Measuring the Small Business Economy

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Abstract

To better track the overall growth and relative contributions of small business in the U.S. economy, the U.S. Bureau of Economic Analysis is developing new economic statistics by business size. The paper begins with a description of existing economic statistics for small businesses, including those from the U.S. Small Business Administration, U.S. Department of the Treasury, and Statistics Canada. We then present experimental estimates of 2012–2016 employment, wages, and wages per employee by enterprise size and industry, based on publicly available source data. We find wage and employment growth over the period was slowest for very small enterprises (those with less than 20 employees) and fastest for large enterprises (those with 500 or more employees), although this relationship differs across industries. Additionally, enterprises with 0–99 employees saw wages increase at a slower rate than medium and large enterprises (those employing 100 or more employees), lagging by 1.5 percent. A discussion of the measurement challenges related to developing a full suite of economic statistics for small businesses concludes the paper.

Keywords

Small business, large business, enterprises, employment, revenue

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1. Introduction

Small businesses employ millions of Americans and represent most businesses in the United States. Despite their importance to the U.S. economy, there is no consistent and comprehensive measure of economic activity for small businesses. The U.S. Bureau of Economic Analysis (BEA) is developing a Small Business Satellite Account (SBSA) to better track the overall growth and health of small business in the United States. A "satellite account" refers to statistics that complement BEA's official U.S. economic statistics, such as gross domestic product (GDP) and personal income. These satellite accounts provide additional detail and allow for a more in-depth analysis of key sectors of the U.S. economy, such as health care, travel and tourism, and outdoor recreation. Because satellite account methodologies are consistent with BEA's existing national accounting methodology and official economic statistics, the SBSA will be able to answer how much small businesses contribute to the U.S. economy, which industries drive small business growth, and how these relationships change over time.

This paper begins with a description of existing economic statistics for small businesses, including those from the U.S. Small Business Administration (SBA) Office of Advocacy, U.S. Department of the Treasury, and Statistics Canada. Estimates of 2012–2016 U.S. employment, wages, and wages per employee by business enterprise size and industry sector are then presented, which are based on publicly available source data. The paper concludes with a discussion of the measurement challenges related to defining business size classes and accessing data needed to develop a full suite of economic statistics for small businesses.

2. Existing Economic Statistics by Business Size

The SBSA follows a long line of economic statistics produced by federal agencies and other organizations describing small businesses. Table 1 provides a sample of existing economic statistics published by business size by different organizations, along with the definitions used to classify businesses by size. As this table shows, there is not one accepted definition of what constitutes a "small business." Karlinsky (2007) notes there are over 10 different criteria used in the U.S. tax code alone to define small business, ranging from gross receipts and taxable income to concentration of shareholders. The predecessor to BEA, the Department of Commerce Office of Business Economics, estimated various economic statistics by business size as far back as 1931 (McConnell 1945). A later article provides estimates of percentage change in sales for new manufacturing firms by firm size for 1946–1948, in which small firms are defined as those with less than $100,000 in annual sales (Bridge and Holmes 1950). In the same article, stock-sales ratios are provided for "small" manufacturing firms, in which small firms are defined as corporations with assets of less than $250,000 (Bridge and Holmes 1950).

Not until recently has BEA again turned its attention to economic statistics by business size. A recent BEA working paper (Highfill and Strassner 2017) presented experimental estimates of wages and gross output by business size and industry for 2002–2012 using employment size classes to categorize business size. Specifically, very small businesses were categorized as enterprises with 0–19 employees, small businesses as

those with 20–99 employees, medium businesses as those with 100–499 employees, and large businesses as those with 500 or more employees. This paper provides a finer level of detail for the small business category by separating out enterprises with 20–49 employees and enterprises with 50–99 employees. Separating enterprises with 49 employees from those with 50 employees is relevant when studying small business regulations that use the 50- employee mark as a cutoff for federal employment laws, such as with the Family and Medical Leave Act (Sullivan Benefits 2017). We also provide estimates of employment by enterprise size and by industry for the first time. Before these new estimates are described, we outline how economic statistics for small business have previously been developed by three different government organizations: SBA Office of Advocacy, Treasury, and Statistics Canada.

2.1 U.S. Small Business Administration estimates of small business GDP

In 1980, the SBA Office of Advocacy contracted Joel Popkin and Company to create the first estimates of small business output by industry (Popkin 1980a).[1] Shortly after the initial report, which covered the economic census years 1965 and 1972, Popkin published further estimates for seven industries covering 1955–1976 (Popkin 1980b). The following 30 years saw 6 additional SBA Office of Advocacy-sponsored papers estimating small business GDP before the first nonadvocacy-sponsored report by Leung and Rispoli in 2011 (Popkin 1982, 1988, 1997, 2001, 2002; Kobe 2007).[2] In general, the literature on measuring small business output defines small businesses as businesses employing fewer than 500 employees.[3]

2.1.1 Initial methodology

Popkin (1980a) constructed the first estimates of small business output on the basis of BEA's Survey of Current Business (SCB). The SCB provided industry-level estimates of gross product and its five subcomponents: (1) compensation of employees, (2) profit-type return, (3) net interest, (4) indirect business taxes, and (5) capital consumption allowances. To measure small business output for each industry, each of the five components was further decomposed into their small and large business shares. The decomposition was achieved using two additional sources: U.S. Census Bureau Enterprise Statistics: Part 1 and U.S. Internal Revenue Service (IRS) Statistics of Income (SOI).[4] Due to the limited availability of industry data across the sources, a slightly different configuration of industries was estimated relative to the industries reported by

1. The U.S. Small Business Administration Office of Advocacy is an independent office tasked with conducting, sponsoring, and promoting economic research on the contributions of small businesses.

2. Estimates were initially provided for 6 to 10 Standard Industrial Classifications. Beginning in 2002, estimates for 16 to 18 North American Industrial Classification System industries were reported for 1998 onward. Until the 1990s, annual estimates were based solely on interpolations of estimates for economic census years. In the case of Popkin (1980b), these were 1958, 1965, and 1972.

3. Highfill and Strassner (2017) provides estimates for two additional categories: businesses with fewer than 20 employees and businesses with fewer than 100 employees.

4. Enterprise Statistics table 4 was used to test whether companies spanning more than one industry might bias the results. It was noted that employment outside of the classified industry only exceeded 5 percent in two industries: mining (16 percent) and manufacturing (7 percent). Since only a small amount of payroll in these industries was attributable to companies with fewer than 500 employees, it was deemed valid to make small business estimates.

