

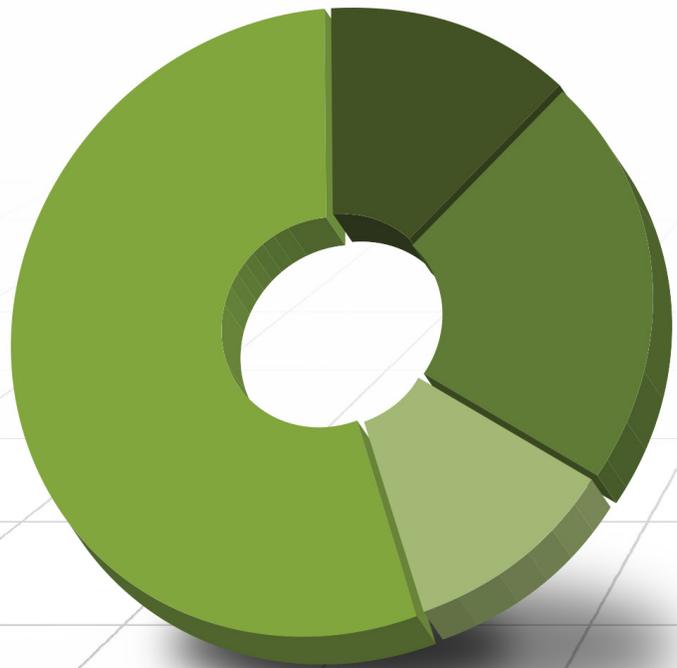


KAUFFMAN  
INDICATORS *of*  
ENTREPRENEURSHIP

# JOB CREATION BY FIRM AGE:

## RECENT TRENDS IN THE UNITED STATES

OCTOBER 2022



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## KAUFFMAN ENTREPRENEURIAL JOBS INDICATORS

This series provides four measures that are relevant to understanding jobs created by new businesses in the United States:

**Creation**

**Contribution**

**Constancy**

**Compensation**

These indicators were constructed using two datasets from the U.S. Census Bureau: the Quarterly Workforce Indicators (QWI) and the Population Estimates Program (PEP).

# Introduction

Entrepreneurship is often celebrated as a driver of job creation. Research finds that young firms are responsible for most net new jobs.<sup>1</sup> There is wide variation, however, in the number of jobs that young firms generate. While some new firms never hire employees and others are responsible for only modest job creation, a small share of new firms experiences extraordinarily high growth and creates a significant number of jobs.<sup>2</sup>

Over the past several decades, there is evidence that job creation among new firms has declined — as has the share of U.S. employment attributable to these young firms.<sup>3</sup> Startups are now creating fewer jobs than they did a quarter century ago,<sup>4</sup> and fewer business applications today are resulting in new employer businesses than they did 15 years ago.<sup>5</sup> During the COVID-19 pandemic, a spike in business applications was accompanied by a decrease in the proportion of applications for businesses that were likely to become employers and create jobs for anyone other than the entrepreneurs themselves.<sup>6</sup> These trends raise important questions about the ability of young firms to continue to create new jobs today — and the extent to which they will be able to do so in the future.

The number of jobs created by new firms is one indicator of entrepreneurship’s potential to provide opportunities for economic stability, mobility, and prosperity for entrepreneurs, the people they employ, and the communities in which they live and work. This statistic alone, however, is not sufficient. In order to assess the relationship between entrepreneurship and inclusive prosperity, we must go beyond questions regarding the *quantity* of new jobs that entrepreneurs create and consider the *quality* of these jobs and their capacity to provide the stability and wages that allow individuals to support themselves and their families.

In this report, we explore these issues using the Kauffman Foundation’s new set of indicators, the **Kauffman Entrepreneurial Jobs Indicators**. These indicators include four measures related to the jobs created by new businesses in the U.S.:

1. **Creation**
2. **Contribution**
3. **Constancy**
4. **Compensation**

**Creation** and **contribution** are related to the *quantity of jobs* generated by firms of varying age groups, including startups that are 0–1 year old. **Constancy** and **compensation** present information on job quality. These indicators were constructed using two datasets from the U.S. Census Bureau: the Quarterly Workforce Indicators (QWI) and the Population Estimates Program (PEP).<sup>7</sup> Below, we discuss each of these indicators and highlight broad trends in the U.S. over time.

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1. See Decker et al., 2014; Haltiwanger et al., 2013; Kane, 2010.

2. See Decker et al., 2014.

3. See Decker et al., 2014; Reedy & Litan, 2011.

4. See Fairlie, 2022.

5. See Ewing Marion Kauffman Foundation, 2022a.

6. Mass Economics analysis of U.S. Census Bureau (2019–2021) data.

7. For more information on the methods used in the construction of the Kauffman Entrepreneurial Job Indicators, see Ewing Marion Kauffman Foundation, 2022b.

