadily since 2012 and has seen the greatest change in overall share of wages for any size class between 2012q1 and 2021q1. The 20–49 employee category was consistently the third-largest category across the 10-year period, declining slightly from 14.8 percent in 2012q1 to 14.4 percent in 2021q1.

3.1.2 Employment

Employment data show a somewhat different allocation across size categories compared to wages. The 20–49 employees size category was the single largest size class in 2020q1 (17.6 percent) while the 1,000+ employees size-class category was fifth largest at 11.2 percent. A relatively higher share of wages than employment for the largest size class indicates employees at large establishments are paid higher wages on average than employees at smaller establishments.

Figure 2. Share of Private Sector Employment by Business Size, 2012q1 and 2020q1 (%)

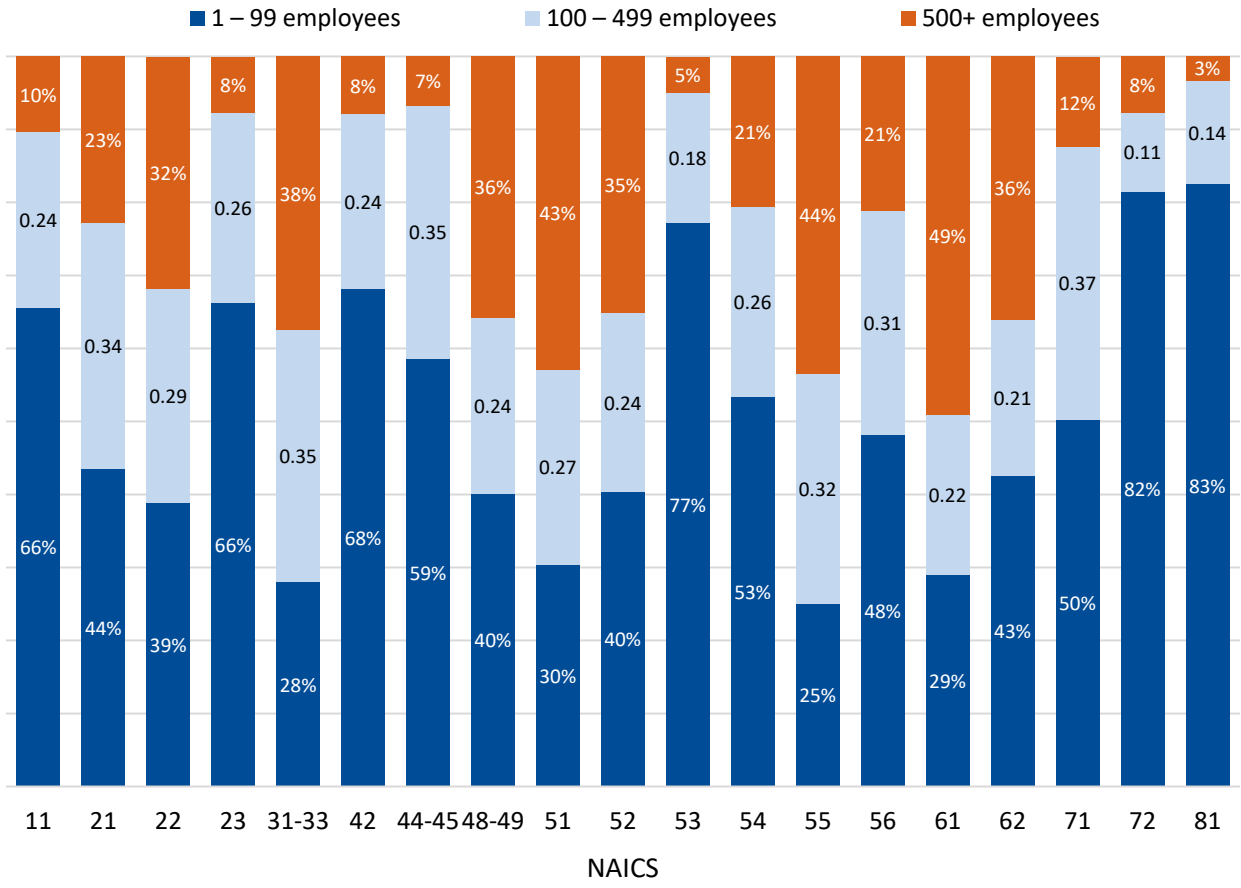


3.2 Wage and Employment Shares by Size Class Within Industries

3.2.1 Wages