BEA. For example, communication and electric, gas, and sanitary services were combined, as were mining and manufacturing (Popkin 1980a). To distribute the compensation of employees between small and large businesses, Popkin multiplied the BEA compensation of employees estimate by the small business share of payrolls for each industry according to Enterprise Statistics.[5]

To distribute the profit-type return component between small and large business, Popkin (1980a) applied intermediary calculations based on Enterprise Statistics receipt data to the SOI. First, average receipts per company for small and large businesses were estimated using the Enterprise Statistics receipt totals and firm counts. Next, the SOI data, which are classified by receipts size, were split between small and large businesses. The split point was selected by interpolating the receipts per company, calculated in the previous step, for each size group. Next, the share of profits attributable to small firms, where total receipts fell below the split point between small and large companies, was multiplied by the BEA-estimated overall profit-type returns to form the small business estimates for this component for each industry. Net interest, indirect business taxes, and capital consumption allowances were similarly allocated between small and large businesses.[6]

2.1.2 Subsequent methodological improvements

Subsequent small business GDP estimates fluctuated as new datasets were incorporated and the methodology matured (Popkin 1980b, 1982, 1988, 1997, 2001, 2002; Kobe 2007, 2012; Leung and Rispoli 2011, 2014; Kobe and Schwinn 2017). For example, Popkin (1988) provided updated and improved estimates. The availability of new data, due to SBA-sponsored IRS matching of the SOI to employment and payroll information from the 941 tax forms, resulted in an upward revision in the estimated small business share of GDP for 1958 from 51 percent to 57 percent (Popkin 1988). In 1992, two additional industry categories were covered by the quinquennial economic census for the first time: finance, insurance, and real estate and transportation, communication, and public utilities. This allowed for more accurate small and large business shares to be estimated from the SOI (Popkin 1997).

Other notable methodological changes include the switch from Standard Industrial Classifications (SIC) to North American Industrial Classification System (NAICS) industries in Popkin (2002) and the more detailed treatment of businesses according to their legal form of organization in Kobe (2007, 2012) and in Kobe and Schwinn (2017). Previously, all partnerships were treated as small businesses. Kobe (2007) split the data for partnerships by firm size according to business receipts beginning in 2002, the earliest year for which NAICS receipts data exist. Kobe and Schwinn (2017) extended the improved methodology to include the

5. Interestingly, the ratio of compensation to payroll in 1972 was about 1.1 for small businesses, suggesting that fringe benefits were about 10 percent of payroll.

6. The procedure for calculating small business components was not applied uniformly across industries due to reporting differences across IRS, BEA, and Census. For example, Census Enterprise Statistics did not cover the finance, insurance, and real estate industry. Additional techniques were employed to circumvent these limitations, such as applying per-employee compensation estimates across industries to create small business cutoffs and so forth.

1998–2001 period by harmonizing the legal form of organization data for 10 SIC industries with 16 NAICS industries using a SIC to NAICS crosswalk.[7]

Table 2 summarizes the literature and lists the estimated small business shares of GDP reported. Every cited paper found that the small business share of output fell over their respective periods of study, apart from a 0.2 percent increase in the small business share of GDP between 1998 and 2004 reported by Kobe (2007), which was later revised to show that the small business share did fall for the period (Kobe and Schwinn 2017). Leung and Rispoli (2011, 2014) and Highfill and Strassner (2017) generate small business GDP share estimates based largely on the methodology developed by Popkin and Kobe (Highfill and Strassner estimate gross output instead of GDP). Their estimates, which together span 2002–2012, closely match Kobe and Schwinn's (2017) latest findings.

2.2 U.S. Treasury

The U.S. Treasury Office of Tax Analysis (OTA) is tasked with providing estimates of the fiscal effects of policy proposals. Frequently, policymakers would couple these proposals with questions about a proposal's effect on "small business" and "small business owners." The reason for these inquiries is related to the beliefs that small businesses operate at a competitive disadvantage relative to larger counterparts and that small businesses generate a disproportionate share of economic activity. There was not a consensus regarding the characteristics that distinguished small businesses from other firms. OTA undertook the task of developing a definition of small business that utilized information available in the administrative tax return data (Prisinzano and others 2016).

The methodology starts with the six tax forms and schedules filed by individuals or firms that could potentially represent business activity. These forms include the Form 1040 Schedule C (sole proprietorship), Schedule E-Part I (miscellaneous rental and real estate), and Schedule F (farm); Form 1065 (partnership); Form 1120 (C corporations); and Form 1120-S (S corporation). These returns were separated into business and nonbusiness entities. Two criteria were used for the classification. The first is a minimal amount of activity as defined by income. The second is a minimal amount of businesslike activity, such as reported expenses related to employees, inventories, investment, and so forth. The first test requires total income or total deductions to exceed $10,000 or their sum to exceed $15,000. The second test requires that total deductions exceed $5,000.[8] We make a further refinement by excluding firms that represent passive investment vehicles. If a firm's gross receipts and rents is less than 10 percent of total income, we exclude interest expense from

7. The latest estimates still treat all sole proprietorships as small businesses. While almost all sole proprietorships are small, future research might provide slightly more precise estimates by allocating the share of SOI data for sole proprietorships to large businesses.

8. Total deductions are defined as the sum of wages and salaries, interest paid, payments for goods and services purchased from other firms, rents, repairs, taxes, advertising, bad debts, depletion, depreciation, and other miscellaneous deductions reported by the entity. For corporations, we do not include payments for "compensation of officers," because it is likely that those deductions represent the "reasonable compensation" that owners are required to pay themselves for labor services provided to the firm.

the calculation of total deductions. Essentially, the methodology requires firms with primarily investment income to have deductions other than interest expense to be classified as a business.

The second classification in the methodology is that of "small" versus "non-small." The U.S. tax code does not provide a consistent definition for small. As such, we applied a similar criterion to the one used to separate business from nonbusiness. The threshold for small business is total income defined as the sum of gross receipts, rents, and any portfolio income reported by the firm not exceeding $10 million. We also require that total deductions not exceed $10 million. As a matter of analysis, we also classify small businesses as "employers" if labor expenses exceed $10,000.[9]

Overall, approximately 54 percent of filers across the 6 tax forms and schedules we consider meet the criteria we use to define a small business. Those entities reported 18 percent of total business income (average of $270,000) and 16 percent of net business income (average of $21,600) for tax year 2007. Approximately half of our small businesses reported total income less than $50,000, and almost 90 percent reported net income less than $50,000. Roughly half are in the real estate-rental, construction or professional-scientific sectors. Based on our definition of employer (direct labor compensation exceeds $10,000), we find that slightly more than one-fifth of small businesses were also employers. This corresponds to Census data that shows there were 22.7 million nonemployer establishments in the United States in 2012, compared to 7.4 million establishments with employees (U.S. Census Bureau 2020).