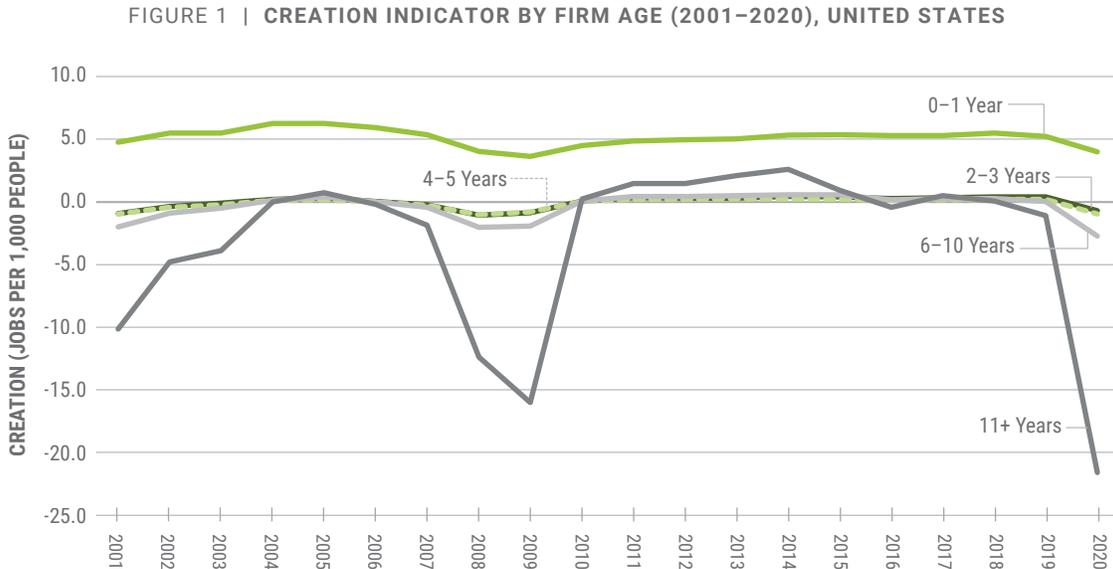
# Creation

**CREATION**, measured as net job change per 1,000 people, reflects the increase or decrease in the number of jobs created in a specific geography by a particular firm age group.

**INTERPRETING CREATION:** A positive value for creation indicates that more jobs are created than lost in firms in the specific geographic area and age group. A negative value indicates more job losses than job gains.

Over the last two decades, net job creation has consistently been highest among the youngest firms. Startups – unlike other firm age groups – have experienced positive net job creation for the entire period. Firms in other age categories had positive net job creation in some years and net job destruction in others. Figure 1 illustrates these trends, showing that job creation for startups (firms 0–1 year old) was higher than that for all other age groups and was above zero for every year between 2001 and 2020.

Older firms – those 11+ years old – have often had the lowest job creation levels among firm age groups, and older firms were frequently responsible for more job destruction than creation. Figure 1 shows that firms 11+ years old had the lowest job creation levels for 12 of the 20 years (2001–2004, 2006–2009, 2016, and 2018–2020). These firms had negative levels of job creation – meaning that jobs were lost more than they were created – for 11 of the 20 years in the period (2001–2004, 2006–2009, 2016, and 2019–2020).



**Startups – unlike other firm age groups – have experienced positive net job creation in every year over the past two decades.**

The Great Recession had a notable impact on job creation at firms of all ages. Among startups, job creation levels peaked in 2005, decreased substantially in 2009 after the Great Recession, and never fully recovered. Firms 2–3 years old and firms 4–5 years old saw their lowest levels of job creation – reaching net job destruction – in 2008. Job creation among firms 6–10 years old and 11+ years old also declined significantly and reached negative levels during the Great Recession. However, job creation levels among firms older than startups (i.e., firms 2–3, 4–5, 6–10, and 11+ years old) recovered following the Great Recession. Figures 2a–e illustrate the impact of the Great Recession on job creation.

