Do Government Contracts Help to Foster Entrepreneurial Firm Success? Evidence from U.S. Federal Government Procurement

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August 22, 2025

Abstract

We analyze whether winning procurement auctions and participating in the U.S. Federal government procurement process nurture entrepreneurial firm success. We first analyze the determinants of entrepreneurial firms receiving procurement contracts and then the dimensions along which participation in the procurement process helps to enhance the performance of entrepreneurial firms. We analyze the following research questions: First, how does such participation affect the subsequent sales and employment of entrepreneurial firms? Second, how does participation in government procurement contracts affect the subsequent innovation productivity and innovation quality of entrepreneurial firms? Third, how does participation in government contracts affect the net inflow of inventors and the net inflow of "superstar" (with exceptional patent citation histories) into entrepreneurial firms? Fourth, how does the participation by entrepreneurial firms in the government procurement process affect their overall success probability (measured by IPO or acquisition propensity)? Finally, how does the size, age, and industry of the entrepreneurial firm affect the performance-enhancing effects of participation in government contracts? We use a large sample of detailed U.S. government procurement contract data from the Federal Procurement Data System (FPDS) and entrepreneurial firm performance data from the NETS database and financing data from Crunchbase to address the above research questions. We establish causality using an IV analysis where our instrument is the total amount of government contracts awarded in the previous fiscal year in the county where the entrepreneurial firm is located. Our results are robust to using either the amount of the government contract awarded to an entrepreneurial firm or a contract dummy indicating the success or otherwise of the firm in securing such a contract as the main test variable.

Keywords: Government Contracts; Entrepreneurship; Entrepreneurial Finance; Venture Capital; Innovation
JEL Codes: G24; L26; M13; O32

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1 Introduction

It is by now well known that entrepreneurship and innovation are important drivers of economic growth (see, e.g., Solow, 1956). There is, however, less agreement on how governments can foster successful entrepreneurial ventures around the world. This has been debated widely in both the academic and policy literature (see, e.g., Isenberg, 2010, who provides several case studies illustrating how governments in both developed and emerging countries have successfully encouraged entrepreneurship). A variety of policy instruments have been suggested in this regard, including providing education and training to future entrepreneurs, developing accessible markets, and reducing bureaucratic red tape. Many government policies to encourage entrepreneurship have focused on financing. These include government-supported venture capital funds, tax subsidies, securities regulation changes to support alternative forms of financing such as crowdfunding and angel financing, and subsidies for incubators (see, e.g., Cumming et al., 2018, for a review). Such government attempts to promote entrepreneurial activities have met with varying degrees of success or failure, depending on the economic setting (see, e.g., Keuschnigg and Nielsen, 2003; Leleux and Surlemont, 2003; and Lerner, 2009).

One policy instrument that can potentially be used to encourage entrepreneurial firm success is the use of government procurement contracts and the encouragement of entrepreneurial firms to participate in government procurement activities. The potential benefits of encouraging small firm participation seems to have been recognized at the policy level: to give one example, the U.S. government limits participation in auctions for procurement contracts below $150,000 to small businesses.[1] However, encouraging participation by small businesses or startups in preference to established firms is costly: at least at the initial stages, such firms may perform procurement tasks less expertly than established firms. Given this, it is important to rigorously assess the benefits of encouraging startups to participate in the procurement process, so that governments can trade off the social costs and benefits of such participation. The objective of this paper is to conduct such an analysis.

We address the following research questions in this paper. First, does winning and participating

[1] Another country which encourages small business participation in procurement contracts is the U.K. (see, e.g., Young, 2015).

in federal government procurement auctions nurture entrepreneurial firm success? If so, what are the dimensions along which participation in government procurement auctions help entrepreneurial firms? In particular, we analyze the following: First, does such participation affect subsequent sales and employment of entrepreneurial firms? Second, does participation in government procurement contracts affect the subsequent innovation productivity and innovation quality of entrepreneurial firms? Third, how does participation in government contracts affect the net inflow of inventors and the net inflow of "superstar" inventors (who have exceptional citation histories for their patents) into entrepreneurial firms? Fourth, does the participation by entrepreneurial firms in government procurement contracts affect their overall success probability (probability of successful exit, as measured by propensity to their IPOs or acquisitions)? We also conduct a number of cross-sectional tests to analyze how the answers to the above questions vary along with a number of firm characteristics: larger versus small entrepreneurial firms; younger versus older firms, and firms in certain industries (high technology versus retail).

We address the above research questions using a variety of databases. We obtain our government contracts data from the Federal Procurement Data System (FPDS), which provides detailed information on each government contract. We obtain our data on entrepreneurial firms from Crunchbase, which provides funding information on startups and their successful exit in terms of initial public offerings (IPO) or acquisitions. We use the National Establishment Time Series (NETS) database to obtain information on the sales and employment of private firms. Our patent and inventor data are obtained from the United States Patent and Trademark Office (USPTO) shared on PatentsView. Using the above databases, we construct our main dependent variables - sales and employment, innovation output and innovation quality, net inflow of inventors, and successful exit (IPO or acquisition) - as well as the key independent variable of interest: the value of the first government contract received by the firm. Our main sample includes 18,254 U.S. startups from 2001 to 2018.

The results of our empirical analyses are summarized as follows. We begin by examining the determinants of firms receiving government contracts from four potential perspectives: VC investment (VC backing, number of VC rounds, and VC amount), firm size (sales and employment), firm innovation (measured by both patent quantity and quality), and firm age. First, our univariate analyses show that firms with greater VC involvement (more VC rounds and larger VC amounts),

larger size, stronger innovation output, and older age are more likely to receive government contracts. Second, we conduct multivariate analyses by sequentially introducing variables related to VC investment, firm size, innovation, and firm age. The results remain consistent with our univariate findings. Overall, our analyses suggest that VC investment, firm size, firm innovation, and firm age are significant predictors of a firm's likelihood of receiving government contracts.

Next, we discuss the results of our baseline analyses, namely, the effect of the government contracts on the subsequent performance of entrepreneurial firms. First, we show that firms receiving government contracts are associated with higher firm sales and employment. A 10% increase in the value of government contracts is associated with a 0.11 percentage point increase in firm sales and a 0.21 percentage point increase in firm employment in the third year after receiving the contract. We also find similar results for the increase in sales and employment within the first and second years after receiving the government contracts. Second, we show that government contracts have a positive and significant effect on the innovation output of entrepreneurial firms, as measured by either the quantity (count) or the quality (citations) of patents obtained by entrepreneurial firms as our proxies for innovation output. A 10% increase in the value of government contracts is associated with a 0.12 percentage point increase in the quantity of patents and a 0.16 percentage point increase in the quality of patents produced by the firms in the second year after receiving the contract. We find similar results for innovation output for the first and third years after receiving the government contracts. Third, we show that government contracts help entrepreneurial firms to attract the human capital in the form of inventors to their firms, and also help to attract top-tier talent (highly-cited superstar inventors). A 10% increase in the value of government contracts is associated with a 0.06 percentage point increase in the net inflows of inventors into entrepreneurial firms in the first year after receiving the contract. Fourth, we show that government contracts are associated with a higher likelihood of successful exit for entrepreneurial firms, as measured by IPO or acquisitions. A 10% increase in the value of government contracts is associated with a 0.04% point increase in the probability of a successful exit via IPO. Overall, our results suggest that government contracts awarded to entrepreneurial firms enhance their future performance as measured by sales and employment, innovation output, their ability to attract high-quality inventors, and the probability of future successful exit.

Our baseline results may be affected by endogeneity. For example, higher quality entrepreneurial

firms may be more likely to receive government contracts. To establish the causal effect of government contracts on firm performance, we adopt an instrumental variable (IV) approach. Specifically, we construct an instrument for our key explanatory variable using the natural logarithm of the total amount of government contracts awarded in the previous fiscal year in the county where the firm is located. The rationale for this instrument is two-fold. First, the intensity of county government contracting in the previous year captures the overall regional allocation of federal spending, plausibly influencing the likelihood and size of contracts awarded to local firms in the current year (relevance condition). Second, because this variable is lagged and measured at the regional rather than firm level, it is unlikely to be directly correlated with a specific firm's current outcomes other than through its effect on contract receipt (exclusion restriction). We empirically demonstrate that the total amount of government contracts is indeed strongly positively correlated with the value of government contracts awarded to entrepreneurial firms, thereby demonstrating the relevance of our instrument. Our IV analyses show that even after controlling for the selection effect, government contracts add value to entrepreneurial firms, thereby causally leading to higher sales and employment, greater innovation output, a greater inflow of inventors into entrepreneurial firms, and a higher likelihood of successful exit. Our IV analyses remain robust and quantitatively similar when excluding firms located in the top 10 percent of counties receiving government contracts.

Next, we examine the cross-sectional effects of government contracts on firms' subsequent performance, testing whether these contracts enhance entrepreneurial firms' performance in various ways. First, we conduct cross-sectional analyses based on firm characteristics, including firm age and firm size. We find that government contracts primarily benefit large and mature firms by increasing their likelihood of successful exit, particularly through IPOs. Additionally, government contracts improve the performance of young firms by helping them attract talent, including inventors and superstar inventors. For small firms, these contracts enhance performance by boosting employment. Further, we use the Fama-French 10 classification to identify industries and find that government contracts mainly help entrepreneurial firms in the high technology and retail industries perform better.

We also conduct robustness tests to support our baseline analyses. Specifically, we replace the natural logarithm of the value of the first government contract with a contract dummy variable - equal to one if the firm received a government contract—as our main independent variable. We re-

estimate both the baseline and IV analyses using this alternative specification and find qualitatively similar results.

The rest of this paper is organized as follows. Section 2 discusses how our paper is related to the existing literature and our contribution to this literature. Section 3 describes our conceptual framework and develops testable hypotheses. Section 4 describes our data and the construction of variables. Section 5 presents our empirical tests and results on the potential determinants of entrepreneurial firms receiving government contracts. Section 6 reports our empirical findings on the effects of government contracts on the subsequent performance of entrepreneurial firms: Section 6.1 presents our baseline analyses; Section 6.2 presents our IV analyses; Section 6.3 presents our cross-sectional analyses; and Section 6.4 presents robustness tests on our main analyses. Section 7 concludes the paper with a discussion of policy implications.

2 Related Literature and Contribution

This paper contributes to several strands of literature. First, we contribute to the literature on the factors that influence the future growth and performance of entrepreneurial firms. Prior research has primarily focused on how early-stage investors, including venture capitalists and angel investors, add value to startups. For example, studies have shown that venture capitalists contribute to firm success through multiple channels, including improving operational efficiency (Chemmanur et al., 2011), professionalizing startups (Hellmann and Puri, 2002), certification (Hsu, 2004), and fostering innovation through active monitoring and tolerance for failure (Tian and Wang, 2014). Also, several papers have documented the positive impact of angel investors on the performance of their portfolio firms (Kerr et al., 2014; Lerner et al., 2018). Notably, prior research has also shown that VC investments and angel investments are crucial for regional economic growth, business dynamics, and innovation outcomes (Lindsey and Stein, 2019; Xu, 2023; Samila and Sorenson, 2011). Rather than focusing on private investors, our paper examines whether the government can facilitate the growth of startups through procurement.

Second, this paper builds on the literature that studies the role of the government in motivating entrepreneurial activity and innovation (Bayar et al., 2025; Akcigit et al., 2022; Hall and Lerner, 2010). Many types of government programs have been created to address market fail-

ures associated with entrepreneurial finance (Hall, 2002). The first type consists of direct funding mechanisms such as government awards and grants. Lerner (2000) and Howell (2017) show that awards provided by Small Business Innovation Research (SBIR) in the US positively impact small firms' subsequent innovative and funding outcomes, while Da Rin et al. (2006) finds no evidence that public R&D spending has a positive effect on innovation using European data. The second type involves equity investments through government-sponsored venture capitalists (GVCs) and previous literature shows that GVCs help firms obtain more funding than private VCs (Brander et al., 2015). The third type consists of debt financing programs, such as those offered by the U.S. Small Business Administration. As shown by Brown and Earle (2017), these loan programs can significantly boost employment growth among recipient firms. Finally, place-based incentives including tax benefits and other regional advantages have been shown to influence regional business formation and innovation outcomes (Denes et al., 2023; Tian and Xu, 2022; Xu, 2021). Our paper contributes to the existing literature by examining how securing government contracts affects the subsequent performance of startups.

Finally, we contribute to the growing literature on the allocation of government procurement contracts and their impact on firm outcomes. Recent studies have begun to explore these dynamics in various contexts. For example, Brogaard et al. (2024) show that female politicians increase the share of government contracts awarded to women-owned firms, while Brown et al. (2024) demonstrate that changes in industry size standards can shift contract allocation from smaller to larger firms. Other work has examined firm-level effects of public procurement in Norway, South Korea, and Brazil, finding that winning public contract auctions improves firms' subsequent performances (Hvide and Meling, 2023; Lee, 2021; Ferraz et al., 2015). In particular, Hvide and Meling (2023) use detailed auction and registry data from Norway to show that temporary demand shocks from winning a contract have persistent effects on startup sales and employment, but not for mature firms, with mechanisms driven by learning-by-doing and irreversible investment. Our study differs in its focus on the U.S. context and its examination of a broader range of startup outcomes, including not only firm size but also successful exit, innovation, revenue growth, and employment. We provide new and systematic evidence on how government contracts can help startups.