2.3 Statistics Canada

Statistics Canada produces statistics from various sources that inform the contribution of small businesses to the Canadian economy. In order to provide a more comprehensive measure of the contribution, an effort was made in 2011 to integrate the data sources and produce estimates of GDP by business size consistent with national accounting methodology. Similar to the approach taken in this paper, Statistics Canada employs a range of data sources to split the official totals in the national accounts by employment size of business. Since Statistics Canada has access to survey and administrative tax records at the micro level, there exists a great deal of flexibility in how the splitters can be calculated. To inform the discussion on measurement issues, estimates based on three different approaches are presented.

The first set of estimates come from Leung, Rispoli, and Gibson (2011) , in which all the activities of a business are assigned only to its primary industry. The second set of estimates, from Leung, Rispoli, and Chan (2012), allow a business with establishments in multiple industries to contribute to the calculation of the splitters in all of those industries. Specifically, the activities of a complex business are first allocated across the industries in which it operates, the distributions by industry and component of GDP are then calculated, and finally the aggregate estimates are obtained by using the distributions to split the totals from the national accounts. If a complex business is a large business overall, it contributes to the large business size category

9. For this purpose, we include deductions for wages-salaries reported on the front page of business returns, cost of labor (Schedule A, Cost of Goods Sold) and any wages-salaries reported by partnerships and S corporations on Form 8825.

in each of the industries it operates, regardless of the size of its operations in any particular industry. The final set of estimates come from Leung and Rispoli (2014), in which the methodology used by the SBA Office of Advocacy is employed in order to facilitate a Canada-U.S. comparison. Here, in addition to returning to assigning a business to only one industry, the use of the microdata is limited to what was available to the SBA Office of Advocacy. Estimates of GDP by firm size in Canada are available for the years 2003–2016. The estimates discussed below are for 2005, a year covered by all three of the Statistics Canada studies.

In the first set of estimates, businesses with 0–99 employees accounted for 41.9 percent of business sector GDP in Canada (excluding imputed rent in owner-occupied housing), compared to 12.4 percent for businesses with 100–499 employees and 45.7 percent for businesses with 500 or more employees. Allowing businesses that operate in multiple industries to contribute to the calculation of the distributions in each of those industries increases the share attributed to large firms from 45.7 percent to 47.1 percent. Large businesses are typically the ones that operate in many industries. Therefore, restricting the contribution of these large businesses to only their primary industries leads to overestimation of the contribution of large businesses in their primary industries and underestimation of the contribution of large businesses in their secondary industries. The impact on business sector estimates depends on the relative size of the industries in which the over and underestimation takes place. When Canadian estimates are produced according to the methodology of the SBA Office of Advocacy and simulating the type of data available to them, the share of GDP accounted for by large businesses falls back to 45.6 percent. The estimates are more sensitive to the assumption that businesses operate in one industry than to the use of an indirect method (the use of tabulations from the IRS instead of microdata) to apportion the nonlabor compensation components of GDP.

3. Wages, Employment, and Wages per Employee by Enterprise Size and Industry, 2012–2016

Estimates for 2012–2016 employment, wages, and wages per employee by enterprise size and industry are presented below. These estimates extend on BEA's recent experimental estimates of wages and gross output by enterprise size for 2002, 2007, and 2012 using a similar methodology (Highfill and Strassner 2017). In this paper, in addition to adding four more recent years to the estimates of wages by enterprise size, the "small category" is provided at a finer level of detail, and employment and wages per employee have also been added to the analysis. These results are discussed after a brief description of the methodology.

3.1 Methodology

The major data source used is the Statistics of U.S. Businesses (SUSB) from the Census Bureau (U.S. Census Bureau 2017). The SUSB provides payroll and employment statistics annually by industry and enterprise size. The SUSB captures most U.S. businesses, except government and some agricultural services. The SUSB sample includes businesses with one or more employees during the year. Enterprises with zero employees

represent businesses with no employees in March of that year, but with one or more employees at some point during the year.

Annual nominal wages and employment by industry data from BEA's national accounts are used as the U.S. industry totals for 2012–2016 (BEA 2019). Using BEA's wages and employment values instead of the U.S. totals in the SUSB data ensures that the industry totals are consistent with BEA's national accounting methodology and official statistics. 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 (BEA 2017). Wages are presented in nominal terms and are not adjusted for inflation. In BEA's national accounting framework, nonemployers receive proprietors' income, a category distinct from wages. Therefore, wage and employment estimates exclude businesses with no employment during the entire year.

To calculate wages and employment by business size and industry, BEA's national estimates of wages and employment by industry are distributed using the SUSB distribution of wages and employment by industry and enterprise size. In some instances, SUSB industry data by enterprise size were suppressed to prevent the identification of an individual business; however, an employment range for the business is provided. Additionally, the overall industry totals in the SUSB include the values of the suppressed wages or employment. Therefore, 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 midpoint of the employment range to determine the relative proportion.

As with BEA's 2017 working paper (Highfill and Strassner 2017), we categorize large businesses as enterprises with 500 or more employees, medium businesses as those with 100–499 employees, and very small businesses as enterprises with 0–19 employees. To give finer detail and better insights into the industries driving small business growth, enterprises with 20–99 employees are divided into two additional categories: enterprises with 20–49 employees and enterprises with 50–99 employees.

3.2 Results

3.2.1 Wage distribution

In 2012, very small businesses made up 14.8 percent ($841 billion) of U.S. wages (see data tables). This share has been on a gradual decline, dropping to 14.0 percent in 2016. Similarly, wage shares for 2012–2016 for small and medium small businesses dropped slightly from 8.6 percent to 8.4 percent and 6.6 percent to 6.4, respectively. The share of wages has instead shifted towards medium and large businesses. In 2012, large businesses made up 56.2 percent ($3.2 trillion) of U.S. wages, rising to 57.3 percent ($3.9 trillion) in 2016.

3.2.2 Wage growth by size category

For 2012–2016, nonfarm private wages increased at an average annual growth rate (AAGR) of 4.3 percent (table 3). This was led primarily by large businesses, which contributed 2.7 percentage points. This was followed by medium businesses contributing 0.6 percentage point, very small businesses contributing 0.4 percentage point, small businesses contributing 0.3 percentage point, and medium small businesses contributing 0.2 percentage point. The fastest growing group was large businesses, where wages increased at an AAGR of 4.8 percent, while the slowest growing group was very small businesses, which only increased at an AAGR of 3.0 percent.