FIGURE 2 | CREATION INDICATOR BY FIRM AGE GROUP (2001–2020), UNITED STATES<sup>8</sup>

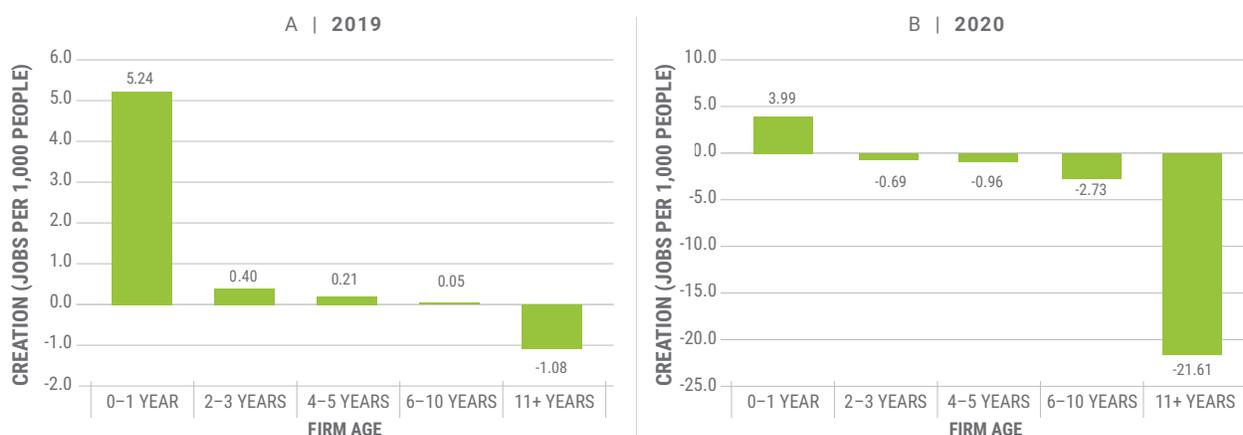


8. Y-axes are specific to the firm age group being visualized. Values are labeled at 2001, the pre-recession peak, the recession trough, the post-recession peak, 2019, and 2020.

**The economic changes wrought by the COVID-19 pandemic also resulted in substantial decreases in job creation among all firm age groups.** In 2019, just prior to the COVID-19 pandemic, firms 0–1 year old, firms 2–3 years old, firms 4–5 years old, and firms 6–10 years old all experienced net job creation, while firms 11+ years old experienced relatively low levels of net job destruction. Figure 3 shows that in 2019, firms 0–1 year old created, on average, 5.24 jobs per 1,000 people, firms 2–3 years old created 0.40 jobs per 1,000 people, firms 4–5 years old created 0.21 jobs per 1,000 people, and firms 6–10 years old created 0.05 jobs per 1,000 people. Firms 11+ years old lost 1.08 jobs per 1,000 people.

As the pandemic began in 2020, job creation decreased for all firm age groups, and startups were the only age group to experience net job creation in that year. Firms 0–1 year old created 3.99 jobs per 1,000 people, while all other firm age groups experienced net job destruction: -0.69 among firms 2–3 years old, -0.96 among firms 4–5 years old, -2.73 among firms 6–10 years old, and -21.61 among firms 11+ years old. For firms 6–10 years old and firms 11+ years old, there was even greater job destruction in 2020 than there had been during the Great Recession. These decreases in 2020 are evident in Figures 2a–e above, as well as in the data from 2019 and 2020 presented in Figures 3a–b below.

FIGURE 3 | CREATION INDICATOR BY FIRM AGE (2019, 2020), UNITED STATES<sup>9</sup>



**In 2019, just prior to the COVID-19 pandemic, firms 11+ years old experienced relatively low levels of net job destruction while younger firms all experienced net job creation.**

**For firms 6–10 years old and firms 11+ years old, there was even greater job destruction in 2020 than there had been during the Great Recession.**

9. Y-axes are specific to the year being visualized.

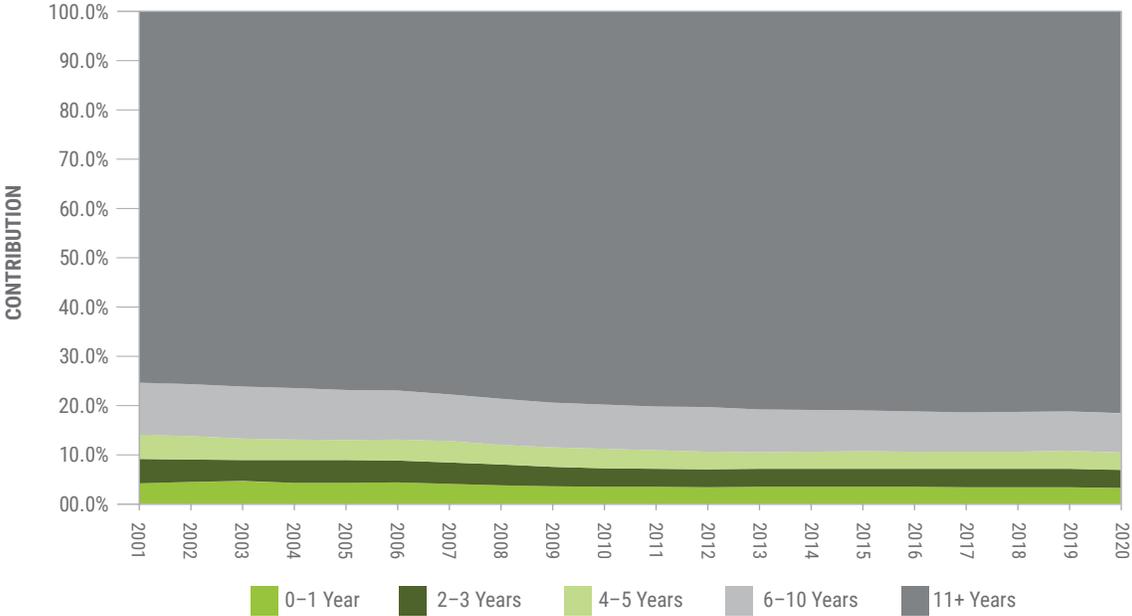
# Contribution

**CONTRIBUTION** reflects the share of private sector employment attributable to firms of a certain age group. It is measured as the ratio of the employment of firms in a specific age category to total employment in the geographic area.