Many sectors' wages were concentrated in small businesses in 2021q1, most notably accommodation and food services (NAICS 72) and other services, except government (NAICS 81), where more than 80 percent of wages were generated by establishments with 1–99 employees (figure 3). For 9 of the 19 sectors, the majority of wages were attributable to businesses with 1–99 employees.

Figure 3. Size-Class Shares of 2021q1 Wages Within Industries



In some sectors a significant concentration of wages were generated by larger establishments, including educational services (NAICS 61) and information (NAICS 51), where 49.1 percent and 43.0 percent of wages were produced by businesses with 500+ employees, respectively. Manufacturing (NAICS 31–33) and management of companies and enterprises (NAICS 55) were the two other sectors where large establishments represented the greatest share of wages across the three size classes.

For businesses with 100–499 employees, 2021q1 industry wage shares ranged from 10.8 percent in accommodation and food services (NAICS 72) to 37.3 percent for arts, entertainment, and recreation (NAICS 71). In no industry did medium-sized businesses represent the largest share of wages.

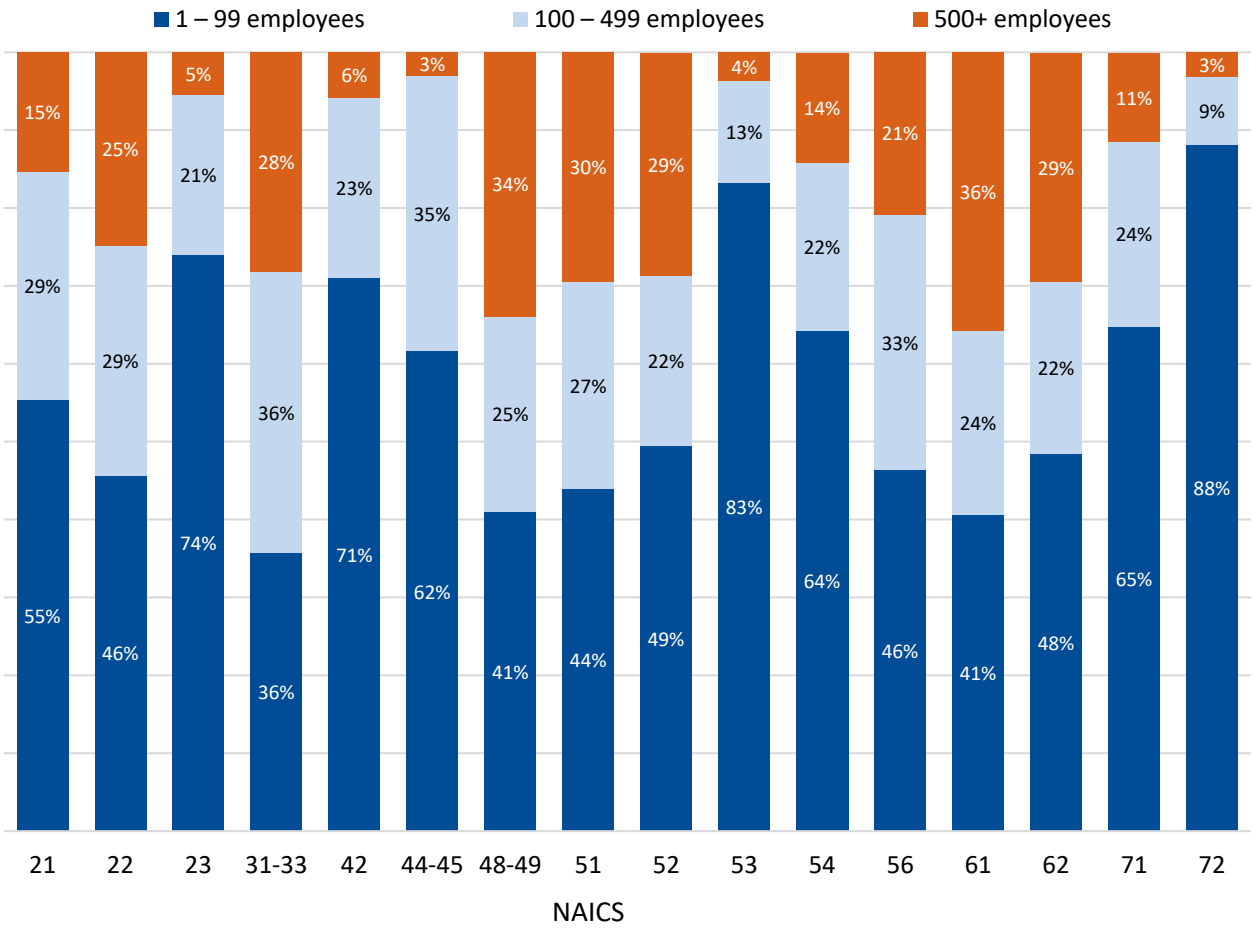
For establishments with 1–4 employees:

- Other services, except government (NAICS 81) was the industry sector with the largest share of 2021q1 wages in the smallest size class at 18.1 percent, down from 20.5 percent in 2012q1. This sector includes a variety of business types, ranging from hair salons to auto repair shops to funeral homes.
- Real estate, rental, and leasing (NAICS 53) was the sector with the second-largest share of 2021q1 wages earned in establishments with 1–4 employees at 17.4 percent, up from 15.1 percent in 2012q1. This sector is dominated by the real estate industry (NAICS 531).
- Wholesale trade (NAICS 42) and professional, scientific, and technical services (NAICS 54) were the other two sectors with more than 10 percent of wages concentrated in the smallest size classes in 2021q1 (11.2 percent and 10.3 percent, respectively).

3.2.2 Employment

The composition of small, medium, and large business employment within industries was mostly similar to the composition of wages (figure 4). As with the wage data, establishments with 1–99 employees represented the greatest share of employment for many industries. However, the concentration of employment for establishments with 1–99 employees was often higher than for wages in many sectors, indicating larger businesses pay relatively higher average wages than small businesses for those industries.

Figure 4. Size-Class Shares of 2021q1 Employment Within Industries



Note. NAICS 11, 55, and 81 are unavailable for 2021q1.

3.3 Industry Shares of Wages and Employment Within Size Classes

3.3.1 Wages

Table 1 shows industry wage shares for each size class in 2021q1. Professional, scientific, and technical services (NAICS 54) was the largest industry for all five small size classes (1–99 employees). Health care and social assistance (NAICS 62) was the second-largest sector in the smaller size classes and was also the largest sector for establishments with 1,000+ employees. The detailed industry data show ambulatory health care services (NAICS 621) dominated in the small size classes while hospitals (NAICS 622) led in the large size class.

Table 1. Industry Shares of Wages for Each Size Class, 2021q1 (%)