3.2.3 Wages per employee

This section provides an overview of wages per employee (total wages divided by total employment). For 2012–2016, wages per employee for total nonfarm businesses increased $4,415 (from $49,735 to $54,150) at an AAGR of 2.2 percent (table 4). While very small businesses had the slowest wage growth at 3.0 percent AAGR, and employment showed very modest growth, increasing at an AAGR of 0.7 percent, wages per employee for very small businesses increased $3,786 (from $39,547 to $43,333) at an AAGR of 2.3 percent, making it the fastest growing group. At the other end of the spectrum, the slowest growing group was small businesses, where wages per employee increased $2,249 (from $42,355 to $44,604) at an AAGR of 1.3 percent. Figure 1 shows that for many sectors, wages per employee become higher as business size increases.

3.2.4 Very small businesses (0–19 employees)

For 2012–2016, wages for very small businesses grew at an AAGR of 3.0 percent (table 5). The top three contributing sectors to this growth were construction (contributing 0.6 percentage point); professional, scientific, and technical services (contributing 0.5 percentage point); and other services (contributing 0.4 percentage point) (table 6).

Four sectors (out of 19) make up approximately 53 percent of wages for very small businesses. In descending order, these are: professional, scientific, and technical services (16.5 percent); health care and social assistance (14.6 percent); construction (11.2 percent); and other services (10.6 percent).

Over the period 2012–2016, the shares for many sectors remained constant or gradually increased, with construction increasing the most (from 11.2 percent to 12.3 percent). However, health care and social assistance saw its share of wages shrink from 14.6 percent to 13.5 percent. The fastest growing sector was agriculture, forestry, fishing, and hunting (excluding farms) in which wages increased at an AAGR of 7.1 percent, driven largely by strong increases in 2013 and 2016. At the other end, we have management of companies, in which wages decreased 7.6 percent, driven by large declines in 2013 and 2016.

Employment for very small businesses increased at an AAGR of 0.7 percent, the weakest growth of all size groups (table 7). The two main drivers of growth were construction and accommodation and food services,

which each contributed 0.2 percentage point (table 8). The fastest growing sector was educational services, in which employment increased 3.0 percent. At the other end, the fastest decreasing sectors were mining (decreasing 3.8 percent) and wholesale trade (decreasing 1.7 percent). The four largest sectors in terms of employment (making up roughly 50 percent of employees in 2012) were other services (15.1 percent), health care and social assistance (12.6 percent), retail trade (11.8 percent), and construction (10.7 percent). This ranking remains largely stable, except for in 2016, when construction became the third largest employed sector, moving ahead of retail trade.

Wages per employee for very small businesses was $41,273 on average over the period (table 9). Overall, wages per employee increased at an AAGR of 2.3 percent for very small businesses (table 10). The fastest growing sector was information, which increased 5.3 percent. This was driven by strong wage growth (4.0 percent) and declining employment (–1.2 percent). The only decreasing sector was management of companies, which decreased 7.1 percent. This was driven by a decline in wages (especially in 2013, when wages dropped 34.5 percent), along with a slight increase in employment.

3.2.5 Small businesses (20–49 employees)

For 2012–2016, wages for small businesses grew at an AAGR of 3.6 percent. The top three contributing sectors to this growth were construction (contributing 0.9 percentage point); accommodations and food services (contributing 0.7 percentage point); and professional, scientific, and technical services (contributing 0.5 percentage point). Four sectors (out of 19) made up approximately 49 percent of wages for small businesses in 2012. These four sectors are: professional, scientific, and technical services (13.9 percent); health care and social assistance (12.6 percent); construction (11.0 percent); and manufacturing (11.0 percent). Over this period, construction experienced a noticeable increase in its share of wages, rising from 11.0 percent to 12.8 percent. At the same time, the manufacturing share gradually dropped, moving from 11.0 percent to 10.1 percent. The fastest growing sector was agriculture, forestry, fishing, and hunting (excluding farms), increasing at an AAGR of 8.9 percent, while the fastest declining sector was mining, which decreased at an AAGR of 2.3 percent.

Employment for small businesses grew at an AAGR of 2.3 percent. The single largest contributor was accommodations and food services, which contributed 0.9 percentage point. The fastest growing sectors were construction (increasing 5.0 percent) and accommodations and food services (4.7 percent). The top draggers were mining (–4.3 percent); management of companies (–2.5 percent); and information (–2.2 percent). All three mining subsectors contributed to the employment decline, but the main contributor was support activities for mining, which saw a notable drop in 2015 when this industry's small businesses lost 7,100 (17.7 percent) of its employees, and then again in 2016 when small businesses in this sector lost a further 7,000 (78.9 percent) employees. The four largest employment sectors in 2012 (making up 50 percent of employment) were accommodations and food services (18.4 percent), health care and social assistance (12.3 percent), other services (10.1 percent), and manufacturing (9.3 percent). By 2016, the accommodations and food services share rose even higher to 20.2 percent of total small business employment.

Wages per employee for small businesses increased at an AAGR of 1.3 percent, the weakest of all size groups. There are often large differences in wages per employee when we compare very small and small businesses in the same industry. One notable example is in arts, entertainment, and recreation, where very small and small wages per employee differ by almost $25,000 on average between 2012 and 2016 ($49,874 versus $25,810, respectively). This can be explained by differences in the wage and employment distribution. Within this sector, 22.3 percent of wages in 2012 went to very small businesses, while 8.8 percent went to small businesses. At the same time, 17.0 percent of employment went to very small businesses, while 13.2 percent went to small businesses. Similar stories can be seen in utilities; construction; finance and insurance; professional, scientific, and technical services; and management of companies.

3.2.6 Medium small businesses (50–99 employees)

The growth story for medium small businesses shares many similarities with that of small businesses. For 2012–2016, wages for medium small businesses grew at an AAGR of 3.4 percent. The top three contributing sectors to this growth were construction (contributing 0.9 percentage point); professional, scientific, and technical services (contributing 0.6 percentage point); and accommodations and food services (contributing 0.6 percentage point). The same four sectors dominate the wage distribution within this size category. However, there are a few key differences that are unique to medium small businesses. Within medium small businesses, wages for the utilities sector fell at an AAGR of 0.5 percent. In all other size categories, wages for utilities increased. Also, wages for finance and insurance decreased 0.3 percent among small businesses, while for medium small businesses, wages increased 0.2 percent.

Employment for medium small businesses increased at an AAGR of 1.8 percent. Growth trends were largely comparable to that of small businesses. Like small businesses, accommodations and food services was the largest contributor, contributing 0.7 percentage point, and the fastest growing sectors were, again, construction and accommodations and food services. Minor differences can be seen in utilities and administrative services (which both decreased instead of increasing). Also, looking at wages per employee, there is no noticeable level of disparity when we compare small and medium small businesses.