**INTERPRETING CONTRIBUTION:**  
A larger value for contribution indicates that firms of a certain age group represent a larger share of the geographic area's employment.

**Startups and young firms contribute a relatively small share of total private sector jobs in the U.S., while firms 11+ years old are responsible for an overwhelming majority of private sector jobs.** Figure 4 illustrates that firms 11+ years old consistently had substantially higher job contribution over the 2001–2020 period. In 2019, for example, firms 0–1 year old were responsible for 3.34% of private sector jobs in the U.S. Firms 2–3 years old contributed 3.76% of private sector jobs, firms 4–5 years old contributed 3.64% of private sector jobs, firms 6–10 years old contributed 8.05% of private sector jobs, and firms 11+ years old contributed 81.21% of private sector jobs.

FIGURE 4 | CONTRIBUTION INDICATOR BY FIRM AGE (2001–2020), UNITED STATES

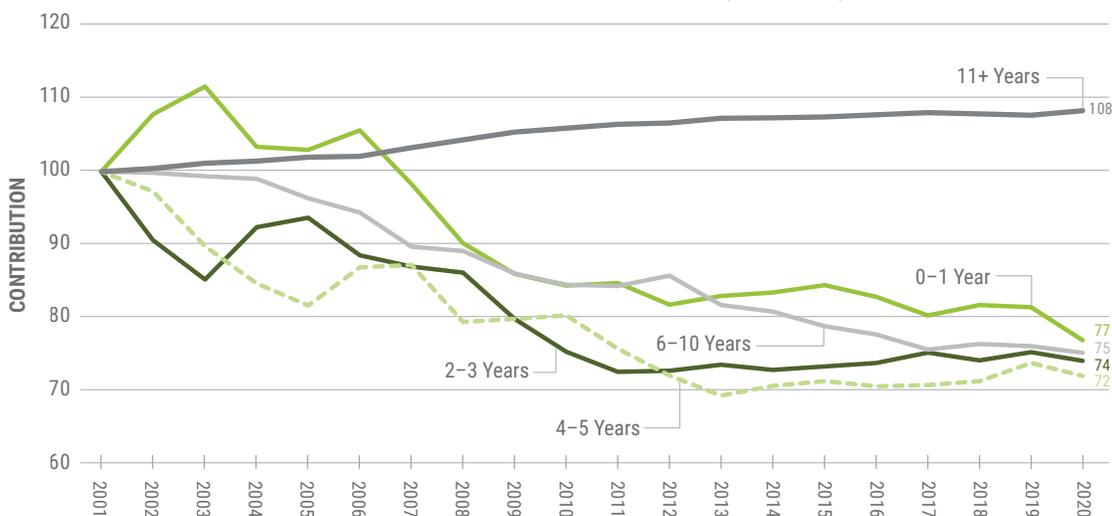


**Over the 2001–2020 period, firms 11+ years old contributed over 75% of private sector jobs.**

**For the past 20 years, the share of jobs in the U.S. contributed by startups has been declining, while the share contributed by firms 11+ years old has been increasing.** Contribution for startups increased between 2001 and 2003, peaking at 4.6%. It then declined to 3.2% in 2020. Contribution for firms 11+ years old has increased from 75.4% in 2001 to 81.6% in 2020. Contribution values for firms 6–10 years old, 4–5 years old, and 2–3 years old were highest in 2001, and lowest in 2020, 2013, and 2011, respectively.

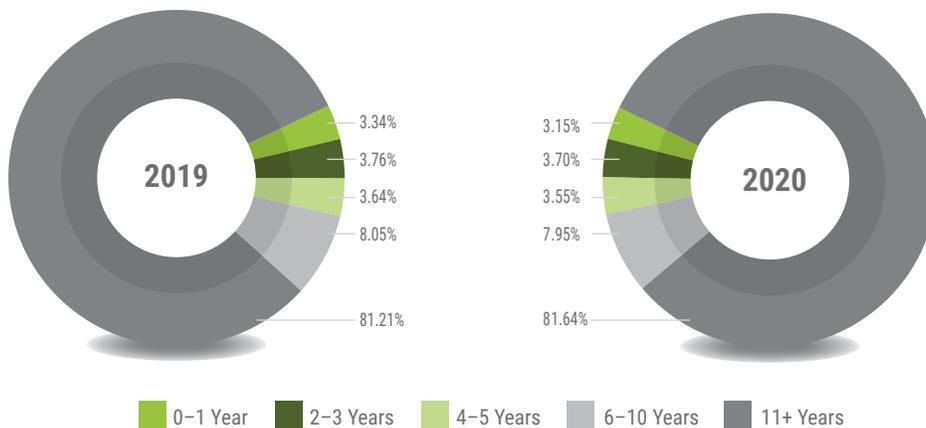
Figure 5 presents the same data as Figure 4, with each firm age group’s contribution value indexed to 2001 (2001=100). Contribution among firms 11+ years old has grown 8% since 2001, while contribution has declined by around 25% for younger firm age groups during this time period.