3 Conceptual Framework and Hypotheses Development

In this section, we develop testable hypotheses for our empirical analysis. There are several ways in which securing a government contract can help entrepreneurial firms achieve success. We will examine how securing government procurement contracts affects different aspects of entrepreneurial firms' future performance in our empirical analysis.

The first variable that we will analyze in terms of the effect of an entrepreneurial firm securing a government procurement contract is firm sales. Clearly, there is considerable risk facing a firm arising from uncertainty in the demand for an entrepreneurial firm's products, and securing a government procurement contract guarantees a certain amount of revenue and cash flows for the firm. Further, the sales guaranteed to be achieved by the firm will be greater as the value of the government procurement contract is greater. This is the first hypothesis that we test here (**H1**).[2]

We now turn to analyzing the future employment level of an entrepreneurial firm subsequent to its securing a government contract. There are two ways in which securing a government contract leads to a larger level of future employment by an entrepreneurial firm. The first is the demand channel. If a firm has been awarded a larger (greater value) government contract, it has to hire a larger number of employees in order to provide the products or services that it has promised to deliver to the government. The second is the cash flow channel. If a firm has secured a larger government contract, it is likely to obtain a larger amount of guaranteed revenue from the government and correspondingly a larger cash flow, which enables it to pay the salaries of a larger number of employees. For both of the above reasons, the employment level of an entrepreneurial firm subsequent to securing a larger government contract will be greater. This is the next hypothesis that we test here (**H2**).

We now turn to developing a hypothesis on the relation between an entrepreneurial firm securing a government contract (or a larger government contract) and the quantity and quality of the innovation undertaken by the firm. First, we consider the relation between securing a government contract (or a larger government contract) and the subsequent innovation output achieved by the

[2]While we use the amount of value ("*Award*") of the government contract secured by the entrepreneurial firm as our main independent variable throughout our empirical analyses, our results (both baseline and IV analyses) are robust to the use of a contract dummy which take the value one if the firm has secured a government contract and zero, otherwise. The latter analysis is presented in the Internet Appendix due to space limitation.

firm (as measured by the number of patents awarded to the firm in subsequent years). There are two ways in which securing a larger government contract affects the subsequent innovation output of an entrepreneurial firm. The first is the demand channel. In order to fulfill a larger government contract, the firm may need to undertake a larger number of innovations. The second is the cash flow channel. If the firm has secured a larger government contract, it will obtain a larger amount of revenue from the government and correspondingly will have a larger cash flow available to undertake greater R&D expenditures. For both of the above reasons, the innovation output of an entrepreneurial firm subsequent to securing a larger government contract will be greater (**H3**). The relation between procuring a larger government contract and the quality of subsequent innovation undertaken by an entrepreneurial firm is driven by economic factors similar to those discussed above. First, the requirement of fulfilling a larger government contract may motivate an entrepreneurial firm to undertake higher quality innovations. Second, the greater cash flow available to the firm due to securing a larger government contract may enable it spend greater resources on R&D, which may lead to higher quality innovation. For both of the above reasons, the innovation quality of an entrepreneurial firm (as measured by patent citations) subsequent to securing a larger government contract will be greater (**H4**).

We now turn to developing a testable hypothesis on the relation between an entrepreneurial firm securing a government contract (or a larger government contract) and the net inflow of inventors joining the firm.[3] We can think of two channels through which securing a government contract (or a larger government contract) is related to the net inflow of inventors into the firm. The first is the employee risk aversion channel. Inventors are likely to be worried about losing part of their firm-specific human capital if the entrepreneurial firm they are working for goes bankrupt, so that, for a given salary, they are likely to prefer to join a firm with a government contract compared to the one without a government contract, since the firm with the government contract is less likely to go bankrupt.[4] The second is the cash flow channel: an entrepreneurial firm that is financially constrained is likely to be able to offer a higher salary to inventors if it has secured a government contract (or a larger government contract), compared to a firm that has not secured a government

[3]This is the number of inventors joining the firm minus the number of inventors leaving the firm.

[4]A similar argument is made theoretically by Berk et al. (2010) in the context of the relationship between leverage and employee pay. Empirical support for this argument in the context of the relationship between leverage and employee pay is provided by Chemmanur et al. (2013).

contract. For both of the above reasons, the net inflow of inventors into a firm subsequent to securing a government contract (or a larger government contract) will be greater. This is the next hypothesis that we test here (**H5**).[5]

We now turn to developing a testable hypothesis on the relation between an entrepreneurial firm securing a government contract (or a larger government contract) and the probability of it exiting successfully (as measured by an IPO or an acquisition). An entrepreneurial firm is more likely to be acquired if acquirers perceive that it will perform better in the future. Similarly, it is more likely to have a successful IPO if potential investors in the IPO market believe that the firm is likely to perform well in the future. When developing the previous five hypotheses, we argue that entrepreneurial firms that have secured a government contract (or a larger government contract) are more likely to perform better in subsequent years in terms of sales, employment, innovation output and innovation quality, and the net inflow of inventors into the firm. Given this, we expect an entrepreneurial firm that has secured a government contract (or a larger government contract) to be more likely to have a successful exit. This is the last hypothesis that we test here (**H6**).

4 Data and Variables

4.1 Data Sources and Sample Selection

We collect information on entrepreneurial firms from multiple sources. The primary data source for our paper is Crunchbase, a leading open-source database that provides profiles of startups and information on their financing.[6]. Specifically, we obtain data on firm name, location, funding dates, IPO or acquisition status, investor names and types, as well as the total amount of investment for each funding round from Crunchbase.

To obtain information on government contracts, we collect data from the Federal Procurement Data System (FPDS) via the Data Bank on SAM.gov. The FPDS database provides detailed information on federal contracts, including contract dollar value, recipient name, and recipient

[5] An alternative proxy of the net inflow of inventors joining a firm that we use in our empirical analyses is the net inflow of "superstar" inventors (i.e., inventors with a citation history for their prior innovation in the top ten percentage of citations). The economic arguments underlying the relationship between an entrepreneurial firm securing a government contract (or a larger government contract) and the number of superstar inventors joining the firm is very similar here.

[6] Several studies have used data from Crunchbase, some examples include Xu (2023) and Yu (2020)

location.[7]

To measure the innovation output and inventor mobility of entrepreneurial firms, we collect patent and inventor data from the United States Patent and Trademark Office (USPTO), hosted on the PatentView website. The USPTO data from PatentView provides detailed information on patent application dates, technology classes, and citations, as well as the name, unique identification number, and location of assignees or firms filing the patents. The data also include information on patent inventors, each identified by a unique identifier. Additionally, we obtain employment and sales data for entrepreneurial firms from the National Establishment Time-Series (NETS), a longitudinal database provided by Dun & Bradstreet that is widely used in research on private firms.[8]

We match the Crunchbase data with the USPTO database, the NETS database, and the FPDS database based on firm name and location. Our final sample consists of 18,254 firms and covers startups from 2001 to 2018.[9]

4.2 Variable Construction

The primary independent variable in our analyses is whether a firm receives government contracts. In our main baseline analyses, we use the natural logarithm of the value of the first government contract awarded to the firm, denoted as *Ln (Award)*, as the main independent variable to capture the effect of receiving a government contract.

To evaluate the effect of government contracts on the future sales and employment of entrepreneurial firms, we use sales and employment data from the NETS dataset. Specifically, we construct the natural logarithm of sales in the first year after a firm receives a government contract *Ln (Fut_Sales) (1-year)*, the second year *Ln (Fut_Sales) (2-year)*, and the third year *Ln (Fut_Sales) (3-year)*. Similarly, we construct *Ln(Employment) (1-year)*, *Ln(Employment) (2-year)*, and *Ln(Employment) (3-year)* as the employment in the first, second, and third year after the firm receives the first government contract, respectively.

To measure the innovation output of entrepreneurial firms, we use the quantity and quality of

[7] See Liebman and Mahoney (2017) for a more detailed description of the FPDS data set.

[8] See Neumark et al. (2011) for a more detailed description of the NETS data set.

[9] The FPDS provides relatively comprehensive federal contract data starting from fiscal year 2001, while the NETS database offers information on private firms through 2021. To better observe the effects of government contracts on firms' subsequent performance, we restrict our sample to the period from 2001 to 2018.

patents filed in the years following the receipt of their first government contract. To capture the quantity of innovation, we construct the natural logarithm of one plus the total number of patents applied for (and eventually granted) by a firm within one, two, and three years after receiving the first government contract. These variables are denoted as *Ln (Patents) (1-year)*, *Ln (Patents) (2-year)*, and *Ln (Patents) (3-year)*, respectively. Similarly, to capture the quality of innovation, we construct the natural logarithm of one plus the total number of forward citations received by a firm's patents within one, two, and three years after the first government contract. These are denoted as *Ln (Citations) (1-year)*, *Ln (Citations) (2-year)*, and *Ln (Citations) (3-year)*, respectively. Because patents granted in earlier years tend to receive more citations on average than those granted in later years, we address truncation bias by normalizing each patent's citations by the total number of citations received by all patents filed in the same year and the same 3-digit technology class (Seru (2014)).

We construct our inventor mobility measures following Chemmanur et al. (2019) and Marx et al. (2009). We define mobile inventors as those who have filed successive patents for at least two different firms and exclude inventors who have only filed one patent. For a given firm, an inventor's move-in year is the year when she filed her first patent in this firm (or when she files her first patent at the firm after moving out from a different firm); her move-out year is the year when she filed her first patent in a different firm. In the case of the last patent filed by the inventor, we assume that she remains in the firm till the end of our sample. Once we identify each mobile inventor's move-in and move-out year, we aggregate the number of mobile inventors that move in and move out at the firm level to obtain the total inflows and outflows of mobile inventors for a given firm in a year. We measure the net inflow of inventors by computing the difference between the natural logarithm of one plus the inflow and the naturial logarithm of one plus the outflow if inventors within the subsequent one, two, and three years, respectively, after the firm received the first government contract, denoted by *Net Inflow of Inventors (1-year)*, *Net Inflow of Inventors (2-year)*, and *Net Inflow of Inventors (3-year)*. We also examine the mobility of high-performing inventors. We define inventors as "superstar inventors" if they are the top 10 percent based on the cumulative number of class-adjusted citations received over the patents filed by them over time. Similarly, we construct the net inflow of the superstar inventors for each entrepreneurial firm with in one, two, and three years after the firm received the first government contract, *Net*

Inflow of Superstar Inventors (1-year), *Net Inflow of Superstar Inventors (2-year)*, and *Net Inflow of Superstar Inventors (3-year)*.

We construct standard measures of successful exit (IPO or acquisition) for entrepreneurial firms. Using data from Crunchbase, we construct three dummy variables: *IPO*, *Acq*, and *Exit*. *IPO* equals one if the firm has conducted an IPO after receiving its first government contract, and zero otherwise. *Acq* equals one if the firm has been successfully acquired after receiving its first government contract, and zero otherwise (following Ewens and Marx (2018) and Bayar et al. (2025)). *Exit* takes a value of one if the firm has either been successfully acquired or gone public after receiving its first government contract, and zero otherwise.

4.3 Summary Statistics

Table 1 shows the summary statistics of our sample. To alleviate the concern that outliers may drive our results, we winsorize all continuous variables at the 1st and 99th percentiles in the regression.

Our final sample includes 18,254 firms with information on their first awarded government contract and subsequent firm performance. In Table 1, we show that the natural logarithm of the first government contract's dollar value is 0.23. On average, the IPO rate among firms in our sample is 6%, while the successful acquisition rate is 2%.