NAICS	Number of employees per establishment									
	1 – 4	5 – 9	10 – 19	20 – 49	50 – 99	100 – 249	250 – 499	500 – 999	1,000+	All
11	0.8	1.0	0.8	0.7	0.7	0.6	0.5	0.4	0.2	0.6
21	0.3	0.4	0.6	0.7	0.8	0.7	1.0	1.1	0.3	0.7
22	0.2	0.3	0.5	0.7	1.0	0.9	0.9	1.6	0.7	0.8
23	7.5	9.1	9.0	9.2	8.4	7.0	5.4	3.5	1.1	6.4
31-33	3.1	3.7	5.0	7.3	10.2	13.8	16.8	16.4	16.8	11.3
42	9.9	8.4	8.5	8.6	7.6	6.1	4.7	3.5	1.1	6.0
44-45	6.4	10.5	10.2	7.8	8.9	10.6	8.0	2.0	1.9	7.2
48-49	3.4	2.9	3.1	3.8	3.7	3.8	4.1	4.7	6.5	4.2
51	3.8	2.6	2.5	2.9	3.5	4.2	6.3	7.8	8.5	4.9
52	8.3	9.2	8.5	8.2	8.4	8.6	10.8	13.7	14.1	10.1
53	4.6	3.9	2.9	2.4	1.9	1.4	0.9	0.7	0.2	1.8
54	19.6	14.3	13.3	13.2	13.5	13.2	12.7	13.3	9.3	13.0
55	2.0	1.4	1.6	2.0	2.7	4.0	5.8	7.5	6.3	3.9
56	5.1	4.7	4.9	5.3	5.9	6.0	6.4	6.1	3.6	5.3
61	1.0	0.9	1.0	1.4	1.7	1.8	1.8	2.4	4.9	2.1
62	11.1	12.4	12.9	11.9	12.4	12.0	10.2	12.6	22.9	13.8
71	1.5	1.0	1.0	1.0	1.1	1.5	1.4	0.7	0.4	1.0
72	2.1	3.9	6.9	8.3	4.7	1.7	1.0	0.9	1.1	3.4
81	9.3	9.4	7.1	4.6	3.1	2.2	1.5	1.0	0.2	3.5

Notes. Shading corresponds to the highest values within each column. Column totals may not sum to 100 due to rounding.

Manufacturing (NAICS 31-33) garnered 16.8 percent of 2021q1 wages for establishments with 1,000+ employees, the second-largest industry for that size class. Medium-sized businesses, or those with 100–499 employees, also had a high concentration of wages generated by the manufacturing sector, contributing 13.8 percent of wages for establishments with 100–249 employees and 16.8 percent of wages for establishments with 250–499 employees. Alternatively, manufacturing wages contributed little to overall wages for establishments with less than 20 employees, with shares of only 3 to 5 percent in the 3 smallest size classes.

For establishments with 1–4 employees:

- Professional, scientific, and technical services (NAICS 54) represented 19.6 percent of all 2021q1 wages in this smallest size class. The detailed data show computer systems design and related services (NAICS 5415) represented over one-quarter (28.4 percent) of wages, followed by management and technical consulting services (NAICS 5416) at 23.8 percent and legal services (NAICS 5411) at 14.1 percent.
- Health care and social assistance (NAICS 62) was the second-largest sector in terms of 2021q1 wage shares at 11.1 percent, followed closely by wholesale trade (NAICS 42) at 9.9 percent and other services, except government (NAICS 81) at 9.3 percent.
- The other services, except government sector (NAICS 81) experienced the greatest change in share of wages between 2012q1 and 2021q1, shrinking from 12.5 percent of wages to 9.3 percent. Repair and maintenance (NAICS 811) represented the largest share of 2021q1 wages in this sector and size class at 33.2 percent.

3.3.2 Employment

The industry shares of 2020q1 employment within size classes sometimes differed from or exaggerated the relationships seen in the wage data (table 2). While professional, scientific, and technical services (NAICS 54) had the greatest share of 2020q1 wages for establishments with 1–4 employees at 19.0 percent, the employment share ranked third at 12.6 percent, indicating relatively high average wages in this sector within the smallest size class. On the other hand, retail trade (NAICS 44-45) had the greatest share of 2020q1 employment for both establishments with 5–9 employees (16.3 percent) and establishments with 10–19 employees (16.2 percent), while corresponding wage shares ranked third at 10.5 percent and 10.2 percent, respectively. And while health care and social assistance (NAICS 62) was the sector with the greatest share of both 2020q1 employment and wages for the 1,000+ employees size class, the employment share (31.9 percent) was much higher than the wage share (23.6 percent).

