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Overview of Appendices

The appendices provide additional documentation and analyses supporting the manuscript, as follows:

Appendix A documents sample construction and defense-industry classification criteria.

Appendix B characterizes post-shock market heterogeneity in concentration, growth, and size.

Appendix C describes firm-level heterogeneity and baseline entry patterns.

Appendix D implements pre–post fixed-effects specifications to reduce reliance on cross-sectional variation.

Appendix E evaluates sensitivity to unobserved confounding using Oster (2019).

Appendix F presents a Monte Carlo illustration of anticipatory-demand bias.

Appendix G compares firm- and division-level specifications using likelihood-ratio tests.

Appendix H categorizes entry types by focal versus sister experience.

Appendix I tests robustness to an alternative diversification measure (1 − HHI).

Appendix J re-estimates division-level models with firm fixed effects using linear probability models.

Appendix K evaluates sustained-entry outcomes at both firm and division levels.

Appendix L presents a binned version of Figure 4 in the manuscript.

Appendix A: Sampling Process and D&B Hoover's Defense Industry SIC Code List

This appendix details the sub-sampling process and the resulting number of firms at each stage, as presented in Table A1. Table A2 reports the Standard Industrial Classification (SIC) codes relevant to the defense industry, based on the D&B Hoover's classification used in this study.

Selection of Publicly Traded Firms

We include firms that were publicly traded for at least one year between 1996 and 2001 (not necessarily pre-shock) and at least one year between 2002 and 2006. This criterion ensures the availability of pre-shock firm cash data from Compustat.

As a result, the sample includes firms with limited pre-shock public trading histories, such as:

- Integrated Defense Technologies Inc., founded in 1997, went public in October 2001 and was acquired by DRS Technologies in 2003.
- Armor Holdings Inc., founded in 1996, went public in 1997 and was later acquired by BAE Systems in 2007.
- United Defense Industries, originally part of FMC Corporation, went public in December 2001 and was acquired by BAE Systems in 2005.
- Teledyne Technologies Inc., previously part of Allegheny Teledyne Incorporated (ATI), was spun off as an independent publicly traded company in November 1999.

The inclusion or exclusion of these firms does not materially affect the results, as other firms in the sample exhibit similar post-shock characteristics. However, firms with shorter pre-shock trading histories appear more likely to be acquired.

Acquisitions and Firm Longevity

Acquisitions were not limited to firms with limited pre-shock trading experience. For example:

- EDO Corporation, founded in 1925 and publicly traded between 1956 and 2007, was acquired by ITT Corporation just outside our sample period.
- Todd Shipyards Corporation, publicly traded since 1916, remained independent until its acquisition by Vigor Industrial LLC in 2011.

These cases suggest that acquisition risk was not solely tied to pre-shock trading duration, but likely reflects broader industry dynamics.

Firm-Level vs. Unit-Level Market Entry

Units in our data correspond to legally and operationally distinct contracting entities rather than administrative aliases. We identify 18,020 cases of market entry at the division level, of which 4,370 represent entry into an entirely new market at the firm-level. Our analysis focuses on firm-level market entry, consistent with the standard definition in the literature and with our emphasis on how organizational structure shapes adaptive behavior.

Unit-level entries into markets where sister divisions already operate ("sister market" entries) are not the focus of this study. Instead, we examine firm-level entry into new markets, where firms face greater uncertainty and must rely on the deployment of accumulated capabilities. This focus is particularly relevant in divisionalized structures, which broaden exposure to opportunities while limiting the use of experience across organizational units.

Examining how divisions enter sister markets and leverage intra-firm synergies is an important direction for future research. Here, we focus on independent firm-level entries, where organizational structure interacts with capability accumulation in shaping entry behavior.

[Insert Table A1, A2 here]

Appendix B: Market Heterogeneity and Opportunity Landscape

This appendix examines market heterogeneity in the defense industry over the sample period 1996–2006, focusing on variation in submarket concentration, post-shock growth, and size. These patterns highlight substantial differences across markets and suggest that these characteristics alone do not fully predict market entry.