5 The Determinants of Entrepreneurial Firms Receiving Government Contracts

In this section, we examine the determinants of entrepreneurial firms receiving government contracts across four dimensions: VC investment, firm size, innovation, and firm age. We use ordinary least squares (OLS) analyses to examine the effect of the four aforementioned dimensions on a firm receiving a government contract, following the model below:

$$Ln\ (Award)_{i,t} = \alpha + \beta X_{i,t-1} + Year_t + Industry_i + \varepsilon_{i,t} \quad (1)$$

Where i represents a firm and t denotes the year in which the firm first received a government contract. $Ln\ (Award)_{i,t}$ is the dependent variable, defined as the natural logarithm of the value of the first government contract awarded to the firm. $X_{i,t-1}$ is a set of independent variables repre-

senting potential determinants that may influence whether a firm receives government contracts, as described below. *VC* is a dummy variable equal to one if the firm received venture capital (VC) investment prior to receiving the government contract. *Ln (VC Rounds)* is the natural logarithm of the number of VC investment rounds prior to receiving the government contract. *Ln (VC Amount)* is the natural logarithm of the total dollar amount of VC investment received by the firm. *Ln (Sales)*$_{t-1}$ is the natural logarithm of firm sales in the year prior to receiving the government contract. *Ln (Employment)*$_{t-1}$ is the natural logarithm of the number of employees in the year prior to receiving the contract. *Ln (Patents)*$_{t-1}$ is the natural logarithm of one plus the number of patents applied for (and eventually granted) in the year prior to the contract. *Ln (Citations)*$_{t-1}$ is the natural logarithm of one plus the number of citations to those patents in the same year. *Ln (Age)*$_{t-1}$ is the natural logarithm of the firm's age, measured one year before receiving the government contract. We include industry (two-digit SIC code) and year fixed effects to account for unobservable industry-specific characteristics and time-specific shocks that may affect the estimation, respectively. The year is defined as the year when a firm first received a government contract or, if the firm did not receive any, the year it first received external investment. In all regressions, standard errors are clustered at the industry level.

5.1 Univariate Analyses

We first conduct a univariate analysis to examine whether VC investment, firm size, firm innovation, and firm age affect the firms receiving government contracts.

Table 2 reports the results. We use three different measures of VC investment (VC-backed status, the number of VC rounds, and the amount of VC investment) presented in Columns (1), (2), and (3), respectively. The results show that both the number of VC rounds and the amount of VC investment have a positive effect on a firm receiving a government contract. In Columns (2) and (3), the estimated coefficients on the number of VC rounds and VC investment amount are positive and statistically significant at the 1% level. For example, the magnitude of the coefficient on VC investment amount suggests that a 1% increase in VC funding is associated with a 0.61% increase in the value of the government contract awarded to the firm.

Next, we examine the effect of firm size on the firm receiving a government contract. We use two variables to measure firm size: sales and employment, as shown in Columns (4) and (5).

The results indicate that firm size is strongly associated with government contract awards. The estimated coefficients on firm sales and employment are both positive and statistically significant at the 1% level. For instance, the magnitude of the coefficient on sales suggests that a 1% increase in firm sales is associated with a 0.12% increase in the value of the government contract awarded to the firm.

We now examine the effect of firm innovation on the firm receiving a government contract. We use two variables to measure innovation: the number of patents and patent citations, as shown in Columns (6) and (7). The results indicate that firm innovation is strongly associated with government contract awards. The estimated coefficients on the number of patents and patent citations are both positive and statistically significant at the 1% level. For instance, the magnitude of the coefficient on patent citations suggests that a 1% increase in firm sales is associated with a 0.23% increase in the value of the government contract awarded to the firm. We also examine the effect of the firm's age on the firm receiving a government contract. The results indicate that firm age is strongly associated with government contract awards, as shown in Column (8). The estimated coefficient is positive and statistically significant at the 1% level. The magnitude of the estimate indicates that a 1% increase in firm age is associated with 0.19% in the value of the government contract awarded to the firm.

The results shown above suggest that VC investment, firm size, firm innovation, and firm age are four potential determinants that may influence whether a firm receives government contracts.

5.2 Multivariate Analyses

Next, we conduct multivariate analyses to examine whether VC investment, firm size, firm innovation, and firm age influence the likelihood of firms receiving government contracts. We sequentially add variables related to VC investment, firm size, firm innovation, and firm age into our regression model (1).

Table 3 reports the results of the multivariate analyses. From Columns (1) to (6), we incrementally include variables capturing VC investment (number of VC rounds and total VC amount), firm size (sales and employment), innovation (number of patents and patent citations), and firm age. Across all specifications, the estimated coefficients on the number of VC rounds, VC investment amount, employment, number of patents, and firm age are positive and statistically significant at

the 1%, 1%, 1%, 10%, and 1% levels, respectively. Overall, the findings in Table 3 reinforce the patterns observed in the univariate analyses reported in Table 2.

6 The Effect of Government Contracts on the Future Performance of Entrepreneurial Firms

In this section, we analyze the impact of government contracts on entrepreneurial firms' future performance, including sales and employment, innovation output, the net inflow of inventors, and the successful exit (IPO or acquisition).

6.1 Baseline Analyses

We use OLS analyses to analyze the effect of the government contract on the future performance of entrepreneurial firms using the following model:

$$Y_{i,t+x} = \alpha_0 + \beta_1 Ln(Award)_{i,t} + Controls_{i,t} + Year_t + Industry_i + \varepsilon_{i,t+x} \quad (2)$$

Where i represents a firm and t denotes the year in which the firm first received a government contract. $Y_{i,t+x}$ represents the four future performance variables we analyze: sales and employment, innovation output, the net inflow of inventors, and the successful exit (IPO or acquisition). All variables are defined in Appendix A. The key independent variable of interest, $Ln\ (Award)_{i,t}$, the natural logarithm of the value of the first government contract awarded to the firm. $Controls_{i,t}$ represents a vector of control variables, including a VC dummy indicating whether the firm received VC investment prior to obtaining the government contract, firm sales as a measure of firm size, firm age, and the total amount of investment received across all funding rounds. We include industry (two-digit SIC code) and year fixed effects to account for unobservable industry-specific characteristics and time-specific shocks that may affect the estimation. The year is defined as the year when a firm first received a government contract or, if the firm did not receive any, the year it first received external investment. In all regressions, standard errors are clustered at the industry level.

We first analyze the effect of government contracts on the sales and employment of entrepreneurial firms. Table 4 reports the results. In Columns (1) to (3), the dependent variables

are the natural logarithm of firm sales in the first, second, and third years following the receipt of the firm's first government contract. We find that government contracts are associated with higher firm sales. The estimated coefficients on *Ln (Award)* are all positive and statistically significant at the 10%, 1%, and 1% levels, respectively. For example, the coefficient in Column (3) suggests that a 10% increase in the value of government contracts is associated with a 0.11 percentage point increase in firm sales in the third year after receiving the contract. In Columns (4) to (6), the dependent variables are the natural logarithm of firm employment in the first, second, and third years following the receipt of the firm's first government contract. We find that government contracts are associated with higher firm employment. The estimated coefficients on *Ln (Award)* are all positive and statistically significant at the 1% level. For example, the coefficient on *Ln (Award)* in Column (5) suggests that a 10% increase in the value of government contracts is associated with a 0.2 percentage point increase in firm employment in the second year after receiving the contract. The results shown above suggest that firms receiving government contracts are associated with higher future sales and employment compared to those without, which supports our hypotheses **H1** and **H2**.

Next, we explore the effect of government contracts on the innovation output of an entrepreneurial firm. Table 5 reports the results. In Columns (1) to (3), the dependent variables are the natural logarithm of the number of patents applied (and eventually granted) in the first, second, and third years following the receipt of the firm's first government contract. Similarly, the dependent variables are the natural logarithm of the total number of citations received by patents applied (and eventually granted) in the first, second, and third years following the receipt of the firm's first government contract in Columns (4) to (6), respectively. We find that government contracts are associated with a higher quantity and quality of patents received by the entrepreneurial firms subsequent to receiving the government contracts. As shown in Columns (1) to (6), we find the estimated coefficients of *Ln (Award)* are all positive and statistically significant at the 1% level. For example, the coefficient on *Ln (Award)* in Column (2) suggests that a 10% increase in the value of government contracts is associated with a 0.12 percentage point increase in the quantity of patents produced by the firms in the second after receiving the contract and the coefficient on *Ln (Award)* in Column (6) suggests that a 10% increase in the value of government contracts is associated with a 0.18 percentage point increase in the quality of patents produced by the firms

in the third after receiving the contract. The findings above suggest that firms receiving government contracts are associated with higher quantity and quality of innovation, which supports our hypotheses **H3** and **H4**.

Next, we examine the effect of the government contracts on the net inflows of investors into entrepreneurial firms. We report the results in Table 6. In Columns (1) to (3), the dependent variables are the net inflow of inventors in the first, second, and third years following the receipt of the firm's first government contract. We find that government contracts are associated with a greater net inflow of inventors into entrepreneurial firms. For example, the coefficient on *Ln (Award)* in Column (1) suggests that a 10% increase in the value of government contracts is associated with a 0.06 percentage point increase in the net inflows of inventors into entrepreneurial firms in the first year after receiving the contract. In Columns (4) to (6), the dependent variables are the net inflow of superstar inventors in the first, second, and third years following the receipt of the firm's first government contract. Again, we find similar results that government contracts are associated with a greater net inflow of superstar inventors into entrepreneurial firms. These results suggest that government contracts help entrepreneurial firms to attract high-quality talent (scientists and engineers), which supports our hypothesis **H5**.

We now explore how the government contract affects the successful exit of entrepreneurial firms. The Table 7 reports the results. We use three different measures of successful exit: IPO only, acquisition only, and either IPO or acquisition, as shown in Columns (1), (2), and (3), respectively. We show that government contracts are associated with a higher likelihood of successful exit for entrepreneurial firms, particularly through IPO rather than acquisition. In Columns (1) and (3), the estimated coefficients on *Ln (Award)* are positive and statistically significant at the 1% level. For example, the magnitude of the coefficient implies that a 10% increase in the value of government contracts is associated with a 0.04 percentage point increase in the probability of a successful exit via IPO. In contrast, the coefficient on *Ln (Award)* in Column (2) is close to zero. Overall, these results suggest that firms receiving government contracts have a higher probability of exiting through IPO compared to those that do not, but not through acquisition, which supports our hypothesis **H6**.

6.2 Instrumental Variable Analyses

Our OLS results may be affected by endogeneity concerns. For example, high-quality entrepreneurial firms may be more likely to receive government contracts. To establish the causal effect of government contracts on firm performance, we adopt an instrumental variable (IV) approach. Specifically, we construct an instrument for our key explanatory variable using the natural logarithm of the total amount of government contracts awarded in the previous fiscal year in the county where the firm is located, which we refer to as *County Amount*. The rationale for this instrument is twofold. First, county-level government contracting intensity in the prior year captures the overall regional allocation of federal spending, which plausibly influences the likelihood and size of contracts awarded to local firms in the current year (relevance condition). Second, because this variable is lagged and measured at the regional rather than firm level, it is unlikely to be directly correlated with a specific firm's current outcomes other than through its effect on contract receipt (exclusion restriction). This IV strategy helps mitigate concerns related to reverse causality and omitted variable bias in our estimation.

We use a two-stage least squares (2SLS) specification. Specifically, we run the following first-stage regression:

$$Ln\ (Award)_{i,t} = \alpha_0 + \beta_1 CountyAmount_{i,t-1} + Controls_{i,t} + Year_t + Industry_i + \varepsilon_{i,t} \quad (3)$$

and the second-stage as:

$$Y_{i,t+x} = \alpha_0 + \beta_1 Ln(\hat{A}ward)_{i,t} + Controls_{i,t} + Year_t + Industry_i + \varepsilon_{i,t+x} \quad (4)$$

where *Ln (Award)* is the key independent variable of interest, which equals to the natural logarithm of the value of the first government contract awarded to the firm. *County Amount* is the instrumental variable, which equals the natural logarithm of the total amount of government contracts awarded in the previous fiscal year in the county where the firm is located. Other variables are defined in the same manner in our baseline regression.

We show the results of our instrumental variable analyses in Table 8, Table 9, and Table 10.

Panel A in Table 8 presents the first-stage results, which are common to all IV analyses in Table 8, Table 9, and Table 10. In the first stage, we show that the amount of government contracts awarded in the previous fiscal year at the county level is positively and significantly associated with the value of contracts received by a firm. The first-stage F-statistic is 12.91, exceeding the critical value of 10 proposed by Stock and Yogo (2002), indicating that our instrument is relevant. The dependent variables are sales and employment, as reported in Panel B of Table 8. We find that government contracts causally lead to higher sales and employment, supporting our hypotheses **H1** and **H2**.

Table 9 reports the results of IV analyses of innovation output and the net inflow of inventors. In Panels A and B, the dependent variables are innovation output and the net inflow of inventors, respectively. In Panel A, we observe that all of the coefficient estimates on the predicted value of the government contract value awarded to entrepreneurial firms are positive and statistically significant at the 1% significance level. The results show that government contracts causally increase both the quantity and quality of patents produced by entrepreneurial firms, supporting our hypotheses **H3** and **H4**. In Panel B, the dependent variables are the net inflow of inventors and the net inflow of superstar inventors. We find that government contracts causally help the entrepreneurial firms attract talent, which supports our hypothesis **H5**.

Table 10 reports the results of the IV analyses of successful exit. The dependent variables are the three measures of successful exit: IPO alone, acquisition alone, and IPO or acquisition. The results show that government contracts causally lead to a higher likelihood of IPO alone (significant at the 5% level) and IPO or acquisition (also significant at the 5% level), supporting our hypothesis **H6**. Furthermore, we find that our results remain robust and quantitatively similar when excluding firms located in the top 10 percent of counties receiving government contracts. As shown in Table A1 of the Internet Appendix, the IV analyses remain robust under this exclusion.