3.2.7 Medium businesses (100–499 employees)

For 2012–2016, wages for medium businesses grew at an AAGR of 4.5 percent. The top three contributing sectors to this growth were professional, scientific, and technical services (contributing 0.8 percentage point); construction (contributing 0.7 percentage point); and health care and social assistance (contributing 0.5 percentage point). The fastest growing sector was construction, increasing at an AAGR of 9.7 percent. Among medium businesses, only one sector saw a decline in wages—mining—in which wages decreased at an AAGR of 4.5 percent. Within mining, the decline was driven primarily by support activities for mining, offset partially by a small increase in oil and gas extraction. The four largest sectors in terms of wages (comprising 51 percent of wages in 2012) were manufacturing (15.6 percent); health care and social assistance (14.7

percent); professional, scientific, and technical services (12.6 percent); and wholesale trade (8.3 percent). In 2016, construction replaced wholesale trade as the fourth-largest sector.

Employment for medium businesses increased at an AAGR of 2.2 percent, with the largest contributions coming from construction and from health care and social assistance, each sector contributing 0.4 percentage point. The fastest growing sector was construction, which increased 7.5 percent. At the other end, the largest decrease was in mining, which decreased 7.7 percent. While mining employment declined across all size groups, the decline was the sharpest within medium businesses, driven mainly by support activities for mining. The four largest employing sectors in 2012 (comprising 50 percent of employment) were health care and social assistance (19.9 percent), manufacturing (13.7 percent), accommodations and food services (9.4 percent), and administrative services (7.0 percent). It is notable that for 2012–2016, while construction ranked eighth in terms of size, it was a leading contributor to employment growth and was consistently the fastest growing sector in each year.

Wages per employee grew at an AAGR of 2.2 percent for medium businesses. In 4 out of 19 sectors, wages per employee show their highest growth among medium-sized businesses. These sectors are agriculture, forestry, fishing, and hunting (excluding farms); mining; management of companies; and educational services. Overall, the slowest growing sector was arts, entertainment, and recreation, which increased 0.2 percent, while the fastest growing was agriculture, forestry, fishing, and hunting (excluding farms), which increased 5.8 percent.

3.2.8 Large businesses (500 or more employees)

For 2012–2016, wages for large businesses grew at an AAGR of 4.8 percent, the fastest among all size groups. The top three contributing sectors to this growth were health care and social assistance (contributing 0.8 percentage point); professional, scientific, and technical services (contributing 0.6 percentage point); and finance and insurance (contributing 0.6 percentage point). The four largest sectors in terms of wages (comprising about 50 percent in 2012) were manufacturing (14.3 percent); health care and social assistance (13.9 percent); finance and insurance (12.2 percent); and professional, scientific, and technical services (9.9 percent).The fastest growing sector was arts, entertainment, and recreation, in which wages increased at an AAGR of 9.5 percent. Within this sector, growth was led by an 11.8 percent increase in performing arts, spectator sports, museums, and related activities. Among large businesses, only the mining sector experienced a decrease in wages, which decreased at an AAGR of 4.4 percent. Within mining, all three subindustries contributed to the decline, with support activities for mining being the main contributor. For most sectors (10 out of 19), large businesses are where wages showed the strongest growth.

Employment for large businesses increased at an AAGR of 2.6 percent, the largest among all size groups. The top contributors to growth were health care and social assistance (contributing 0.5 percent), administrative services (contributing 0.4 percentage point), and retail trade (contributing 0.3 percent). The fastest growth was in construction, which grew 6.0 percent, while the fastest decrease was in mining, which fell 6.2 percent.

The four largest sectors in terms of employment (totaling over 53 percent) were retail trade (16.9 percent), health care and social assistance (15.6 percent), manufacturing (11.5 percent), and administrative services (9.1 percent). Like wages, a majority of sectors (12 out of 19) saw their strongest employment growth within large businesses.

4. Discussion

For 2012–2016, we find that businesses categorized as very small, small, and medium small (businesses with 0–99 employees) comprised about 30 percent of wages and 35 percent of employment in the U.S. economy (for ease of discussion, these three business size categories will collectively be referred to as "small businesses" in this section). These small businesses saw wages increase at a slower rate than medium and large businesses (those with 100 or more employees), lagging by about 1.5 percent on average over the period. Employment for small businesses grew at nearly half the pace of medium and large businesses (1.4 percent versus 2.5 percent), though relatively strong employment growth can be seen within businesses employing 20–49 employees (2.3 percent). In terms of wages per employee, small businesses experienced an increase of 1.9 percent, on par with the 2.2 percent growth for non-small businesses. All business sizes saw wages grow faster than the average inflation rate of 1.0 percent over the period, measured using the price index for personal consumption expenditures (BEA 2020), though average growth of wages per employee for businesses employing 20–49 employees was only slightly higher (1.3 percent).

Our analysis also shows there were a few economic developments unique to small businesses from 2012–2016. Within accommodations and food services, both wage and employment growth outpaced growth of non-small businesses. Also, mining employment for small businesses declined 4.2 percent compared with a 6.5 percent decline among non-small businesses. Similarly, the drop in wages for mining was less severe among small businesses. Our results also show that industry rankings for small businesses mostly stayed constant throughout the period. In both 2012 and 2016, professional, scientific, and technical services garnered the most wages of all industries for small businesses, while accommodations and food services accounted for the most employment. For all business sizes, industry shares also did not change substantially over the period, although it was the health care and social assistance sector that dominated both wages and employment in the overall economy.

These new estimates provide additional detail to BEA's previous estimates of wages by business size, which combined enterprises with 20–99 employees into a single category (Highfill and Strassner 2017). This paper shows that enterprises with 20–49 employees and enterprises with 50–99 employees have different overall growth rates, industry shares, and industry contributions to growth. Notably, enterprises with 20–49 employees had a faster growth in wages and employment for 2012– 2016 compared to enterprises with 50–99 employees. These results further highlight how the interpretation and understanding of economic growth for small businesses is influenced by how business sizes are categorized. As previously discussed, the small business share of GDP in Canada decreases when Statistics Canada uses a similar method as that used by

the SBA Office of Advocacy. Likewise, research by the Treasury OTA shows that using business revenue to define small businesses instead of employment can also lead to different interpretations of the small business economy (the OTA research found only 18 percent of business income was attributable to small businesses using a revenue-based definition of "small"). BEA's new statistics on small businesses may benefit from using different definitions to allow data users to choose which definition of small business is most appropriate for their research or analysis.

Economic data by business size and by industry exist from a variety of different outlets aside from the SUSB. Other publicly available data by business size include the Medical Expenditure Panel Survey from the U.S. Department of Health and Human Services, which can be used to estimate employer contributions to employee health care premiums, and IRS SOI data, which could be used to estimate proprietors' income. Census and IRS financial microdata on individual enterprises are the ideal data to estimate economic statistics by business size. Accessing nonpublic microdata would also allow for analysis using different measures of business size, such as one that incorporates both employment and revenue qualifiers. Future research may look to these additional data sources to expand and improve on these experimental estimates of wages and employment by business size and industry.