**FIGURE 5 | INDEXED CONTRIBUTION INDICATOR BY FIRM AGE (2001–2020), UNITED STATES**  
CONTRIBUTION VALUE INDEXED TO 2001 (2001=100)



**The first year of the pandemic did not appear to have a significant impact on job contribution.** Figure 6 shows that these shares did not change dramatically between 2019 and 2020. All firm age groups, except firms 11+ years old, experienced very small decreases in job contribution; job contribution for the group of firms 11+ years old increased slightly.

**FIGURE 6 | CONTRIBUTION INDICATOR BY FIRM AGE (2019, 2020), UNITED STATES**



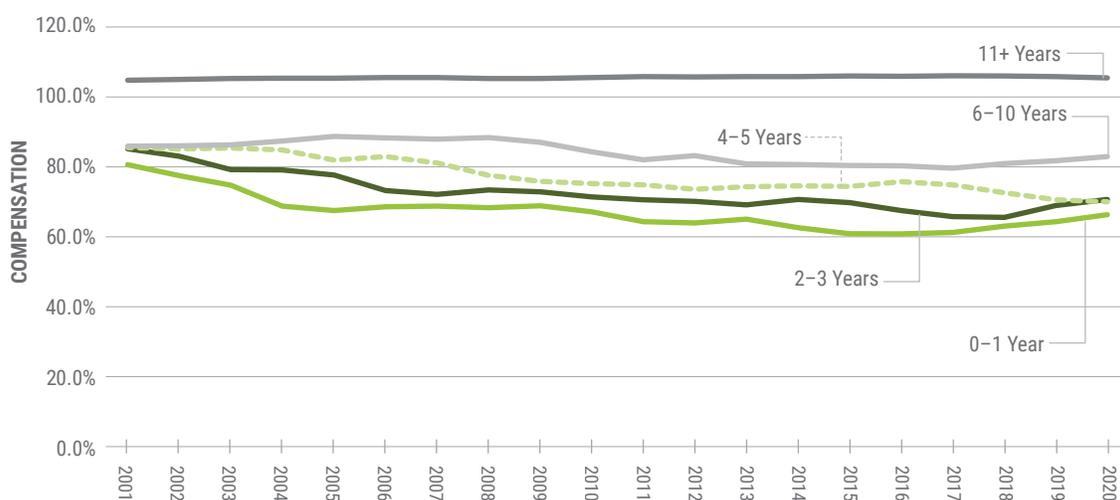
## Compensation

**COMPENSATION** reflects the average earnings of employees at firms of a certain age group and geography, relative to the average earnings of all employees in the U.S.

**INTERPRETING COMPENSATION:** A value below 100% means that the average earnings for employees in a specific firm age group and geographic area are lower than the average earnings for employees across all firms nationally. A value above 100% means that the average earnings in a specific firm age group and geographic area are higher than the average earnings nationally. A value of 150%, for example, means that the average earnings in a specific firm age group are 50% higher than the average earnings nationally. By contrast, a value of 50% means that earnings in a specific firm age group and geographic area are 50% less than the average earnings nationally.

Since 2001, compensation has been higher in more established firms than in younger firms. Compensation among startups has been lower than that among all other age groups for every year during the 20-year period. Average earnings for employees of firms in different age groups vary, generally trending upward with firm age. Figure 7 indicates that firms 11+ years old have consistently had the highest levels of compensation over the last two decades, and that firms 0–1 year old have had the lowest levels of compensation over the time period.