In sum, the above results show that government contracts causally improve future performance of entrepreneurial firms even after accounting for potential endogeneity concerns.

6.3 Cross-Sectional Analyses

To further explore the heterogeneous effects of government contracts, we conduct cross-sectional analyses based on firm characteristics, particularly firm size and firm age. These characteristics are

widely recognized as important determinants of a firm's ability to leverage external resources (e.g., Howell (2017)). For instance, larger or more mature firms may be better positioned to navigate complex government contracting processes and have greater capacity to absorb and utilize public funding. In contrast, smaller or younger firms may face greater constraints but could benefit more marginally from external support due to higher growth potential. By examining these subsamples, we aim to identify whether the benefits of government contracts are concentrated among specific types of startups. To examine this heterogeneity, we divide the sample using the median values of firm age and firm size, categorizing firms into mature vs. young and large vs. small groups. Table A2 and Table A3 in the Internet Appendix present the results. We find that government contracts primarily benefit large and mature firms by increasing their likelihood of successful exit, particularly through IPOs (as shown in Panel G of Table A2 and Table A3, respectively). Additionally, government contracts improve the performance of young firms by helping them attract talent, including inventors and superstar inventors (Panels E and F of Table A2). For small firms, these contracts enhance performance by boosting employment (Panel B of Table A3). In contrast, we do not observe significant differences between small and large firms, or between young and mature firms, in other dimensions of performance. Thus, we show that government contracts

Next, we discuss cross-sectional analyses based on different industry categories. To explore the heterogeneous impact of government contracts across industries, we conduct cross-sectional analyses based on the Fama-French 10 industry classification. Prior literature suggests that industry characteristics play a critical role in shaping firm responses to external shocks and policy interventions (e.g., Lerner (2000)). For example, high-tech and R&D-intensive industries may benefit more from government support due to their reliance on external funding and innovation incentives. In the high technology (HiTech) industry, entrepreneurial firms that receive government contracts exhibit greater innovation output, stronger talent attraction, and a higher likelihood of successful exit. In retail industry, government contracts are associated with increased employment and higher innovation output among entrepreneurial firms. These results are presented in Table A4 and Table A5, respectively. For other industries—including Mines, Construction, Building Materials, Transportation, Hotels, Business Services, Entertainment, and Finance—entrepreneurial firms benefit from increased sales and employment, as well as greater innovation output following government contracts. We do not observe significant effects of government contracts on entrepreneurial

firms in other industries not mentioned above. Overall, our findings suggest that the impact of government contracts on entrepreneurial firms varies across industries.

6.4 Robustness Tests

In this section, we present a robustness test to support our main analyses on the effect of government contracts on the subsequent performance of entrepreneurial firms. In our baseline analyses, the key independent variable is *Ln (Award)*, the natural logarithm of the value of the firm's first government contract. We now replace this measure with a dummy variable, *Contract*, which equals one if the firm receives a government contract. The dependent variables remain consistent with those used in the baseline analyses and include successful exit, sales and employment, innovation output, and the net inflow of inventors. Table A6 reports the results. We find similar results with our baseline analyses. We also conduct an instrumental variable (IV) analysis using the contract dummy variable and again find similar results to those from our baseline IV analyses. Table A7 reports the results. Overall, these findings reinforce the conclusion that government contracts positively affect the likelihood of successful exit, firm growth (in terms of sales and employment), innovation output, and the ability to attract inventors when an alternative measure of government support is used.

7 Policy Implications and Conclusion

In this paper, we analyzed whether winning procurement auctions and participating in the U.S. Federal government procurement process nurture entrepreneurial firm success. We first analyze the determinants of entrepreneurial firms receiving procurement contracts and then the dimensions along which participation in the procurement process helps to enhance the performance of entrepreneurial firms. We analyzed the following research questions: First, how does such participation affect the subsequent sales and employment of such firms? Second, how does participation in government procurement contracts affect the subsequent innovation productivity and innovation quality of entrepreneurial firms? Third, how does participation in government contracts affect the net inflow of inventors and the net inflow of "superstar" inventors (with exceptional patent citation histories) into entrepreneurial firms? Fourth, how does the participation by entrepreneurial firms in the government procurement process affect their overall success probability (measured by IPO

or acquisition propensity)? Finally, how does the size, age, and industry of the entrepreneurial firm affect the performance-enhancing effects of participation in government contracts? We used a large sample of detailed U.S. government procurement contract data from the Federal Procurement Data System (FPDS) and entrepreneurial firm performance data from the NETS database and financing data from Crunchbase to address the above research questions. We established causality using an IV analysis where our instrument is the total amount of government contracts awarded in the previous fiscal year in the county where the entrepreneurial firm is located. Our results are found to be robust to using either the amount of the government contract awarded to an entrepreneurial firm or a contract dummy indicating the success or otherwise of the firm in securing such a contract as the main test variable.

Our analysis has several implications for policy makers and entrepreneurs. First, our analysis validates the use of government contracts, and in particular, policies such as those of the U.S. government in confining participation in procurement contracts with value below a certain amount to small firms alone in terms of the benefits of such policies in fostering entrepreneurial firm success. Since every country, emerging or developed, has procurement requirements, our analysis suggests that such policies may provide a low-cost policy tool for governments to help to foster the success of entrepreneurial firms all over the world. Second, our analysis suggests that entrepreneurial firms winning government procurement auctions and participating in the procurement process benefit along five dimensions in subsequent years: greater sales revenue; high employment levels; greater innovation productivity and higher innovation quality; and higher probability of overall success (as measured by the propensity for having successful IPOs).

Third, our cross-sectional analysis provides guidance to governments in the formulation of procurement policies. One concern policy makers may have is that the benefits of participation in government procurement contracts may be confined to large and mature entrepreneurial firms. Our analysis suggests that this is true only in the case of the increased propensity to have successful exit through IPOs. On other dimensions, younger and smaller entrepreneurial firms benefit equally. Thus, our analysis shows that enhancements in sales, employment, innovation productivity and innovation quality apply to both smaller (younger) and larger (more mature) firms. In fact, in terms of attracting more inventors to join their firm (as measured by the net inflow of inventors), younger and smaller entrepreneurial firms benefit to a greater extent than larger and more mature

firms. The policy implication here is that there is no need to confine participation in government procurement contracts to larger (and more mature) entrepreneurial firms (assuming that younger and smaller firms can also perform the relevant procurement task adequately). The fourth and final policy implication is in terms of the industry of the entrepreneurial firm. Our analysis suggests that entrepreneurial firms in certain industries benefit more than others in terms of enhancements in performance in the years after winning government procurement contracts. In particular, two industries stand out (based on the Fama-French 10 industry classification used in our analysis): the high-tech industry and the retail industry, in which entrepreneurial firms benefit to a greater extent from participating in government procurement contracts. This suggests that governments should target entrepreneurial firms in these industries to the greatest extent when providing incentives to participate in government procurement contracts.

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Appendix A. Variable Definitions

This Table provides a detailed variable definition of the variables we used in our main baseline analyses.

Variable Name	Definition
Ln (Fut_Sales) (1-year, 2-year, and 3-year)	The natural logarithm of sales made by all establishments of an entrepreneurial firm in the first, second, and third years after receiving its first government contract (or in the corresponding years following the first external funding for firms that did not receive government contracts).
Ln (Employment) (1-year, 2-year, and 3-year)	The natural logarithm of employments made by all establishments of an entrepreneurial firm in the first, second, and third years after receiving its first government contract (or in the corresponding years following the first external funding for firms that did not receive government contracts).
Ln (Patents) (1-year, 2-year, and 3-year)	The natural logarithm of one plus the number of patents filed and eventually granted to an entrepreneurial firm in the first, second, and third years after receiving its first government contract (or in the corresponding years following the first external funding for firms that did not receive government contracts).
Ln (Citations) (1-year, 2-year, and 3-year)	The natural logarithm of one plus the adjusted forward citations received by patents filed and eventually granted to an entrepreneurial firm in the first, second, and third years after receiving its first government contract (or in the corresponding years following the first external funding for firms that did not receive government contracts). We follow Seru (2014) to adjust the number of citations.
Net Inflow of Inventors (1-year, 2-year, and 3-year)	Differences between the natural logarithm of the inventor inflow and the natural logarithm of the inventor outflow in the first, second, and third years after receiving its first government contract (or in the corresponding years following the first external funding for firms that did not receive government contracts).
Net Inflow of Superstar Inventors (1-year, 2-year, and 3-year)	Differences between the natural logarithm of the superstar inventor inflow and the natural logarithm of the superstar inventor outflow in the first, second, and third years after receiving its first government contract (or in the corresponding years following the first external funding for firms that did not receive government contracts).
IPO	A dummy variable equal to one if an entrepreneurial firm exited via an initial public offering (IPO), and zero otherwise.
Acq	A dummy variable equal to one if an entrepreneurial firm exited via being acquired successfully by another firm, and zero otherwise.
Exit	A dummy variable equal to one if an entrepreneurial firm exited via either an IPO or being acquired by another firm, and zero otherwise.

(Continued)

Variable Name	Definition
Ln (Award)	The natural logarithm of the value of the first government contract awarded to the firm.
Contract	A dummy variable equal to one if the entrepreneurial firm receives the government contracts and zero otherwise.
VC	A dummy variable equal to one if an entrepreneurial firm receives VC investment before receiving the government funding, and zero otherwise.
Ln (Cur_Sales)	The natural logarithm of sales made by all establishments of an entrepreneurial firm in the year receiving its first government.
Ln (Age)	The natural logarithm of one plus firm age of an entrepreneurial firm receiving its first government.
Ln (Total Amount Raised)	The natural logarithm of the aggregate investment raised by an entrepreneurial firm across all investment rounds.

Table 1. Summary Statistics

This table reports summary statistics for the main variables used in the analysis. The sample consists of 18,254 entrepreneurial firms. All variables are defined in Appendix A.

Variable	N	Mean	SD	Min	Median	Max
Ln (Award)	18,254	0.34	1.86	0.00	0.00	11.51
Award ($thousands)	18,254	1.68	11.58	0.00	0.00	99.43
Contract	18,254	0.03	0.18	0.00	0.00	1.00
Ln (Fut_Sales) (1-Year)	18,254	13.05	1.54	10.13	12.79	17.91
Fut_Sales (1-Year) ($millions)	18,254	2.30	7.62	0.03	0.36	59.84
Ln (Cur_Sales)	18,254	12.96	1.52	10.09	12.68	17.87
Cur_Sales ($millions)	18,254	2.11	7.18	0.02	0.32	57.66
Ln (Employment) (1-Year)	18,254	1.73	1.23	0.00	1.39	5.77
Ln (Patents) (1-Year)	18,254	0.08	0.29	0.00	0.00	1.61
Patents (1-Year)	18,254	0.16	0.62	0.00	0.00	4.00
Ln (Citations) (1-Year)	18,254	0.11	0.49	0.00	0.00	3.12
Citations (1-Year)	18,254	0.49	2.69	0.00	0.00	21.67
Net Inflow of Inventors (1-Year)	18,254	0.04	0.27	-0.69	0.00	1.61
Net Inflow of Superstar Inventors (1-Year)	18,254	0.02	0.18	-0.69	0.00	1.10
IPO	18,254	0.03	0.17	0.00	0.00	1.00
Acq	18,254	0.02	0.13	0.00	0.00	1.00
Exit	18,254	0.05	0.21	0.00	0.00	1.00
VC	18,254	0.78	0.41	0.00	1.00	1.00
Ln (Age)	18,254	1.54	0.81	0.69	1.39	3.37
Age	18,254	5.77	6.74	1.00	3.00	28.00
Ln (Total Amount Raised)	18,254	12.10	6.33	0.00	14.46	19.78
Total Amount Raised ($millions)	18,254	20.32	56.25	0.00	1.91	390.6

Table 2. The Determinants of Entrepreneurial Firms Receiving Government Contracts: Univariate Analysis