Table 2. Industry Shares of Employment for Each Size Class, 2020q1 (%)

NAICS	Number of employees per establishment									
	1 – 4	5 – 9	10 – 19	20 – 49	50 – 99	100 – 249	250 – 499	500 – 999	1,000+	All
11	1.4	1.5	1.2	1.1	1.0	1.1	1.0	1.0	0.6	1.1
21	0.3	0.3	0.4	0.5	0.5	0.5	0.8	0.6	0.4	0.5
22	0.2	0.2	0.2	0.4	0.5	0.5	0.5	0.9	0.5	0.4
23	8.5	8.3	7.3	6.9	6.4	5.2	4.3	3.6	1.3	5.8
31-33	2.7	3.7	4.6	6.5	9.4	12.9	16.5	17.6	14.8	9.7
42	5.9	5.4	5.5	5.5	5.1	4.5	3.7	3.0	0.9	4.5
44-45	9.2	16.3	16.2	11.2	12.8	17.0	14.3	2.3	1.6	11.8
48-49	3.0	2.3	2.6	3.5	3.9	4.4	5.4	7.4	8.3	4.4
51	1.7	1.4	1.4	1.7	2.1	2.3	2.7	3.6	3.5	2.2
52	6.0	6.7	4.4	3.2	3.3	3.7	5.4	8.0	8.1	5.0
53	4.8	3.7	2.5	1.8	1.5	1.1	0.8	0.7	0.3	1.8
54	12.6	8.9	7.7	7.0	6.9	6.5	6.7	6.9	5.5	7.3
55	0.6	0.6	0.7	1.0	1.4	2.1	3.3	4.4	3.7	1.8
56	5.3	4.9	4.8	5.5	6.9	8.7	10.3	12.1	6.9	7.1
61	1.3	1.5	1.8	2.2	2.7	2.5	2.9	4.1	6.9	2.8
62	15.9	12.1	12.1	12.0	13.7	15.4	13.6	16.6	31.9	15.7
71	1.4	1.5	1.8	2.0	2.2	1.9	2.0	1.9	1.8	1.9
72	5.3	8.6	15.8	22.4	15.8	6.4	3.6	3.8	2.7	10.8
81	14.1	12.4	8.9	5.6	3.9	3.2	2.1	1.5	0.4	5.4

Notes: Shading corresponds to the highest values within each column. Column totals may not sum to 100 due to rounding.

3.4 Comparing Wages Disaggregated Using Establishment-Based Size Classes to Wages Disaggregated Using Enterprise-Based Size Classes

To understand how the interpretation of small business statistics differs when using establishment-based size classes versus enterprise-based size classes, we compared the 2017q1 estimates to BEA's estimates of 2017 wages classified by enterprise size (Georgi, Morrow, and Highfill, 2021). To match BEA's 2017 estimates, the two smallest size classes were collapsed into a single category, 1–9 employees, and the two medium size-class categories were collapsed into a 100–499 employees category. Although this is not an exact comparison because first-quarter wages are being compared to annual wages, we still think this analysis is appropriate, since BEA's 2017 industry shares of wages match 2017q1 industry shares (U.S. BEA, 2022).

Figure 5 shows the 2017 and 2017q1 wage shares by size class differ between the establishment-based size and enterprise-based size classes, sometimes substantially. Most notably, 52.1 percent of 2017 wages were attributable to the 1,000+ employees size class using the enterprise classification, but that share was only 16.4 percent using the establishment classification. Establishment-based size classes showed almost half (48.6 percent) of wages were generated by businesses with less than 100 employees, but enterprise-based size classes put the share at only 28.4 percent. Likewise, businesses with 100 – 499 employees represented 26.7 of wages using the establishment-based size classes, but only 14.0 percent using the enterprise-based category. The establishment-based size classifications show a greater share of wages than the enterprise-based size categories for all but the largest size class.