FIGURE 7 | COMPENSATION INDICATOR BY FIRM AGE (2001–2020), UNITED STATES

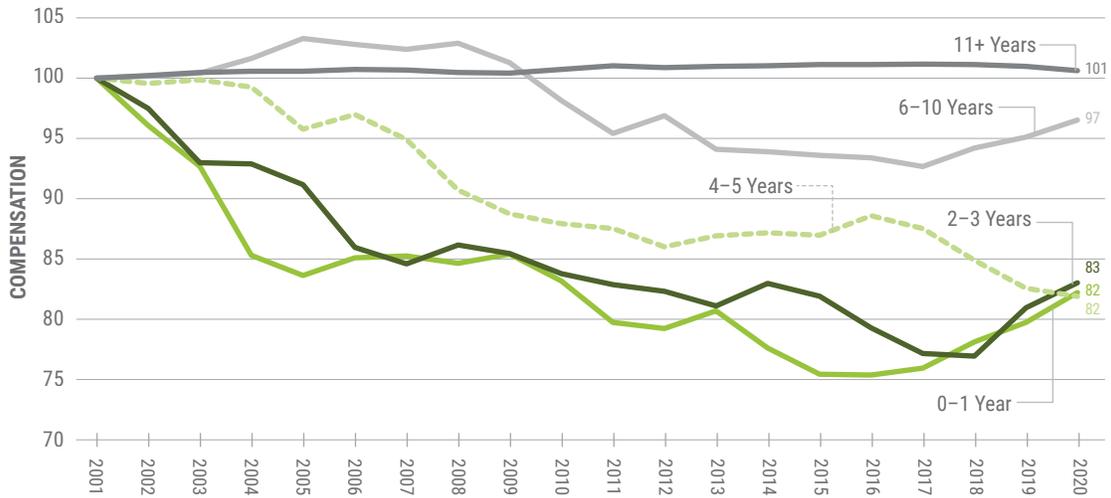


**Compensation at firms 11+ years old remained relatively constant between 2001 and 2020. Compensation at firms 0–1 year old, 2–3 years old, 4–5 years old, and 6–10 years old all declined somewhat during this time period.** This decline was smaller among firms that were 6–10 years old than among those 0–1 year old, 2–3 years old, and 4–5 years old. As shown in Figure 8,<sup>10</sup> compensation declined by 14.34 percentage points (from 80.74% to 66.40%) between 2001 and 2020 for firms 0–1 year old, 14.47 percentage points (from 85.27% to 70.80%) for firms 2–3 years old, 15.49 percentage points (from 85.60% to 70.11%) for firms 4–5 years old, and 2.99 percentage points (from 86.02% to 83.03%) for firms 6–10 years old. For firms 11+ years old, compensation remained fairly stable over the 20-year period, rising just 0.63 percentage points (from 104.89% to 105.52%).

10. As in Figure 5, Figure 8 indexes each firm age group's compensation value relative to its 2001 value and sets 2001=100. This index allows for meaningful comparisons of the growth trajectories of the different firm age groups over the 2001–2020 period.

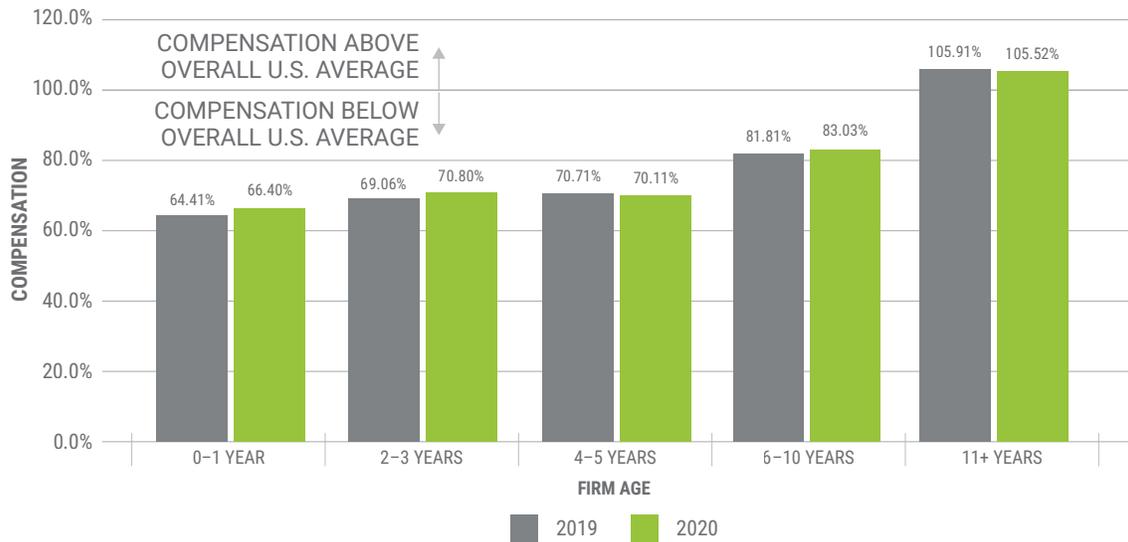
Figure 8 shows the same data as Figure 7 with each firm age group’s compensation value indexed to 2001 (2001=100). Compensation has increased at firms 0–1 year old, 2–3 years old, and 6–10 years old in recent years (since 2016, 2018, and 2017, respectively), while compensation has been declining at firms 4–5 years and at firms 11+ years old (since 2016 and 2017, respectively). In 2020, compensation for firms 2–3 years old (70.80%) was slightly higher than that for firms 4–5 years old (70.11%) for the first time in the 20-year period.

FIGURE 8 | INDEXED COMPENSATION INDICATOR BY FIRM AGE (2001–2020), UNITED STATES  
COMPENSATION VALUE INDEXED TO 2001 (2001=100)



We observed some change in compensation with the COVID-19 pandemic, as compensation at startups increased slightly between 2019 and 2020, rising from 64.41% to 66.40%. Figure 9 illustrates modest increases in compensation between 2019 and 2020 for firms 0–1 year old, firms 2–3 years old, and firms 6–10 years old. Of these, the compensation value increased most for startups. Firms 4–5 years old and firms 11+ years old experienced slight decreases in compensation during this time period.