This table reports the univariate analysis results examining the determinants of entrepreneurial firms receiving government contracts. The dependent variable is the natural logarithm of the value of the first government contract awarded to the firm. *VC* is a dummy variable equal to one if the firm received venture capital (VC) investment prior to receiving the government contract. *Ln (VC Rounds)* is the natural logarithm of the number of VC investment rounds prior to receiving the government contract. *Ln (VC Amount)* is the natural logarithm of the total dollar amount of VC investment received by the firm. *Ln (Sales)*$_{t-1}$ is the natural logarithm of firm sales in the year prior to receiving the government contract. *Ln (Employment)*$_{t-1}$ is the natural logarithm of the number of employees in the year prior to receiving the contract. *Ln (Patents)*$_{t-1}$ is the natural logarithm of one plus the number of patents applied for (and eventually granted) in the year prior to the contract. *Ln (Citations)*$_{t-1}$ is the natural logarithm of one plus the number of citations to those patents in the same year. *Ln (Age)*$_{t-1}$ is the natural logarithm of the firm's age, measured one year before receiving the government contract. Year fixed effects and two-digit SIC code industry fixed effects are included in all regressions. We define the year as the one in which the firm first received a government contract or, if the firm did not receive any government contracts, the year in which it first received external funding. Constants are suppressed. All standard errors are clustered at the industry level and are reported in parentheses below the coefficient estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Ln (Award)				
VC	−0.007							
	(0.024)							
Ln (VC Rounds)		7.791***						
		(0.460)						
Ln (VC Amount)			0.605***					
			(0.013)					
Ln (Sales)$_{t-1}$				0.120***				
				(0.013)				
Ln (Employment)$_{t-1}$					0.166***			
					(0.017)			
Ln (Patents)$_{t-1}$						0.759***		
						(0.195)		
Ln (Citations)$_{t-1}$							0.229***	
							(0.054)	
Ln (Age)$_{t-1}$								0.190***
								(0.023)
Observations	18,254	18,254	18,254	18,254	18,254	18,254	18,254	18,254
Adjusted R^2	0.022	0.068	0.066	0.031	0.033	0.026	0.024	0.029
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 3. The Determinants of Entrepreneurial Firms Receiving Government Contracts: Multivariate Analysis

This table reports the multivariate analysis results examining the determinants of entrepreneurial firms receiving government contracts. The dependent variable is the natural logarithm of the value of the first government contract awarded to the firm. *Ln (VC Rounds)* is the natural logarithm of the number of VC investment rounds prior to receiving the government contract. *Ln (VC Amount)* is the natural logarithm of the total dollar amount of VC investment received by the firm. *Ln (Sales)*$_{t-1}$ is the natural logarithm of firm sales in the year prior to receiving the government contract. *Ln (Employment)*$_{t-1}$ is the natural logarithm of the number of employees in the year prior to receiving the contract. *Ln (Patents)*$_{t-1}$ is the natural logarithm of one plus the number of patents applied for (and eventually granted) in the year prior to the contract. *Ln (Citations)*$_{t-1}$ is the natural logarithm of one plus the number of citations to those patents in the same year. *Ln (Age)*$_{t-1}$ is the natural logarithm of the firm's age, measured one year before receiving the government contract. Year fixed effects and two-digit SIC code industry fixed effects are included in all regressions. We define the year as the one in which the firm first received a government contract or, if the firm did not receive any government contracts, the year in which it first received external funding. Constants are suppressed. All standard errors are clustered at the industry level and are reported in parentheses below the coefficient estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
			Ln (Award)			
Ln (VC Rounds)	6.696***	6.533***	6.467***	6.371***	6.371***	6.318***
	(0.572)	(0.567)	(0.569)	(0.598)	(0.596)	(0.587)
Ln (VC Amount)	0.514***	0.510***	0.510***	0.506***	0.506***	0.505***
	(0.036)	(0.036)	(0.036)	(0.037)	(0.037)	(0.037)
Ln (Sales)$_{t-1}$		0.100***	0.019	0.017	0.017	0.013
		(0.015)	(0.018)	(0.019)	(0.019)	(0.018)
Ln (Employment)$_{t-1}$			0.114***	0.115***	0.115***	0.097***
			(0.021)	(0.021)	(0.021)	(0.020)
Ln (Patents)$_{t-1}$				0.364**	0.359*	0.352*
				(0.146)	(0.186)	(0.185)
Ln (Citations)$_{t-1}$					0.003	0.012
					(0.050)	(0.049)
Ln (Age)$_{t-1}$						0.075***
						(0.016)
Observations	18,254	18,254	18,254	18,254	18,254	18,254
Adjusted R^2	0.099	0.104	0.105	0.106	0.106	0.108
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 4. The Effect of Government Contracts on Entrepreneurial Firms' Sales and Employment: Baseline Analysis

This table reports the results of the effect of the government contracts on entrepreneurial firms' sales and employment. All variables are defined in Appendix A. Year fixed effects and two-digit SIC code industry fixed effects are included in all regressions. Constants are suppressed. All standard errors are clustered at the industry level and are reported in parentheses below the coefficient estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Ln (Fut_Sales)			*Ln (Employment)*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Ln (Award)	0.004*	0.009***	0.011***	0.017***	0.020***	0.021***
	(0.002)	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)
VC	0.019***	0.022*	0.024*	0.038*	0.036**	0.047**
	(0.007)	(0.012)	(0.012)	(0.020)	(0.016)	(0.020)
Ln (Cur_Sales)	0.958***	0.934***	0.910***	0.654***	0.632***	0.615***
	(0.003)	(0.004)	(0.006)	(0.008)	(0.008)	(0.008)
Ln (Age)	0.018*	0.016	0.016	0.109***	0.095***	0.077***
	(0.009)	(0.014)	(0.017)	(0.009)	(0.008)	(0.009)
Ln (Total Amount Raised))	0.003***	0.008***	0.012***	0.005***	0.009***	0.013***
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)
Observations	18,254	18,254	18,254	18,254	18,254	18,254
Adjusted R^2	0.913	0.837	0.772	0.714	0.656	0.604
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 5. The Effect of Government Contracts on Entrepreneurial Firms' Innovation Output: Baseline Analysis

This table reports the results of the effect of the government contracts on entrepreneurial firms' innovation output. All variables are defined in Appendix A. Year fixed effects and two-digit SIC code industry fixed effects are included in all regressions. Constants are suppressed. All standard errors are clustered at the industry level and are reported in parentheses below the coefficient estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Ln (Patents)			*Ln (Citations)*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Ln (Award)	0.012***	0.012***	0.012***	0.018***	0.016***	0.018***
	(0.002)	(0.002)	(0.001)	(0.003)	(0.003)	(0.002)
VC	0.001	0.010	0.010	0.000	0.007	0.009
	(0.005)	(0.008)	(0.008)	(0.007)	(0.009)	(0.009)
Ln (Cur_Sales)	0.010***	0.010***	0.009***	0.015***	0.015***	0.011***
	(0.003)	(0.002)	(0.002)	(0.004)	(0.002)	(0.003)
Ln (Age)	-0.017***	-0.022***	-0.019***	-0.030***	-0.032***	-0.028***
	(0.004)	(0.003)	(0.003)	(0.007)	(0.005)	(0.005)
Ln (Total Amount Raised)	0.005***	0.006***	0.007***	0.008***	0.009***	0.009***
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Observations	18,254	18,254	18,254	18,254	18,254	18,254
Adjusted R^2	0.062	0.070	0.069	0.045	0.053	0.050
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 6. The Effect of Government Contracts on Entrepreneurial Firms' Net Inflows of Inventors: Baseline Analysis

This table reports the results of the effect of the government contracts on entrepreneurial firms' net inflows of inventors. All variables are defined in Appendix A. Year fixed effects and two-digit SIC code industry fixed effects are included in all regressions. Constants are suppressed. All standard errors are clustered at the industry level and are reported in parentheses below the coefficient estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Net Inflow of Inventors			*Net Inflow of Superstar Inventors*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Ln (Award)	0.006***	0.004***	0.003*	0.003***	0.002**	-0.000
	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
VC	-0.004	-0.000	0.000	0.000	-0.000	-0.001
	(0.005)	(0.003)	(0.003)	(0.002)	(0.003)	(0.002)
Ln (Cur_Sales)	0.005***	0.002**	0.001	0.002**	-0.000	-0.000
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Ln (Age)	-0.021***	-0.015***	-0.009***	-0.009***	-0.008***	-0.004***
	(0.003)	(0.003)	(0.003)	(0.002)	(0.001)	(0.001)
Ln (Total Amount Raised)	0.003***	0.004***	0.003***	0.002***	0.002***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	18,254	18,254	18,254	18,254	18,254	18,254
Adjusted R^2	0.020	0.022	0.011	0.011	0.010	0.002
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 7. The Effect of Government Contracts on Entrepreneurial Firms' Successful Exit: Baseline Analysis

This table reports the results of the effect of the government contracts on entrepreneurial firms' successful exit in the subsequent years. All variables are defined in Appendix A. Year fixed effects and two-digit SIC code industry fixed effects are included in all regressions. We define the year as the one in which the firm first received a government contract or, if the firm did not receive any government contracts, the year in which it first received external funding. Constants are suppressed. All standard errors are clustered at the industry level and are reported in parentheses below the coefficient estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1) *IPO*	(2) *Acq*	(3) *Exit*
Ln (Award)	0.004***	0.000	0.004***
	(0.001)	(0.000)	(0.001)
VC	0.004	0.001	0.006
	(0.004)	(0.002)	(0.005)
Ln (Cur_Sales)	0.007***	0.002**	0.009***
	(0.002)	(0.001)	(0.002)
Ln (Age)	0.009***	0.003**	0.012***
	(0.002)	(0.001)	(0.003)
Ln (Total Amount Raised)	0.003***	0.001***	0.004***
	(0.001)	(0.000)	(0.001)
Observations	18,254	18,254	18,254
Adjusted R^2	0.072	0.023	0.076
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes

Table 8. The Effect of Government Contracts on Entrepreneurial Firms' Sales and Employment: IV Analysis

This table reports the instrumental variable (IV) regression results of the effect of the government contracts on entrepreneurial firms' sales and employment. Panels A and B report the first and second stage results of the IV analysis results on scales and employment, respectively. All variables are defined in Appendix A. Year fixed effects and two-digit SIC code industry fixed effects are included in all regressions. The Kleibergen-Paap F statistic is reported in Column (1) of Panel A. All standard errors are clustered at the industry level and are reported in parentheses below the coefficient estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A. IV Analysis of Sales and Employment (First Results)

	(1) First Stage
Variables	*Ln (Award)*
County Amount	0.024***
	(0.006)
VC	-0.019
	(0.022)
Ln (Cur_Sales)	0.108***
	(0.010)
Ln (Age)	0.134***
	(0.021)
Ln (Total Amount Raised)	-0.004*
	(0.002)
Observations	18254
Adjusted R^2	0.035
F Statistics	13.91
Year FX	YES
Industry FX	YES

(Continued)

Panel B. IV Analysis of Sales and Employment (Second-Stage Results))						
	(1)	(2)	(3)	(4)	(5)	(6)
	Ln (Fut_Sales)			*Ln (Employment)*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Ln (Award)	0.118	0.140	0.246	0.168*	0.210*	0.243*
	(0.075)	(0.103)	(0.156)	(0.093)	(0.113)	(0.146)
VC	0.021***	0.025*	0.029*	0.041**	0.040**	0.052**
	(0.008)	(0.014)	(0.017)	(0.021)	(0.018)	(0.022)
Ln (Cur_Sales)	0.946***	0.920***	0.884***	0.637***	0.611***	0.591***
	(0.010)	(0.013)	(0.019)	(0.012)	(0.013)	(0.016)
Ln (Age)	0.004	-0.000	-0.014	0.090***	0.071***	0.049**
	(0.011)	(0.013)	(0.015)	(0.015)	(0.018)	(0.022)
Ln (Total Amount Raised)	0.003***	0.008***	0.013***	0.006***	0.010***	0.014***
	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
Observations	18254	18254	18254	18254	18254	18254
Year FX	YES	YES	YES	YES	YES	YES
Industry FX	YES	YES	YES	YES	YES	YES

Table 9. The Effect of Government Contracts on Entrepreneurial Firms' Innovation Output and Net Inflows of Inventors: IV Analysis

This table reports the instrumental variable (IV) regression results of the effect of the government contracts on entrepreneurial firms' innovation output and net inflows of inventors. Panels A and B report the IV analysis results on innovation output and net inflows of inventors, respectively. All variables are defined in Appendix A. Year fixed effects and two-digit SIC code industry fixed effects are included in all regressions. All standard errors are clustered at the industry level and are reported in parentheses below the coefficient estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A. IV Analysis of Innovation Output (Second-Stage Results))

	(1)	(2)	(3)	(4)	(5)	(6)
	Ln (Patents)			*Ln (Citations)*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Ln (Award)	0.282***	0.281***	0.277***	0.408***	0.374***	0.421***
	(0.079)	(0.076)	(0.077)	(0.124)	(0.106)	(0.116)
VC	0.007	0.016	0.016	0.009	0.015	0.017
	(0.009)	(0.011)	(0.011)	(0.013)	(0.015)	(0.015)
Ln (Cur_Sales)	-0.020**	-0.019**	-0.020**	-0.027**	-0.024**	-0.033***
	(0.008)	(0.008)	(0.008)	(0.013)	(0.012)	(0.012)
Ln (Age)	-0.051***	-0.056***	-0.052***	-0.079***	-0.077***	-0.079***
	(0.014)	(0.012)	(0.012)	(0.023)	(0.017)	(0.019)
Ln (Total Amount Raised)	0.006***	0.007***	0.008***	0.009***	0.010***	0.010***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Observations	18254	18254	18254	18254	18254	18254
Year FX	YES	YES	YES	YES	YES	YES
Industry FX	YES	YES	YES	YES	YES	YES