5. Tables and Figure

Table 1. Sample of Business Size Definitions

Organization	Size class indicator	Size class criteria
ADP Research Institute (2019)	Employment	Small = 1–49
Australian Bureau of Statistics (OECD 2018)	Employment	Micro = 0–4; Small = 5–19; Medium = 20–199; Large = 200+
European Commission (OECD 2018)	Employment and annual turnover or balance sheet total	Small and medium = < 250 employees and annual turnover < €50m or balance sheet total < €43m
Minneapolis Fed: "What Do Survey Data Tell Us about U.S. Businesses?" (Bhandari et al. 2019)	Book value of assets	Bottom quintile of firms
Statistics of U.S. Businesses (U.S. Census Bureau 2017)	Employment	Very small = 0–19; Small = 20– 99; Medium = 100–499; Large = 500+
U.S. Small Business Administration (2018)	Employment or revenue	Varies by NAICS

Table 2. Previous Estimates of Small Business Gross Domestic Product

Source	Estimates of Small Business Shares of Private, Non-Farm GDP	Initial Year	Final Year
Popkin (1980a)	52% in 1963, falling to 48% in 1972	1965	1972
Popkin (1980b)	51% in 1958, falling to 48% in 1976	1955	1976
Popkin (1982)	49% in 1972, falling to 47% in 1977	1972	1977
Popkin (1988)	57% in 1958, falling to 50% in 1980	1958	1982
Popkin (1997)	51% in 1982 and 1992	1982	1992
Popkin (2001)	57% in 1958, falling to 52% in 1999	1958	1999
Popkin (2002)	50.0% in 1998	1998	1998
Kobe (2007)	50.5% in 1998, rising to 50.7% in 2004	1998	2004
Leung and Rispoli (2011)	50.7% in 2005	2005	2005
Kobe (2012)	48.3% in 2002, falling to 44.6% in 2010	2002	2010
Leung and Rispoli (2014)	47.8% in 2002, falling to 46.1% in 2008	2002	2008
Highfill and Strassner (2017)	48.9% in 2002, falling to 44.4% in 2012 (gross output)	2002	2012
Kobe and Schwinn (2017)	48.0% in 1998, falling to 43.5% in 2014	1998	2014

Note: Small businesses defined as enterprises with less than 500 employees.

Table 3. Average Annual Growth in Wages and Employment by Size Category, 2012–2016

Category	Percent change (Wages)	Contribution to percent change (Wages)	Percent change (Employment)	Contribution to percent change (Employment)
Total private nonfarm business	4.3	4.3	2.1	2.1
Very small (0–19 employees)	3.0	0.4	0.7	0.1
Small (20–49)	3.6	0.3	2.3	0.2
Medium small (50–99)	3.4	0.2	1.8	0.1
Medium (100–499)	4.5	0.6	2.2	0.3
Large (500+)	4.8	2.7	2.6	1.3

Note: Contributions may not sum to total due to rounding.

Table 4. Wages per Employee by Size Category

Category	U.S. dollars (2012)	U.S. dollars (2016)	Average annual growth rate, 2012–2016
Total private nonfarm business	49,735	54,150	2.2
Very small (0–19 employees)	39,547	43,333	2.3
Small (20–49)	42,355	44,604	1.3
Medium small (50–99)	45,787	48,711	1.6
Medium (100–499)	48,565	52,940	2.2
Large (500+)	55,915	60,870	2.1

Table 5. Average Annual Growth in Wages by Size Category and Sector, 2012–2016

[Percent]

NAICS	Industry Description	Very small	Small	Medium small	Medium	Large	Overall
	Total private nonfarm business	3.0	3.6	3.4	4.5	4.8	4.3
11	**Agriculture, forestry, fishing, and hunting (excluding farms)**	7.1	8.9	6.4	3.7	6.3	6.6
21	**Mining**	2.7	–2.3	–2.4	–4.5	–4.4	–4.1
22	**Utilities**	1.7	2.6	–0.5	2.3	2.7	2.5
23	**Construction**	5.3	7.6	8.4	9.7	8.3	7.6
31–33	**Manufacturing**	1.3	1.3	1.3	2.5	3.1	2.6
42	**Wholesale trade**	–0.2	0.6	0.7	2.7	4.8	2.9
44–45	**Retail trade**	3.0	3.4	3.7	6.5	3.6	3.8
48–49	**Transportation and warehousing (excluding rail transportation)**	3.5	4.0	2.1	3.3	6.5	5.5
51	**Information**	4.0	1.9	3.3	6.6	6.1	5.8
52	**Finance and insurance**	2.5	–0.3	0.2	3.3	4.6	3.9
53	**Real estate, rental and leasing**	5.1	4.5	3.8	5.5	6.2	5.4
54	**Professional, scientific, and technical services**	3.3	3.7	4.5	6.5	5.7	5.0
55	**Management of companies**	–7.6	–0.7	1.9	3.9	4.5	4.4
56	**Administrative services**	1.9	2.7	1.9	1.6	6.6	5.1
61	**Educational services**	4.5	3.4	4.3	5.5	3.6	4.0
62	**Health care and social assistance**	1.1	2.3	2.4	3.8	5.6	4.3
71	**Arts, entertainment, and recreation**	3.9	5.1	2.5	2.9	9.5	5.6
72	**Accommodations and food services**	5.8	8.2	8.3	7.1	5.1	6.3
81	**Other services**	3.7	4.4	3.5	5.0	4.9	4.2

Table 6. Average Sector Contribution to Wage Growth by Size Category and Sector, 2012–2016 [Percent]