Figure 5. Comparing Shares of 2017q1 Wages by Establishment Size to Shares of 2017 Wages by Enterprise Size (%)

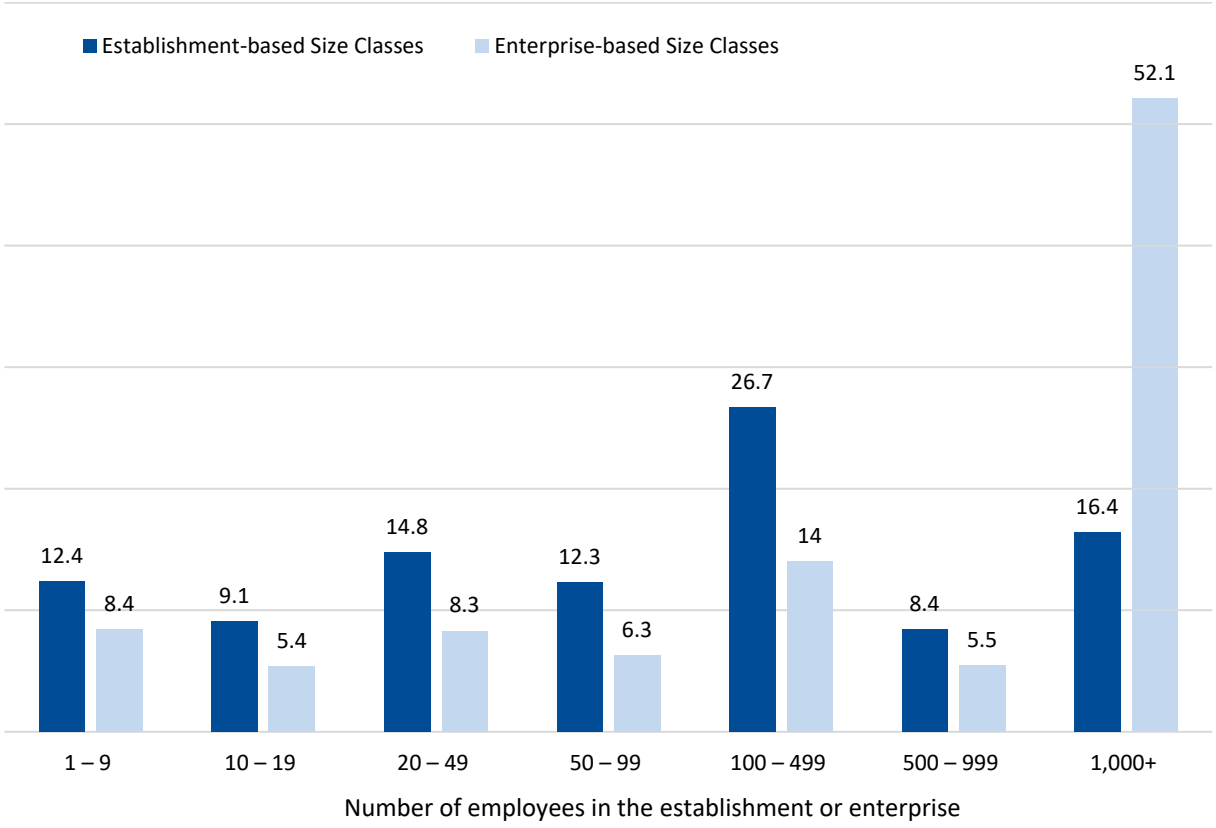


Table 3 shows shares of wages between establishment-based and enterprise-based size classes are similar for some sectors. Agriculture, forestry, fishing, and hunting, excluding farms (NAICS 11); construction (NAICS 23); and other services, except government (NAICS 81) all show wages are concentrated in small businesses using both the establishment and enterprise size classes. Also, real estate, rental, and leasing (NAICS 53); educational services (NAICS 61); accommodations and food services (NAICS 72); and other services, except government (NAICS 81) all have wage shares within 3 percentage points in the 100–499 employees size class. However, for businesses with 500 or more employees, the shares for enterprise-based size classes were higher in every sector.