(Continued)

Panel B. IV Analysis of Net Inflows of Inventors (Second-Stage Results)						
	(1)	(2)	(3)	(4)	(5)	(6)
	Net Inflow of Inventors			*Net Inflow of Superstar Inventors*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Ln (Award)	0.179***	0.094***	0.074**	0.086**	0.051*	0.023
	(0.063)	(0.027)	(0.030)	(0.038)	(0.027)	(0.017)
VC	-0.000	0.001	0.002	0.002	0.001	-0.000
	(0.006)	(0.004)	(0.004)	(0.003)	(0.003)	(0.002)
Ln (Cur_Sales)	-0.014**	-0.007**	-0.007*	-0.007*	-0.006*	-0.003
	(0.007)	(0.003)	(0.004)	(0.004)	(0.003)	(0.002)
Ln (Age)	-0.043***	-0.027***	-0.018***	-0.020***	-0.015***	-0.007***
	(0.012)	(0.005)	(0.005)	(0.007)	(0.004)	(0.003)
Ln (Total Amount Raised)	0.004***	0.004***	0.003***	0.002***	0.002***	0.001***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	18254	18254	18254	18254	18254	18254
Year FX	YES	YES	YES	YES	YES	YES
Industry FX	YES	YES	YES	YES	YES	YES

Table 10. The Effect of Government Contracts on Entrepreneurial Firms' Successful Exit: IV Analysis

This table reports the second-stage instrumental variable (IV) regression results of the effect of the government contracts on entrepreneurial firms' successful exit. All variables are defined in Appendix A. Year fixed effects and two-digit SIC code industry fixed effects are included in all regressions. All standard errors are clustered at the industry level and are reported in parentheses below the coefficient estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variables	(1) *IPO*	(2) *Acq*	(3) *Exit*
Ln (Award)	0.100**	0.022	0.122**
	(0.045)	(0.020)	(0.051)
VC	0.006	0.002	0.008
	(0.005)	(0.002)	(0.006)
Ln (Sales)	-0.003	-0.001	-0.004
	(0.004)	(0.003)	(0.005)
Ln (Age)	-0.003	-0.000	-0.003
	(0.007)	(0.003)	(0.007)
Ln (Total Amount Raised)	0.003***	0.001***	0.004***
	(0.001)	(0.000)	(0.001)
Observations	18254	18254	18254
Year FX	YES	YES	YES
Industry FX	YES	YES	YES

Internet Appendix

Table A1. Robustness Tests for IV Analyses: Excluding Firms Located in the Top 10 Percent of Counties Receiving Government Contracts

This table reports the instrumental variable (IV) regression results of the effect of the government contracts on entrepreneurial firms' sales and employment, innovation output, net inflows of inventors, and successful exit when excluding firms located in the top 10 percent of counties receiving government contracts. Panel A reports the first-stage IV analysis results on sales and employment. Panels B, C, D, and E report the second-stage IV analyses results on sales and employment, innovation output, net inflows of inventors, and successful exits,respectively. All variables are defined in Appendix A. Year fixed effects and two-digit SIC code industry fixed effects are included in all regressions. The Kleibergen-Paap F-statistic is reported in Column (1) of Panel A. Constants are suppressed. All standard errors are clustered at the industry level and are reported in parentheses below the coefficient estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A. IV Analysis of Sales and Employment (First-Stage Results)	
	(1)
	First-Stage
Variables	*Ln (Award)*
County Amount	0.028***
	(0.007)
VC	-0.032
	(0.027)
Ln (Cur_Sales)	0.102***
	(0.012)
Ln (Age)	0.150***
	(0.020)
Ln (Total Amount Raised)	-0.004
	(0.002)
Observations	16430
Adjusted R^2	0.035
F Statistics	13.92
Year FX	YES
Industry FX	YES

(Continued)

Panel B. IV Analysis of Sales and Employment (Second-Stage Results)						
	(1)	(2)	(3)	(4)	(5)	(6)
	Ln (Fut_Sales)			*Ln (Employment)*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Ln (Award)	0.120	0.200*	0.318*	0.174	0.260*	0.321*
	(0.073)	(0.118)	(0.175)	(0.109)	(0.152)	(0.189)
VC	0.023***	0.032**	0.042**	0.039**	0.045**	0.061***
	(0.008)	(0.016)	(0.021)	(0.020)	(0.018)	(0.023)
Ln (Cur_Sales)	0.945***	0.913***	0.876***	0.635***	0.604***	0.581***
	(0.009)	(0.014)	(0.020)	(0.013)	(0.016)	(0.019)
Ln (Age)	0.007	-0.005	-0.021	0.095***	0.071***	0.044
	(0.009)	(0.013)	(0.017)	(0.022)	(0.026)	(0.032)
Ln (Total Amount Raised)	0.004***	0.009***	0.013***	0.006***	0.011***	0.015***
	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
Observations	16430	16430	16430	16430	16430	16430
Year FX	YES	YES	YES	YES	YES	YES
Industry FX	YES	YES	YES	YES	YES	YES

Panel C. IV Analysis of Innovation Output (Second-Stage Results)						
	(1)	(2)	(3)	(4)	(5)	(6)
	Ln (Patents)			*Ln (Citations)*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Ln (Award)	0.320***	0.324***	0.308***	0.434***	0.447***	0.456***
	(0.085)	(0.082)	(0.077)	(0.126)	(0.116)	(0.113)
VC	0.012	0.022*	0.021*	0.017	0.023	0.026
	(0.011)	(0.012)	(0.012)	(0.015)	(0.017)	(0.017)
Ln (Cur_Sales)	-0.022**	-0.022**	-0.021**	-0.028*	-0.030**	-0.034**
	(0.010)	(0.010)	(0.010)	(0.014)	(0.015)	(0.014)
Ln (Age)	-0.059***	-0.065***	-0.062***	-0.088***	-0.093***	-0.090***
	(0.016)	(0.014)	(0.013)	(0.024)	(0.020)	(0.020)
Ln (Total Amount Raised)	0.007***	0.008***	0.008***	0.010***	0.011***	0.011***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Observations	16430	16430	16430	16430	16430	16430
Year FX	YES	YES	YES	YES	YES	YES
Industry FX	YES	YES	YES	YES	YES	YES

(Continued)

Panel D. IV Analysis of Net Inflows of Inventors (Second-Stage Results)

	(1)	(2)	(3)	(4)	(5)	(6)
	Net Inflow of Inventors			*Net Inflow of Superstar Inventors*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Ln (Award)	0.195***	0.109***	0.075**	0.095**	0.049**	0.025
	(0.071)	(0.027)	(0.038)	(0.041)	(0.020)	(0.018)
VC	0.003	0.003	0.002	0.005	0.000	0.000
	(0.007)	(0.004)	(0.005)	(0.004)	(0.003)	(0.002)
Ln (Cur_Sales)	-0.015*	-0.009***	-0.006	-0.007	-0.006**	-0.002
	(0.008)	(0.003)	(0.005)	(0.005)	(0.002)	(0.002)
Ln (Age)	-0.047***	-0.030***	-0.021***	-0.022***	-0.015***	-0.008***
	(0.013)	(0.006)	(0.006)	(0.007)	(0.003)	(0.003)
Ln (Total Amount Raised)	0.004***	0.004***	0.003***	0.002***	0.002***	0.001***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	16430	16430	16430	16430	16430	16430
Year FX	YES	YES	YES	YES	YES	YES
Industry FX	YES	YES	YES	YES	YES	YES

Panel E. IV Analysis of Successful Exits (Second-Stage Results)

	(1)	(2)	(3)
Variables	*IPO*	*Acq*	*Exit*
Ln (Award)	0.085**	0.018	0.103**
	(0.038)	(0.026)	(0.045)
VC	0.006	0.002	0.008
	(0.006)	(0.002)	(0.006)
Ln (Cur_Sales)	-0.001	0.000	-0.001
	(0.003)	(0.003)	(0.005)
Ln (Age)	-0.004	-0.000	-0.004
	(0.007)	(0.003)	(0.007)
Ln (Total Amount Raised)	0.003***	0.001***	0.004***
	(0.001)	(0.000)	(0.001)
Observations	16430	16430	16430
Year FX	YES	YES	YES
Industry FX	YES	YES	YES

Table A2. Cross-Sectional Analysis (Firm Age): The Effect of Government Contracts on Entrepreneurial Firms' Future Performance

This table reports a firm age cross-sectional analysis of the effect of government contracts on entrepreneurial firms' sales and employment, innovation output, net inflows of inventors, and successful exit. The sample is divided into mature and young firms based on whether firm age is above or below the sample median. Panels A through G report the differential effects of government contracts on sales, employment, the number of patents, patent citations, net inflows of inventors, net inflows of superstar inventors, and successful exit, respectively. All variables are defined in Appendix A. Year fixed effects and two-digit SIC code industry fixed effects are included in all regressions. All standard errors are clustered at the industry level and are reported in parentheses below the coefficient estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A. The Effect of Government Contracts on Entrepreneurial Firms' Sales

	(1)	(2)	(3)	(4)	(5)	(6)
	Mature vs. Young		Mature vs. Young		Mature vs. Young	
	Ln (Fut_Sales)					
	1-year		2-year		3-year	
Ln (Award)	0.001	0.007**	0.005	0.014***	0.009**	0.014***
	(0.002)	(0.003)	(0.004)	(0.003)	(0.004)	(0.004)
Wald test	$\chi^2 = 3.14^*$		$\chi^2 = 3.63^*$		$\chi^2 = 0.76$	
p-value	0.076		0.057		0.384	
Controls	YES	YES	YES	YES	YES	YES
Observations	7,837	10,417	7,837	10,417	7,837	10,417
Adjusted R^2	0.928	0.878	0.870	0.772	0.821	0.685
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Panel B. The Effect of Government Contracts on Entrepreneurial Firms' Employment

	(1)	(2)	(3)	(4)	(5)	(6)
	Mature vs. Young		Mature vs. Young		Mature vs. Young	
	Ln (Employment)					
	1-year		2-year		3-year	
Ln (Award)	0.017***	0.013***	0.017***	0.021***	0.019***	0.020***
	(0.004)	(0.003)	(0.005)	(0.004)	(0.005)	(0.004)
Wald test	$\chi^2 = 0.89$		$\chi^2 = 0.28$		$\chi^2 = 0.09$	
p-value	0.347		0.598		0.759	
Controls	YES	YES	YES	YES	YES	YES
Observations	7,837	10,417	7,837	10,417	7,837	10,417
Adjusted R^2	0.759	0.597	0.716	0.522	0.677	0.464
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

(Continued)

Panel C. The Effect of Government Contracts on Entrepreneurial Firms' Patents Number						
	(1)	(2)	(3)	(4)	(5)	(6)
	Mature vs. Young		Mature vs. Young		Mature vs. Young	
	Ln (Patents)					
	1-year		2-year		3-year	
Ln (Award)	0.011***	0.015***	0.012***	0.012***	0.010***	0.017***
	(0.002)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)
Wald test	$\chi^2 = 1.48$		$\chi^2 = 0.00$		$\chi^2 = 4.05^{**}$	
p-value	0.224		0.962		0.044	
Controls	YES	YES	YES	YES	YES	YES
Observations	7,837	10,417	7,837	10,417	7,837	10,417
Adjusted R^2	0.052	0.069	0.063	0.075	0.050	0.080
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Panel D. The Effect of Government Contracts on Entrepreneurial Firms' Patents Citation						
	(1)	(2)	(3)	(4)	(5)	(6)
	Mature vs. Young		Mature vs. Young		Mature vs. Young	
	Ln (Citations)					
	1-year		2-year		3-year	
Ln (Award)	0.016***	0.024***	0.016***	0.019***	0.015***	0.026***
	(0.004)	(0.005)	(0.005)	(0.006)	(0.004)	(0.005)
Wald test	$\chi^2 = 1.56$		$\chi^2 = 0.16$		$\chi^2 = 2.59$	
p-value	0.212		0.687		0.107	
Controls	YES	YES	YES	YES	YES	YES
Observations	7,837	10,417	7,837	10,417	7,837	10,417
Adjusted R^2	0.038	0.049	0.046	0.057	0.035	0.058
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

(Continued)