FIGURE 9 | COMPENSATION INDICATOR BY FIRM AGE (2019, 2020), UNITED STATES



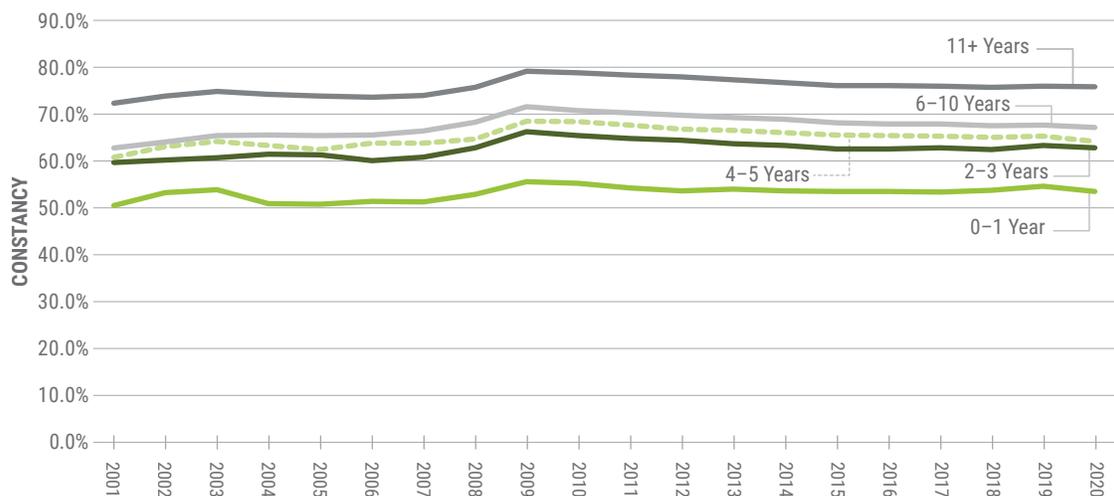
## Constancy

**CONSTANCY** is a measure of employment stability. It is measured as the ratio of the number of people with “stable jobs” – defined as those with positive earnings with the same employer in three consecutive quarters – to the number of people employed at any time during the middle (reference) quarter.

**INTERPRETING CONSTANCY:** A higher value means that a larger share of jobs held by jobholders at companies in a specific firm age group and geographic area are stable. Lower values indicate a lower share of stable jobs (and higher employee turnover).

**Constancy is higher in more established firms than in younger firms.** In Figure 10, constancy is highest for firms 11+ years old and lowest for firms 0–1 year old in every year between 2001–2020. In 2019, for example, constancy of jobs in startups was 54.62%, meaning that about 5 out of every 10 jobs at startups were held for at least three consecutive quarters. For firms 2–3 years old, 4–5 years old, and 6–10 years old, constancy was 63.34%, 65.31%, and 67.71%, respectively. For firms 11+ years old, constancy was 75.94%, meaning that more than three quarters of jobs at these older firms were held during at least three consecutive quarters.

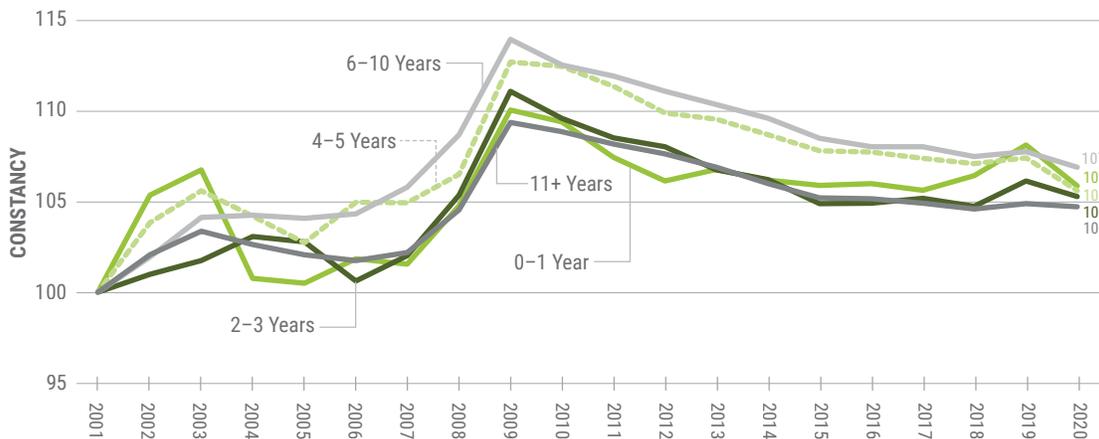
FIGURE 10 | CONSTANCY INDICATOR BY FIRM AGE (2001–2020), UNITED STATES



**Constancy rose slightly between 2001 and 2020 across all firm age groups.** It increased from 50.51% to 53.48% for firms 0–1 year old, from 59.67% to 62.82% for firms 2–3 years old, from 60.79% to 64.20% for firms 4–5 years old, from 62.83% to 67.18% for firms 6–10 years old, and from 72.40% to 75.83% for firms 11+ years old. As shown in Figure 10 and in the indexed data presented in Figure 11,<sup>11</sup> however, this growth was not continuous. The lowest value for constancy was in 2001 across all firm age groups, with a period of growth through 2003 that was followed by a period of decline. All firm age groups hit a low point in either 2005 or 2006, which was followed by a rapid increase until 2009, when all firm age groups hit their highest constancy values over the 20-year period. Constancy then slowly declined through 2018, with a slight upward blip in 2019 and then a drop in 2020.