Table 3. Comparing Shares of 2017q1 Wages by Establishment Size to Shares of 2017 Wages by Enterprise Size for Industry Sectors (%)

NAICS	1–99 employees		100–499 employees		500+ employees	
	Establishment	Enterprise	Establishment	Enterprise	Establishment	Enterprise
11	66	69	24	15	10	16
21	44	21	34	17	**23**	**62**
22	**39**	**6**	29	7	**32**	**87**
23	66	58	26	20	8	22
31-33	28	19	35	16	**38**	**64**
42	**68**	**32**	24	17	**8**	**52**
44-45	**59**	**30**	35	11	**7**	**59**
48-49	40	20	24	10	**36**	**70**
51	30	12	27	10	**43**	**78**
52	**40**	**14**	24	11	**35**	**75**
53	77	53	18	18	5	29
54	53	36	26	16	**21**	**49**
55	25	2	32	7	**44**	**91**
56	**48**	**19**	31	11	**21**	**70**
61	29	20	22	19	49	61
62	43	26	21	14	36	60
71	50	38	37	24	**12**	**38**
72	**82**	**45**	11	12	**8**	**42**
81	83	66	14	15	3	19

Note. Numbers are bolded when the difference in shares is at least 25 percentage points.

As expected, the sectors with the biggest differences in small business wage shares are those with a heavy presence of multi-establishment companies, including franchises. While franchises are often associated with restaurants, Census data show franchises are also common in other industries, including accommodations and various retail trade industries, especially new car dealers and gas stations (Zamora-Appel and Jubran, 2021). Accordingly, both retail trade (NAICS 44-45) and accommodations and

food services (NAICS 72) show a large gulf between small business wage shares across size-classification types. For retail trade, the share of 2017 wages attributable to business with less than 100 employees was 59 percent using establishment-based size classes, but only about 30 percent using an enterprise classification. The difference was starker with accommodations and food services, where 82 percent of wages were attributed to small businesses using the establishment size classification, but only about 45 percent using enterprise-based size classes.

4. SUMMARY

Timely and detailed QCEW data by size class and industry provide an invaluable source of information about the distribution of wages and employment in the economy. The data show small establishments, or those with less 100 employees, employed almost 60 percent of overall private sector employees between 2012q1 and 2021q, but accounted for just under 50 percent of private sector wages, indicating small businesses pay a relatively lower average wage than non-small businesses. However, this relationship varied by type of industry and size class. One example is the professional, scientific, and technical services sector (NAICS 54), which garnered 19.6 percent of 2021q1 wages within the 1–4 employees size class, but only 12.6 percent of corresponding employment. Conversely, health care and social assistance (NAICS 62) represented 31.9 percent of employment in the 1,000+ employees size class, but only generated 22.9 percent of wages. These examples illustrate why industry-level data are essential for giving context to small business statistics.

These estimates of wages and employment by establishment size class tell a different story about the scope and composition of small businesses in the U.S. compared to small business statistics that are based on the total number of employees in an enterprise or company. Establishment-based size classes show almost half (48.6 percent) of 2017q1 wages were generated by businesses with less than 100 employees, but enterprise-based size classes put this share at only 28.4 percent. Additionally, the establishment classification shows only 16.4 percent of wages were attributable to businesses with 500 or more employees, while the enterprise classification shows 52.1 percent, corresponding to the strong influence multi-establishment companies have in the economy. Differences between establishment-based and enterprise-based size classes are even more glaring when looking within industries. These disparities highlight the importance of understanding size classification when interpreting small business

statistics. If policymakers or researchers used QCEW data to learn about small business wages and employment, their takeaways would often be very different than if they used enterprise-level statistics.

The results of this paper have two broad implications for a potential small business satellite account. First, given the diversity of potential uses for small business data, a lack of standardized definitions for size classes, and the oftentimes differing results between enterprise- and establishment-based statistics, it may be useful to present statistics that reflect both the establishment-based and enterprise-based size classes, when possible. Providing multiple size classifications would give users more control over what types of analyses they can conduct and would also draw attention to the size-class distinctions that may not be obvious to users when only one classification type is provided. Second, since our results indicate the enterprise and establishment classification may not matter for some industries and size classes, users interested in enterprise-based statistics may consider the timelier establishment-based data as a proxy for these industries and size classes until the enterprise statistics become available.