NAICS	Industry description	Very small	Small	Medium small	Medium	Large	Overall
	Total private nonfarm business	3.0	3.6	3.4	4.5	4.8	4.3
11	**Agriculture, forestry, fishing, and hunting (excluding farms)**	0.1	0.0	0.0	0.0	0.0	0.0
21	**Mining**	0.0	0.0	0.0	–0.1	–0.1	0.0
22	**Utilities**	0.0	0.0	0.0	0.0	0.0	0.0
23	**Construction**	0.6	0.9	0.9	0.7	0.2	0.4
31–33	**Manufacturing**	0.1	0.1	0.2	0.4	0.4	0.3
42	**Wholesale trade**	0.0	0.0	0.1	0.2	0.3	0.2
44–45	**Retail trade**	0.3	0.2	0.3	0.4	0.3	0.3
48–49	**Transportation and warehousing (excluding rail transportation)**	0.1	0.1	0.1	0.1	0.3	0.2
51	**Information**	0.1	0.0	0.1	0.2	0.3	0.2
52	**Finance and insurance**	0.1	0.0	0.0	0.2	0.6	0.4
53	**Real estate, rental and leasing**	0.2	0.1	0.1	0.1	0.1	0.1
54	**Professional, scientific, and technical services**	0.5	0.5	0.6	0.8	0.6	0.6
55	**Management of companies**	0.0	0.0	0.0	0.1	0.3	0.2
56	**Administrative services**	0.1	0.1	0.1	0.1	0.4	0.3
61	**Educational services**	0.0	0.1	0.1	0.2	0.1	0.1
62	**Health care and social assistance**	0.2	0.3	0.3	0.5	0.8	0.6
71	**Arts, entertainment, and recreation**	0.1	0.1	0.0	0.1	0.1	0.1
72	**Accommodations and food services**	0.3	0.7	0.6	0.3	0.2	0.3
81	**Other services**	0.4	0.3	0.2	0.2	0.1	0.2

Note: Contributions may not sum to total due to rounding.

Table 7. Average Annual Growth in Employment by Size Category and Sector, 2012–2016 [Percent]

NAICS	Industry description	Very small	Small	Medium small	Medium	Large	Overall
	Total private nonfarm business	0.7	2.3	1.8	2.2	2.6	2.1
11	**Agriculture, forestry, fishing, and hunting (excluding farms)**	2.8	4.1	2.2	–2.0	4.3	2.2
21	**Mining**	–3.8	–4.3	–4.5	–7.7	–6.2	–5.9
22	**Utilities**	0.4	0.3	–0.8	0.4	0.1	0.1
23	**Construction**	2.2	5.0	5.6	7.5	6.0	4.6
31–33	**Manufacturing**	–0.5	0.0	–0.5	0.9	1.4	0.8
42	**Wholesale trade**	–1.7	–0.9	–0.8	1.4	2.8	0.9
44–45	**Retail trade**	–0.4	0.7	1.2	3.0	2.0	1.6
48–49	**Transportation and warehousing (excluding rail transportation)**	1.3	2.7	0.8	2.3	4.4	3.5
51	**Information**	1.2	–2.2	–0.8	1.3	1.6	1.1
52	**Finance and insurance**	0.4	–1.6	–1.6	0.9	1.8	1.3
53	**Real estate, rental and leasing**	1.5	2.0	1.1	2.1	3.2	2.2
54	**Professional, scientific, and technical services**	1.3	2.8	3.3	4.4	3.2	2.8
55	**Management of companies**	0.2	–2.5	–0.4	1.5	3.0	2.7
56	**Administrative services**	–0.2	1.3	–0.6	–0.2	4.4	2.9
61	**Educational services**	3.0	2.1	2.2	2.9	1.2	1.8
62	**Health care and social assistance**	0.4	2.7	2.3	2.0	3.2	2.5
71	**Arts, entertainment, and recreation**	2.3	2.6	1.6	2.7	4.8	3.3
72	**Accommodations and food services**	1.5	4.7	4.8	3.5	2.7	3.2
81	**Other services**	0.5	1.4	0.6	1.7	1.9	1.0

Table 8. Sector Contribution to Growth in Employment by Size Category and Sector, 2012–2016 [Percent]

NAICS	Industry description	Very small	Small	Medium small	Medium	Large	Overall
	Total private nonfarm business	0.7	2.3	1.8	2.2	2.6	2.1
11	**Agriculture, forestry, fishing, and hunting (excluding farms)**	0.0	0.0	0.0	0.0	0.0	0.0
21	**Mining**	0.0	0.0	0.0	–0.1	0.0	0.0
22	**Utilities**	0.0	0.0	0.0	0.0	0.0	0.0
23	**Construction**	0.2	0.5	0.4	0.4	0.1	0.2
31–33	**Manufacturing**	0.0	0.0	–0.1	0.1	0.2	0.1
42	**Wholesale trade**	–0.1	–0.1	0.0	0.1	0.1	0.0
44–45	**Retail trade**	0.0	0.1	0.1	0.2	0.3	0.2
48–49	**Transportation and warehousing (excluding rail transportation)**	0.0	0.1	0.0	0.1	0.2	0.1
51	**Information**	0.0	0.0	0.0	0.0	0.1	0.0
52	**Finance and insurance**	0.0	0.0	0.0	0.0	0.1	0.1
53	**Real estate, rental and leasing**	0.1	0.0	0.0	0.0	0.0	0.0
54	**Professional, scientific, and technical services**	0.1	0.2	0.2	0.3	0.2	0.2
55	**Management of companies**	0.0	0.0	0.0	0.0	0.1	0.0
56	**Administrative services**	0.0	0.1	0.0	0.0	0.4	0.2
61	**Educational services**	0.0	0.1	0.1	0.1	0.0	0.1
62	**Health care and social assistance**	0.0	0.3	0.3	0.4	0.5	0.4
71	**Arts, entertainment, and recreation**	0.0	0.1	0.0	0.1	0.1	0.1
72	**Accommodations and food services**	0.2	0.9	0.7	0.3	0.2	0.3
81	**Other services**	0.1	0.1	0.0	0.1	0.0	0.1

Note: Contributions may not sum to total due to rounding.