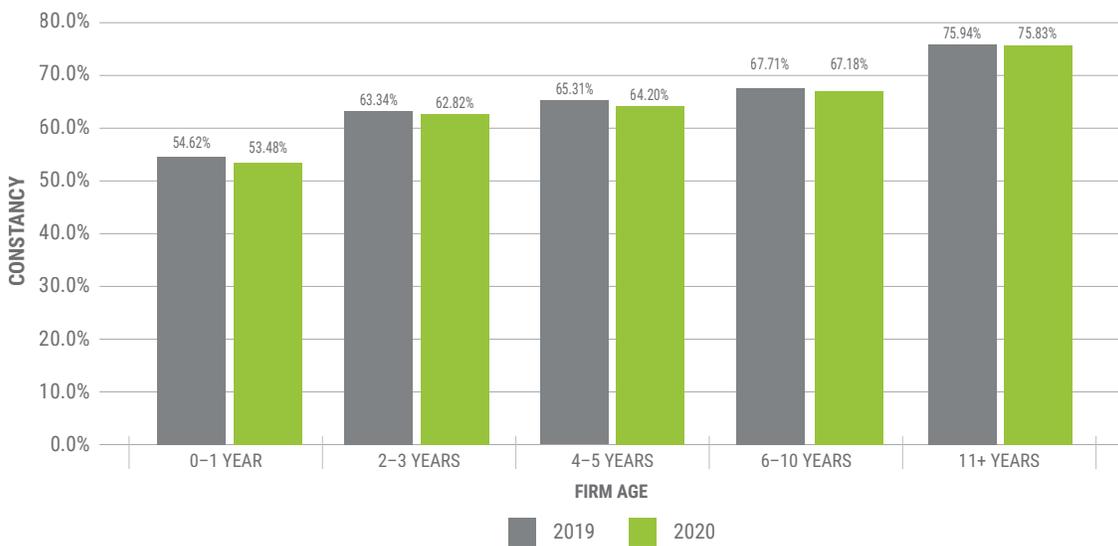
11. As in Figures 5 and 8, Figure 11 sets each firm age group's 2001 constancy value to 100 and then indexes each firm age group's constancy value relative to its 2001 value. This calculation allows for meaningful comparisons of the growth trajectories of the different firm age groups over the 2001–2020 period.

FIGURE 11 | INDEXED CONSTANCY INDICATOR BY FIRM AGE (2001–2020), UNITED STATES  
CONSTANCY VALUE INDEXED TO 2001 (2001=100)



**Constancy decreased slightly across all firm age groups in 2020, the first year of the pandemic.** Figure 12 demonstrates that this decrease was most significant among startups (1.14 percentage points). Constancy at firms 4–5 years old decreased by 1.10 percentage points, while constancy at firms 2–3 years old and 6–10 years old both decreased by about 0.5 percentage points, and constancy at firms 11+ years old only declined by about 0.11 percentage points.

FIGURE 12 | CONSTANCY INDICATOR BY FIRM AGE (2019, 2020), UNITED STATES



## Conclusion

Over the past two decades, startups have experienced more net job creation than firms of all other age groups. By contrast, older firms have experienced net job destruction in many years throughout this period. Job destruction among older firms was particularly striking in 2020, when firms 11+ years old lost nearly 22 jobs per 1,000 people. Between 2001 and 2020, job creation among startups peaked in 2005 at 6.28; in 2020, startups created close to 4 jobs per 1,000 people.

Although startups experience greater net job creation than firms of all other age groups, startups and young firms contribute a relatively small share of total private sector jobs in the U.S. compared to older firms. Firms 11+ years old are responsible for an overwhelming majority of private sector jobs. In 2020, startups made up 3.2% of private sector jobs in the U.S., compared to 81.6% among firms 11+ years old. Job contribution at firms 11+ years old has increased (at the expense of younger firms) over the past 20 years.

Compensation remains highest at firms 11+ years old compared to younger firms. Compensation at startups has been lower than firms in any other age group throughout the past two decades. Compensation at firms 11+ years old remained relatively constant between 2001 and 2020. Compensation at firms 0–1 year old, 2–3 years old, 4–5 years old, and 6–10 years old all declined somewhat during this time period. Between 2016 and 2020, however, there was an increase in compensation at startups.

Constancy is higher in more established firms than in younger firms. Constancy rose slightly between 2001 and 2020 across all firm age groups, but it decreased slightly across all firm age groups in 2020, the first year of the pandemic.

Given the high levels of economic volatility during the COVID-19 pandemic (and the continuing volatility at the time of this writing), it will be important to continue to track these evolving trends. Just as critically, we must assess the differential impacts of the pandemic on states, metropolitan statistical areas (MSAs), and counties across the nation.<sup>12</sup>

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12. Please see <https://indicators.kauffman.org/> for additional geographies (i.e., states, MSAs, mSAs, and counties) or <https://github.com/EMKF/eji> for all available geographies and indicators in database format.

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