Panel E. The Effect of Government Contracts on Entrepreneurial Firms' Net Inflows of Inventors						
	(1)	(2)	(3)	(4)	(5)	(6)
	Mature vs. Young		Mature vs. Young		Mature vs. Young	
	Net Inflow of Inventors					
	1-year		2-year		3-year	
Ln (Award)	0.002	0.013***	0.004	0.007***	-0.000	0.008***
	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)
Wald test	$\chi^2 = 7.46^{***}$		$\chi^2 = 0.90$		$\chi^2 = 7.24^{***}$	
p-value	0.006		0.343		0.007	
Controls	YES	YES	YES	YES	YES	YES
Observations	7,837	10,417	7,837	10,417	7,837	10,417
Adjusted R^2	0.006	0.025	0.009	0.027	0.003	0.017
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Panel F. The Effect of Government Contracts on Entrepreneurial Firms' Net Inflows of Superstar Inventors						
	(1)	(2)	(3)	(4)	(5)	(6)
	Mature vs. Young		Mature vs. Young		Mature vs. Young	
	Net Inflow of Superstar Inventors					
	1-year		2-year		3-year	
Ln (Award)	0.000	0.009**	0.001	0.004***	-0.002	0.004
	(0.002)	(0.004)	(0.001)	(0.001)	(0.001)	(0.003)
Wald test	$\chi^2 = 3.16^{*}$		$\chi^2 = 2.96^{*}$		$\chi^2 = 3.88^{**}$	
p-value	0.075		0.085		0.049	
Controls	YES	YES	YES	YES	YES	YES
Observations	7,837	10,417	7,837	10,417	7,837	10,417
Adjusted R^2	0.001	0.017	-0.000	0.014	-0.002	0.006
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

(Continued)

Panel G. The Effect of Government Contracts on Entrepreneurial Firms' Successful Exit						
	(1)	(2)	(3)	(4)	(5)	(6)
	Mature vs. Young		Mature vs. Young		Mature vs. Young	
	IPO		*Acquisition*		*Exit*	
Ln (Award)	0.005***	0.002	0.001	-0.001	0.006***	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Wald test	$\chi^2 = 4.46^{**}$		$\chi^2 = 2.58$		$\chi^2 = 18.80^{***}$	
p-value	0.035		0.109		0.000	
Controls	YES	YES	YES	YES	YES	YES
Observations	7,837	10,417	7,837	10,417	7,837	10,417
Adjusted R^2	0.077	0.069	0.022	0.026	0.087	0.064
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Table A3. Cross-Sectional Analysis (Firm Size): The Effect of Government Contracts on Entrepreneurial Firms' Future Performance

This table reports a firm size cross-sectional analysis of the effect of government contracts on entrepreneurial firms' sales and employment, innovation output, net inflows of inventors, and successful exit. The sample is divided into large and small firms based on whether firm sales are above or below the sample median. Panels A through G report the differential effects of government contracts on sales, employment, the number of patents, patent citations, net inflows of inventors, net inflows of superstar inventors, and successful exit, respectively. All variables are defined in Appendix A. Year fixed effects and two-digit SIC code industry fixed effects are included in all regressions. All standard errors are clustered at the industry level and are reported in parentheses below the coefficient estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A. The Effect of Government Contracts on Entrepreneurial Firms' Sales

	(1)	(2)	(3)	(4)	(5)	(6)
	Large vs. Small		Large vs. Small		Large vs. Small	
	Ln (Fut_Sales)					
	1-year		2-year		3-year	
Ln (Award)	0.001	0.008**	0.006**	0.013*	0.007**	0.018**
	(0.003)	(0.004)	(0.003)	(0.007)	(0.003)	(0.008)
Wald test	$\chi^2 = 2.53$		$\chi^2 = 0.79$		$\chi^2 = 1.61$	
p-value	0.112		0.375		0.205	
Controls	YES	YES	YES	YES	YES	YES
Observations	9,098	9,156	9,098	9,156	9,098	9,156
Adjusted R^2	0.905	0.562	0.809	0.405	0.726	0.327
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Panel B. The Effect of Government Contracts on Entrepreneurial Firms' Employment

	(1)	(2)	(3)	(4)	(5)	(6)
	Large vs. Small		Large vs. Small		Large vs. Small	
	Ln (Employment)					
	1-year		2-year		3-year	
Ln (Award)	0.011***	0.023***	0.013***	0.028***	0.014***	0.028***
	(0.004)	(0.006)	(0.004)	(0.007)	(0.004)	(0.007)
Wald test	$\chi^2 = 3.87^{**}$		$\chi^2 = 4.73^{**}$		$\chi^2 = 4.57^{**}$	
p-value	0.049		0.030		0.033	
Controls	YES	YES	YES	YES	YES	YES
Observations	9,098	9,156	9,098	9,156	9,098	9,156
Adjusted R^2	0.673	0.186	0.619	0.150	0.570	0.131
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

(Continued)

Panel C. The Effect of Government Contracts on Entrepreneurial Firms' Patent Quantity						
	(1)	(2)	(3)	(4)	(5)	(6)
	Large vs. Small		Large vs. Small		Large vs. Small	
			Ln (Patents)			
	1-year		2-year		3-year	
Ln (Award)	0.012***	0.011***	0.011***	0.014***	0.012***	0.012***
	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)
Wald test	$\chi^2 = 0.13$		$\chi^2 = 2.42$		$\chi^2 = 0.00$	
p-value	0.714		0.120		0.957	
Controls	YES	YES	YES	YES	YES	YES
Observations	9,098	9,156	9,098	9,156	9,098	9,156
Adjusted R^2	0.063	0.045	0.073	0.055	0.071	0.057
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Panel D. The Effect of Government Contracts on Entrepreneurial Firms' Patent Citations						
	(1)	(2)	(3)	(4)	(5)	(6)
	Large vs. Small		Large vs. Small		Large vs. Small	
			Ln (Citations)			
	1-year		2-year		3-year	
Ln (Award)	0.019***	0.016***	0.017***	0.016***	0.019***	0.017***
	(0.005)	(0.004)	(0.004)	(0.003)	(0.003)	(0.004)
Wald test	$\chi^2 = 0.12$		$\chi^2 = 0.01$		$\chi^2 = 0.05$	
p-value	0.731		0.907		0.829	
Controls	YES	YES	YES	YES	YES	YES
Observations	9,098	9,156	9,098	9,156	9,098	9,156
Adjusted R^2	0.045	0.034	0.059	0.037	0.056	0.035
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

(Continued)

Panel E. The Effect of Government Contracts on Entrepreneurial Firms' Net Inflows of Inventors

	(1)	(2)	(3)	(4)	(5)	(6)
	Large vs. Small		Large vs. Small		Large vs. Small	
	Net Inflow of Inventors					
	1-year		2-year		3-year	
Ln (Award)	0.004**	0.010***	0.003**	0.008**	0.002	0.003*
	(0.002)	(0.002)	(0.001)	(0.003)	(0.002)	(0.002)
Wald test	$\chi^2 = 2.34$		$\chi^2 = 1.81$		$\chi^2 = 0.46$	
p-value	0.126		0.179		0.499	
Controls	YES	YES	YES	YES	YES	YES
Observations	9,098	9,156	9,098	9,156	9,098	9,156
Adjusted R^2	0.020	0.017	0.021	0.023	0.012	0.011
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Panel F. The Effect of Government Contracts on Entrepreneurial Firms' Net Inflows of Superstar Inventors

	(1)	(2)	(3)	(4)	(5)	(6)
	Large vs. Small		Large vs. Small		Large vs. Small	
	Net Inflow of Superstar Inventors					
	1-year		2-year		3-year	
Ln (Award)	0.002	0.007***	0.001	0.005**	-0.000	0.001
	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
Wald test	$\chi^2 = 2.34$		$\chi^2 = 2.82^*$		$\chi^2 = 0.32$	
p-value	0.126		0.093		0.569	
Controls	YES	YES	YES	YES	YES	YES
Observations	9,098	9,156	9,098	9,156	9,098	9,156
Adjusted R^2	0.009	0.013	0.008	0.017	0.002	0.003
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

(Continued)

Panel G. The Effect of Government Contracts on Entrepreneurial Firms' Successful Exit						
	(1)	(2)	(3)	(4)	(5)	(6)
	Large vs. Small		Large vs. Small		Large vs. Small	
	IPO		*Acquisition*		*Exit*	
Ln (Award)	0.006***	-0.000	-0.000	0.000	0.006***	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Wald test	$\chi^2 = 12.60^{***}$		$\chi^2 = 0.08$		$\chi^2 = 6.83^{***}$	
p-value	0.000		0.779		0.009	
Controls	YES	YES	YES	YES	YES	YES
Observations	9,098	9,156	9,098	9,156	9,098	9,156
Adjusted R^2	0.081	0.055	0.024	0.019	0.083	0.055
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Table A4. Cross-Sectional Analysis (High Technology Industry): The Effect of Government Contracts on Entrepreneurial Firms' Future Performance

This table reports a cross-sectional analysis of the effect of government contracts on entrepreneurial firms' sales and employment, innovation output, net inflows of inventors, and successful exit when focusing on high technology (HiTech) industry. Panels A through D report the differential effects of government contracts on sales and employment, innovation output, net inflows of inventors, and successful exit, respectively. All variables are defined in Appendix A. Year fixed effects and two-digit SIC code industry fixed effects are included in all regressions. All standard errors are clustered at the industry level and are reported in parentheses below the coefficient estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A. The Effect of Government Contracts on Entrepreneurial Firms' Sales and Employment

	(1)	(2)	(3)	(4)	(5)	(6)
	Ln (Fut_Sales)			*Ln (Employment)*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Ln (Award)	-0.000	0.001	0.003	0.012*	0.013*	0.013*
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.006)
Control	YES	YES	YES	YES	YES	YES
Observations	6061	6061	6061	6061	6061	6061
Adjusted R^2	0.905	0.824	0.757	0.697	0.635	0.586
Year FX	YES	YES	YES	YES	YES	YES
Industry FX	YES	YES	YES	YES	YES	YES

Panel B. The Effect of Government Contracts on Entrepreneurial Firms' Innovation Output

	(1)	(2)	(3)	(4)	(5)	(6)
	Ln (Patents)			*Ln (Citations)*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Ln (Award)	0.013**	0.007*	0.011**	0.022**	0.011***	0.016**
	(0.004)	(0.003)	(0.002)	(0.006)	(0.002)	(0.004)
Control	YES	YES	YES	YES	YES	YES
Observations	6061	6061	6061	6061	6061	6061
Adjusted R^2	0.067	0.076	0.071	0.053	0.058	0.053
Year FX	YES	YES	YES	YES	YES	YES
Industry FX	YES	YES	YES	YES	YES	YES

(Continued)

Panel C. The Effect of Government Contracts on Entrepreneurial Firms' Net Inflows of Inventors

	(1)	(2)	(3)	(4)	(5)	(6)
	Net Inflow of Inventors			*Net Inflow of Superstar Inventors*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Ln (Award)	0.007**	0.003**	0.004	0.004**	0.000	0.001
	(0.002)	(0.001)	(0.003)	(0.001)	(0.001)	(0.001)
Control	YES	YES	YES	YES	YES	YES
Observations	6061	6061	6061	6061	6061	6061
Adjusted R^2	0.024	0.022	0.011	0.015	0.011	0.004
Year FX	YES	YES	YES	YES	YES	YES
Industry FX	YES	YES	YES	YES	YES	YES

Panel D. The Effect of Government Contracts on Entrepreneurial Firms' Successful Exit

	(1)	(2)	(3)
Variables	*IPO*	*Acq*	*Exit*
Ln (Award)	0.003***	0.001	0.004**
	(0.001)	(0.001)	(0.001)
Control	YES	YES	YES
Observations	6061	6061	6061
Adjusted R^2	0.059	0.030	0.073
Year FX	YES	YES	YES
Industry FX	YES	YES	YES

Table A5. Cross-Sectional Analysis (Retail Industry): The Effect of Government Contracts on Entrepreneurial Firms' Future Performance

This table reports a cross-sectional analysis of the effect of government contracts on entrepreneurial firms' sales and employment, innovation output, net inflows of inventors, and successful exit when focusing on retail industry. Panels A through D report the differential effects of government contracts on sales and employment, innovation output, net inflows of inventors, and successful exit, respectively. All variables are defined in Appendix A. Year fixed effects and two-digit SIC code industry fixed effects are included in all regressions. All standard errors are clustered at the industry level and are reported in parentheses below the coefficient estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A. The Effect of Government Contracts on Entrepreneurial Firms' Sales and Employment

	(1)	(2)	(3)	(4)	(5)	(6)
	Ln (Fut_Sales)			*Ln (Employment)*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Ln (Award)	0.006	0.010	0.022**	0.028***	0.025**	0.036***
	(0.007)	(0.009)	(0.008)	(0.005)	(0.009)	(0.007)
Control	YES	YES	YES	YES	YES	YES
Observations	2720	2720	2720	2720	2720	2720
Adjusted R^2	0.924	0.844	0.769	0.714	0.654	0.590
Year FX	YES	YES	YES	YES	YES	YES
Industry FX	YES	YES	YES	YES	YES	YES

Panel B. The Effect of Government Contracts on Entrepreneurial Firms' Innovation Output

	(1)	(2)	(3)	(4)	(5)	(6)
	Ln (Patents)			*Ln (Citations)*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Ln (Award)	0.015***	0.023***	0.015***	0.023***	0.029***	0.027***
	(0.003)	(0.004)	(0.004)	(0.007)	(0.007)	(0.008)
Control	YES	YES	YES	YES	YES	YES
Observations	2720	2720	2720	2720	2720	2720
Adjusted R^2	0.048	0.052	0.038	0.038	0.044	0.035
Year FX	YES	YES	YES	YES	YES	YES
Industry FX	YES	YES	YES	YES	YES	YES