Table 9. Average Wages per Employee by Size Category and Sector, 2012–2016

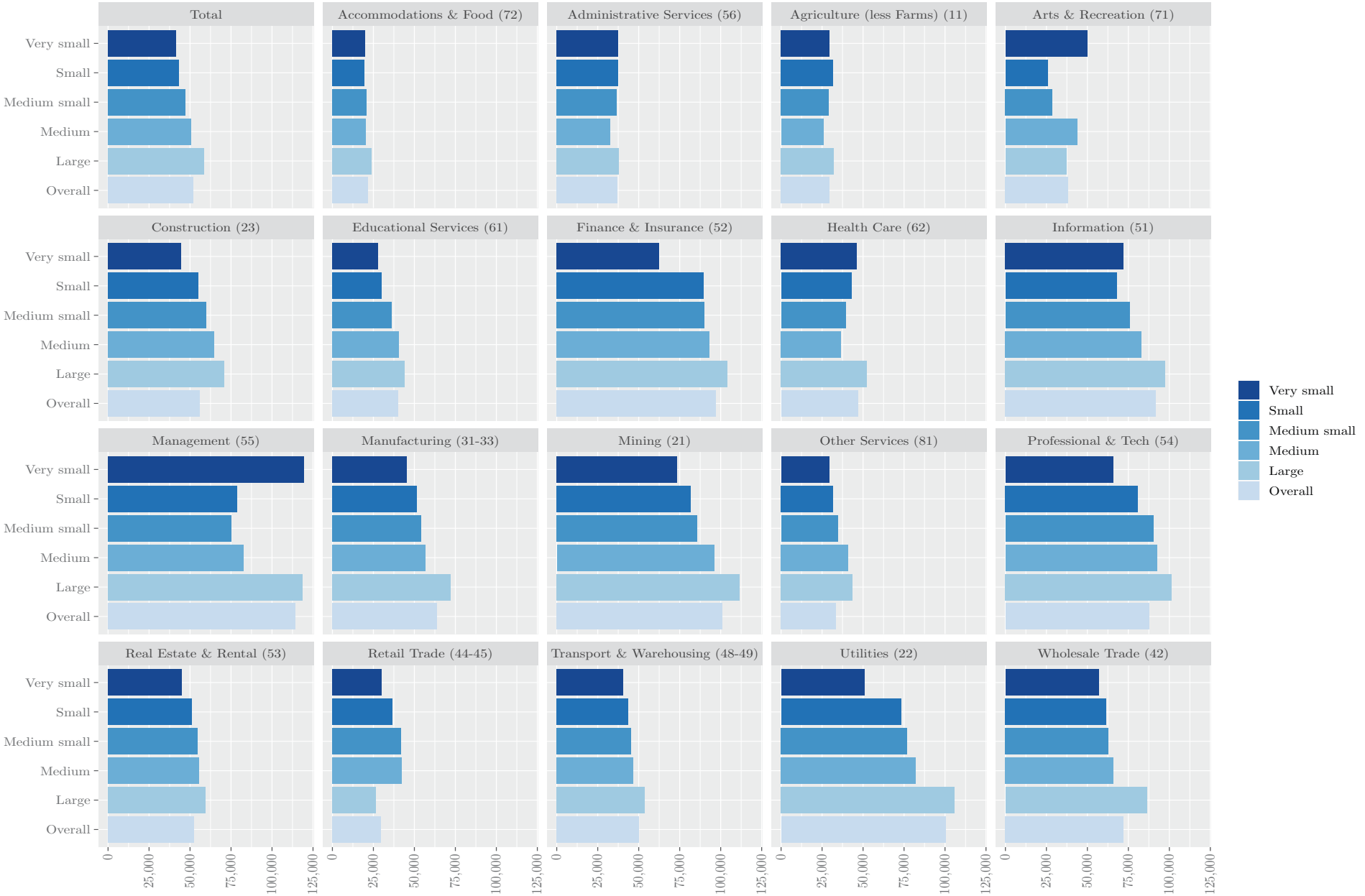
[U.S. dollars]

NAICS	Industry description	Very small	Small	Medium small	Medium	Large	Overall
	Total private nonfarm business	41,273	43,278	47,067	50,499	58,506	51,899
11	**Agriculture, forestry, fishing, and hunting (excluding farms)**	29,584	31,669	29,119	25,832	32,188	29,578
21	**Mining**	73,603	81,911	85,797	95,998	111,634	101,205
22	**Utilities**	50,767	73,212	76,967	81,991	105,777	100,290
23	**Construction**	44,342	55,015	59,794	64,658	70,640	55,789
31–33	**Manufacturing**	45,470	51,568	54,224	56,893	72,315	63,790
42	**Wholesale trade**	56,993	61,558	62,830	65,989	86,217	71,975
44–45	**Retail trade**	30,145	36,510	41,915	42,388	26,465	29,633
48–49	**Transportation and warehousing (excluding rail transportation)**	40,397	43,678	45,298	46,741	53,525	49,991
51	**Information**	72,116	67,809	75,688	82,952	97,425	91,809
52	**Finance and insurance**	62,508	89,495	90,129	93,037	104,230	96,896
53	**Real estate, rental and leasing**	45,040	51,170	54,567	55,608	59,295	52,529
54	**Professional, scientific, and technical services**	65,612	80,838	90,184	92,319	101,304	87,626
55	**Management of companies**	119,543	78,559	75,353	82,849	118,644	114,290
56	**Administrative services**	37,648	37,516	36,563	32,475	37,783	36,987
61	**Educational services**	27,749	30,043	36,272	40,736	44,234	40,240
62	**Health care and social assistance**	46,201	42,962	39,363	36,687	52,171	46,840
71	**Arts, entertainment, and recreation**	49,874	25,810	28,503	43,751	37,213	38,305
72	**Accommodations and food services**	19,924	19,445	20,997	20,579	23,886	21,598
81	**Other services**	29,290	31,677	34,622	40,904	43,427	33,622

Table 10. Average Annual Growth in Wages per Employee by Size Category and Sector, 2012–2016 [Percent]

NAICS	Industry description	Very small	Small	Medium small	Medium	Large	Overall
	Total private nonfarm business	2.3	1.3	1.6	2.2	2.1	2.1
11	**Agriculture, forestry, fishing, and hunting (excluding farms)**	4.3	4.8	4.2	5.8	2.1	4.3
21	**Mining**	1.1	1.9	1.3	3.4	1.7	1.8
22	**Utilities**	1.3	2.3	0.2	1.9	2.5	2.4
23	**Construction**	3.1	2.5	2.7	2.1	2.2	2.9
31–33	**Manufacturing**	1.9	1.3	1.8	1.6	1.7	1.8
42	**Wholesale trade**	1.5	1.5	1.5	1.4	1.9	2.0
44–45	**Retail trade**	3.5	2.7	2.4	3.4	1.6	2.2
48–49	**Transportation and warehousing (excluding rail transportation)**	2.1	1.3	1.3	1.1	2.1	2.0
51	**Information**	5.3	4.1	4.2	5.2	4.4	4.7
52	**Finance and insurance**	2.1	1.3	1.8	2.3	2.7	2.6
53	**Real estate, rental and leasing**	3.5	2.5	2.7	3.3	2.9	3.2
54	**Professional, scientific, and technical services**	2.0	0.9	1.2	2.0	2.4	2.2
55	**Management of companies**	–7.1	1.9	2.1	2.3	1.5	1.6
56	**Administrative services**	2.1	1.5	2.5	1.8	2.1	2.1
61	**Educational services**	1.4	1.3	2.0	2.5	2.4	2.2
62	**Health care and social assistance**	0.8	–0.4	0.1	1.8	2.3	1.8
71	**Arts, entertainment, and recreation**	1.6	2.4	0.9	0.2	4.5	2.3
72	**Accommodations and food services**	4.3	3.4	3.3	3.5	2.3	3.0
81	**Other services**	3.2	2.9	2.9	3.2	3.0	3.2

Figure 1: Average Wages per Employee by Size Category and Sector, 2012-2016 [U.S. dollars]



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