Ultimately, a small business satellite account should include a variety of economic statistics aside from employment and wages, including value added (GDP), gross output, and inflation-adjusted statistics. To that end, BEA is currently investigating other datasets for use in developing additional and timelier small business statistics, including data from private vendors and government microdata. We invite all interested data users to send feedback about these estimates or suggestions for future research to SmallBusiness@bea.gov.

5. REFERENCES

ADP Research Institute. 2022. "ADP Small Business Report." https://adpemploymentreport.com/2022/May/SBR/Report.

Georgi, P., L. Morrow, and T. Highfill. 2021. "Updated and Expanded Small Business Statistics Wages, Employment, and Gross Output by Industry and Enterprise Size, 2012–2017." *Survey of Current Business*.

Highfill, T, and E. Strassner. 2017. "Experimental Estimates of Wages and Gross Output by Business Size and Industry." U.S. Bureau of Economic Analysis.

Highfill, T., R. Cao, R. Schwinn, R. Prisinzano, and D. Leung. 2020. "Measuring the Small Business Economy." Working paper WP2020–4. Suitland, MD: BEA, March.

Karlinsky, S. 2007. "How Does the U.S. Income Tax Law Define a Small Business? Let Me Count the Ways." In Taxing Small Business. Developing Good Tax Policies, edited by Ed Neil Warren.

Leung, D., and L. Rispoli. 2011. "The Contribution of Small and Medium-Sized Businesses to Gross Domestic Product: A Canada-United States Comparison." Economic Analysis Research Paper Series 18 (70): 1–19. doi:ISBN 978-1-100-18830-0.

Miller, H. 2020. "Potbelly says it will return $10 million small business loan, following others after outrage." CNBC. https://www.cnbc.com/2020/04/25/potbelly-to-return-10-million-ppp-loan-after-outrage.html.

OECD. 2018. "Financing SMEs and Entrepreneurs 2018: An OECD Scoreboard." Paris: Organisation for Economic Co-operation; Development Publishing. doi:10.1787/fin_sme_ent-2018-en.

U.S. Bureau of Economic Analysis. 2022. Wages and Salaries by NAICS Industry (SQINC7N and SAINC7N). https://apps.bea.gov/itable/iTable.cfm?ReqID=70&step=1.

U.S. Bureau of Labor Statistics. 2018. "Quarterly data series on business employment dynamics news release." News release, April 25.

U.S. Bureau of Labor Statistics. 2021. Quarterly Census of Employment and Wages. https://www.bls.gov/cew/downloadable-data-files.htm.

U.S. Census Bureau. 2017. Annual Datasets by Establishment Industry. Data by Enterprise Employment Size. https://www.census.gov/programs-surveys/susb/data/datasets.All.html.

U.S. Small Business Administration. 2018. "Table of Size Standards." https://www.sba.gov/document/support--table-size-standards

Zamora-Appel, B., and N. Jubran. 2021. "Franchising is More than Just Fast Food." U.S. Census Bureau. https://www.census.gov/library/stories/2021/12/franchising-is-more-than-just-fast-food.html.

6. APPENDIX

Appendix Table 1. North American Industry Classification System Codes and Industry Sector Names

NAICS Code	NAICS Description
11	Agriculture, forestry, fishing, and hunting, excluding farms
21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale trade
44–45	Retail trade
48–49	Transportation and warehousing, excluding postal service
51	Information
52	Finance and insurance
53	Real estate and rental and leasing
54	Professional, scientific, and technical services
55	Management of companies and enterprises
56	Administrative and waste services
61	Educational services
62	Health care and social assistance
71	Arts, entertainment, and recreation
72	Accommodation and food services
81	Other services, except government