(Continued)

Panel C. The Effect of Government Contracts on Entrepreneurial Firms' Net Inflows of Inventors

	(1)	(2)	(3)	(4)	(5)	(6)
	Net Inflow of Inventors			*Net Inflow of Superstar Inventors*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Ln (Award)	0.006	0.006	-0.001	0.004	0.001	-0.004
	(0.005)	(0.004)	(0.003)	(0.006)	(0.003)	(0.003)
Control	YES	YES	YES	YES	YES	YES
Observations	2720	2720	2720	2720	2720	2720
Adjusted R^2	0.016	0.015	0.005	0.004	0.011	0.005
Year FX	YES	YES	YES	YES	YES	YES
Industry FX	YES	YES	YES	YES	YES	YES

Panel D. The Effect of Government Contracts on Entrepreneurial Firms' Successful Exit

	(1)	(2)	(3)
Variables	*IPO*	*Acq*	*Exit*
Ln (Award)	0.006**	-0.004***	0.002
	(0.002)	(0.001)	(0.002)
Control	YES	YES	YES
Observations	2720	2720	2720
Adjusted R^2	0.040	0.017	0.046
Year FX	YES	YES	YES
Industry FX	YES	YES	YES

Table A6. The Effect of Government Contracts on Entrepreneurial Firms' Future Performance: Baseline Analysis Using Contract Dummy as Main Independent Variable

This table reports the results on the effect of government contracts on entrepreneurial firms' sales and employment, innovation output, net inflows of inventors, and successful exit, using a contract dummy as the main independent variable in place of *Ln (Award)*. Panels A, B, C, and D present robustness test results for firm sales and employment, innovation output, net inflow of inventors, and successful exit, respectively, using the contract dummy as the key explanatory variable. All variables are defined in Appendix A. Year fixed effects and two-digit SIC code industry fixed effects are included in all regressions. We define the year as the one in which the firm first received a government contract or, if the firm did not receive any government contracts, the year in which it first received external funding. Constants are suppressed. All standard errors are clustered at the industry level and are reported in parentheses below the coefficient estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A. The Effect of Government Contracts on Entrepreneurial Firms' Sales and Employment

	(1)	(2)	(3)	(4)	(5)	(6)
	Ln (Fut_Sales)			*Ln (Employment)*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Contract	0.039*	0.094***	0.118***	0.175***	0.212***	0.220***
	(0.022)	(0.025)	(0.029)	(0.038)	(0.034)	(0.038)
VC	0.019***	0.022*	0.024*	0.038*	0.036**	0.047**
	(0.007)	(0.012)	(0.012)	(0.020)	(0.016)	(0.020)
Ln (Cur_Sales)	0.958***	0.934***	0.910***	0.654***	0.632***	0.615***
	(0.003)	(0.004)	(0.006)	(0.008)	(0.008)	(0.008)
Ln (Age)	0.018*	0.016	0.016	0.109***	0.095***	0.077***
	(0.009)	(0.014)	(0.017)	(0.009)	(0.008)	(0.009)
Ln (Total Amount Raised)	0.003***	0.008***	0.012***	0.005***	0.009***	0.013***
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)
Observations	18254	18254	18254	18254	18254	18254
Adjusted R^2	0.913	0.837	0.772	0.714	0.656	0.604
Year FX	YES	YES	YES	YES	YES	YES
Industry FX	YES	YES	YES	YES	YES	YES

(Continued)

Panel B. The Effect of Government Contracts on Entrepreneurial Firms' Innovation Output

	(1)	(2)	(3)	(4)	(5)	(6)
	Ln (Patents)			*Ln (Citations)*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Contract	0.121***	0.121***	0.122***	0.179***	0.167***	0.187***
	(0.018)	(0.024)	(0.011)	(0.031)	(0.034)	(0.023)
VC	0.001	0.010	0.010	0.000	0.007	0.009
	(0.005)	(0.008)	(0.008)	(0.007)	(0.009)	(0.009)
Ln (Cur_Sales)	0.010***	0.010***	0.009***	0.015***	0.014***	0.011***
	(0.003)	(0.002)	(0.002)	(0.004)	(0.002)	(0.003)
Ln (Age)	-0.017***	-0.022***	-0.019***	-0.030***	-0.032***	-0.028***
	(0.004)	(0.003)	(0.003)	(0.007)	(0.005)	(0.006)
Ln (Total Amount Raised)	0.005***	0.006***	0.007***	0.008***	0.009***	0.009***
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Constant	-0.026	-0.156**	-0.079	0.110	-0.126	-0.083
	(0.067)	(0.067)	(0.062)	(0.136)	(0.109)	(0.098)
Observations	18254	18254	18254	18254	18254	18254
Adjusted R^2	0.061	0.070	0.068	0.044	0.053	0.050
Year FX	YES	YES	YES	YES	YES	YES
Industry FX	YES	YES	YES	YES	YES	YES

Panel C. The Effect of Government Contracts on Entrepreneurial Firms' Net Inflows of Inventors

	(1)	(2)	(3)	(4)	(5)	(6)
	Net Inflow of Inventors			*Net Inflow of Superstar Inventors*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Contract	0.054***	0.045***	0.023	0.032***	0.018**	-0.002
	(0.014)	(0.016)	(0.016)	(0.011)	(0.009)	(0.012)
VC	-0.004	-0.000	0.000	0.000	-0.000	-0.001
	(0.004)	(0.003)	(0.003)	(0.002)	(0.003)	(0.002)
Ln (Cur_Sales)	0.005***	0.002**	0.001	0.002**	-0.000	-0.000
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Ln (Age)	-0.021***	-0.015***	-0.009***	-0.009***	-0.008***	-0.004***
	(0.003)	(0.003)	(0.003)	(0.002)	(0.001)	(0.001)
Ln (Total Amount Raised)	0.003***	0.004***	0.003***	0.002***	0.002***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	18254	18254	18254	18254	18254	18254
Adjusted R^2	0.020	0.022	0.011	0.011	0.010	0.002
Year FX	YES	YES	YES	YES	YES	YES
Industry FX	YES	YES	YES	YES	YES	YES

(Continued)

Panel D. The Effect of Government Contracts on Entrepreneurial Firms' Successful Exit			
	(1)	(2)	(3)
Variables	*IPO*	*Acq*	*Exit*
Contract	0.046***	-0.000	0.046***
	(0.010)	(0.005)	(0.008)
VC	0.004	0.001	0.006
	(0.004)	(0.002)	(0.005)
Ln (Cur_Sales)	0.007***	0.002**	0.009***
	(0.002)	(0.001)	(0.002)
Ln (Age)	0.009***	0.003**	0.012***
	(0.003)	(0.001)	(0.003)
Ln (Total Amount Raised)	0.003***	0.001***	0.004***
	(0.001)	(0.000)	(0.001)
Observations	18254	18254	18254
Adjusted R^2	0.072	0.023	0.076
Year FX	YES	YES	YES
Industry FX	YES	YES	YES

Table A7. The Effect of Government Contracts on Entrepreneurial Firms' Future Performance: IV Analysis Using Contract Dummy as Main Independent Variable

This table reports the instrumental variable (IV) regression results of the effect of the government contracts on entrepreneurial firms' sales and employment, innovation output, net inflows of inventors, and successful exit, using *Contract* dummy to replace *Ln (Award)* as the main independent variable. Panel A reports the first-stage IV analysis results on sales and employment. Panels B, C, D, and E report the second-stage IV analyses results on sales and employment, innovation output, net inflows of inventors, and successful exits, respectively. All variables are defined in Appendix A. Year fixed effects and two-digit SIC code industry fixed effects are included in all regressions. The Kleibergen-Paap F-statistic is reported in Column (1) of Panel A. Constants are suppressed. All standard errors are clustered at the industry level and are reported in parentheses below the coefficient estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A. IV Analysis of Sales and Employment (First-Stage Results)

	(1) First-Stage
Variables	*Contract*
County Amount	0.002***
	(0.001)
VC	-0.002
	(0.002)
Ln (Cur_Sales)	0.011***
	(0.001)
Ln (Age)	0.014***
	(0.002)
Ln (Total Amount Raised)	-0.000*
	(0.000)
Observations	18254
Adjusted R^2	0.038
F Statistic (1st stage)	14.14
Year FX	YES
Industry FX	YES

(Continued)

Panel B. IV Analysis of Sales and Employment (Second-Stage Results)						
	(1)	(2)	(3)	(4)	(5)	(6)
	Ln (Fut_Sales)			*Ln (Employment)*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Contract	1.205	1.437	2.513	1.713*	2.143*	2.486*
	(0.765)	(1.052)	(1.609)	(0.967)	(1.170)	(1.511)
VC	0.021***	0.025*	0.029*	0.041*	0.040**	0.052**
	(0.008)	(0.014)	(0.017)	(0.021)	(0.018)	(0.022)
Ln (Cur_Sales)	0.945***	0.919***	0.883***	0.637***	0.610***	0.590***
	(0.010)	(0.013)	(0.020)	(0.013)	(0.014)	(0.016)
Ln (Age)	0.003	-0.001	-0.016	0.088***	0.070***	0.048**
	(0.011)	(0.013)	(0.016)	(0.016)	(0.019)	(0.023)
Ln (Total Amount Raised)	0.004***	0.008***	0.013***	0.006***	0.010***	0.014***
	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
Observations	18254	18254	18254	18254	18254	18254
Year FX	YES	YES	YES	YES	YES	YES
Industry FX	YES	YES	YES	YES	YES	YES

Panel C. IV Analysis of Innovation Output (Second-Stage Results)						
	(1)	(2)	(3)	(4)	(5)	(6)
	Ln (Patents)			*Ln (Citations)*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Contract	2.879***	2.874***	2.831***	4.177***	3.823***	4.305***
	(0.808)	(0.763)	(0.771)	(1.258)	(1.072)	(1.165)
VC	0.007	0.016	0.015	0.009	0.015	0.017
	(0.009)	(0.011)	(0.011)	(0.012)	(0.015)	(0.015)
Ln (Cur_Sales)	-0.021**	-0.020**	-0.021**	-0.029**	-0.026**	-0.035***
	(0.009)	(0.008)	(0.008)	(0.014)	(0.012)	(0.012)
Ln (Age)	-0.052***	-0.057***	-0.054***	-0.082***	-0.080***	-0.081***
	(0.015)	(0.013)	(0.013)	(0.024)	(0.018)	(0.020)
Ln (Total Amount Raised)	0.006***	0.007***	0.008***	0.009***	0.010***	0.011***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Observations	18254	18254	18254	18254	18254	18254
Year FX	YES	YES	YES	YES	YES	YES
Industry FX	YES	YES	YES	YES	YES	YES

(Continued)

Panel D. IV Analysis of Net Inflows of Inventors (Second-Stage Results)

	(1)	(2)	(3)	(4)	(5)	(6)
	Net Inflow of Inventors			*Net Inflow of Superstar Inventors*		
Variables	1-year	2-year	3-year	1-year	2-year	3-year
Contract	1.828***	0.965***	0.756**	0.883**	0.526*	0.238
	(0.649)	(0.266)	(0.310)	(0.389)	(0.270)	(0.175)
VC	-0.000	0.001	0.002	0.002	0.001	-0.000
	(0.006)	(0.004)	(0.004)	(0.003)	(0.003)	(0.002)
Ln (Cur_Sales)	-0.015**	-0.008**	-0.007*	-0.007*	-0.006*	-0.003
	(0.007)	(0.003)	(0.004)	(0.004)	(0.003)	(0.002)
Ln (Age)	-0.044***	-0.027***	-0.019***	-0.020***	-0.015***	-0.007***
	(0.013)	(0.005)	(0.005)	(0.007)	(0.004)	(0.003)
Ln (Total Amount Raised)	0.004***	0.004***	0.003***	0.002***	0.002***	0.001***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	18254	18254	18254	18254	18254	18254
Year FX	YES	YES	YES	YES	YES	YES
Industry FX	YES	YES	YES	YES	YES	YES

Panel E. IV Analysis of Successful Exit (Second-Stage Results)

	(1)	(2)	(3)
Variables	*IPO*	*Acq*	*Exit*
Contract	1.019**	0.227	1.246**
	(0.454)	(0.211)	(0.523)
VC	0.006	0.002	0.008
	(0.005)	(0.002)	(0.006)
Ln (Cur_Sales)	-0.004	-0.001	-0.005
	(0.004)	(0.003)	(0.006)
Ln (Age)	-0.004	-0.000	-0.004
	(0.007)	(0.003)	(0.008)
Ln (Total Amount Raised)	0.003***	0.001***	0.004***
	(0.001)	(0.000)	(0.001)
Observations	18254	18254	18254
Year FX	YES	YES	YES
Industry FX	YES	YES	YES