Market Concentration

Following the shock, market concentration varies substantially across markets. We measure concentration using the Herfindahl index, computed from firm-level contracting dollars within each market. In contrast to experience-based variables, which are constructed from pre-shock contracting data, concentration is measured annually from 2002 to 2006 to capture time-varying competitive intensity at the unit-market-year level.

As shown in Figure B1, most markets are highly competitive, with low concentration values (i.e., below 0.15). The frequency of markets declines rapidly as concentration increases, indicating that moderately concentrated markets are less common and that only a limited number of firms hold substantial market shares. The spike near a concentration value of 1 suggests the presence of monopolistic or near-monopolistic markets. Table B1 summarizes concentration categories along with representative industries.

Figure B2 presents a kernel density plot of market concentration for two groups: markets that were entered and those that were not. The substantial overlap between the two distributions indicates that concentration alone is not a strong predictor of market entry.

[Insert Figures B1, B2, Table B1 here]

Market Growth

Post-shock market growth is highly uneven, as shown in Figure B3, with most markets experiencing little or no growth. However, a subset of markets exhibits substantial expansion, particularly in research and development. Notable high-growth markets include AB93 (R&D—Other Research and Development (Advanced Development)) and PSC H318 (Inspection—Communication, Detection, and Coherent Radiation Equipment). These markets span a range of emerging technologies, including cybersecurity (e.g., advanced threat detection and encryption) and unmanned systems (e.g., UAVs).

Figure B4 presents a kernel density plot of logged post-shock market growth for markets that were entered and those that were not. The considerable overlap between the distributions suggests that growth alone does not sharply distinguish entry from non-entry. At the same time, the higher density in the positive-growth region indicates that firms are more likely to enter expanding markets.

[Insert Figures B3, B4 here]

Market Size

Figure B5 presents the distribution of contract volumes across submarkets above the average post-shock market size. The distribution is heavily right-skewed: most submarkets have relatively small contract volumes, while a small number account for a disproportionately large share of total contracting activity. The long right tail highlights the presence of a limited number of high-volume submarkets that dominate the defense contracting landscape.

[Insert Figure B5 here]

Appendix C: Firm Heterogeneity and Baseline Patterns

Firm Heterogeneity Prior to the Shock

This section documents heterogeneity in firm characteristics prior to the 2001 demand shock. Publicly traded firms in the U.S. defense industry differ substantially in organizational scale, scope, and contracting portfolios, underscoring the importance of accounting for firm-level differences when examining post-shock market entry. Figures C1 to C4 illustrate this heterogeneity.

Figure C1 shows a right-skewed distribution of firms' pre-shock divisions, indicating that most firms operate with a small number of units, while only a few have many. Figure C2 shows a similarly right-skewed distribution of total contracting dollars, with most firms holding relatively small contract volumes and a small number accounting for substantially larger amounts. Figures C3 and C4 show that customer scope (measured

by the number of contracting offices) and product scope (measured by the number of distinct PSC codes) follow the same pattern.

Taken together, these distributions indicate that most firms in the sample are relatively small in scale and scope, while a small number of large contractors operate across a broad set of customers and product markets. Firms such as Lockheed Martin, General Electric, and Raytheon appear at the upper end of these distributions, reflecting extensive contracting activity across multiple domains. Conglomerates are particularly prominent in terms of scope. For example, ITT Corp. supplied more than 150 distinct products to over 150 customers in the five years preceding the shock, while Litton Industries Inc. served approximately 300 products to more than 400 customers.

By contrast, many smaller firms in the sample operated in fewer than ten product markets and were concentrated in narrower defense sub-industries. These firms often maintained a focused strategic orientation. For instance, Todd Shipyards Corp., historically a major contributor to naval vessel construction and repair during World War II, continued to focus on ship maintenance and repair during our sample period. Similarly, Michael Baker Corp. primarily provided engineering and consulting services, such as infrastructure support and program management, to the Department of Defense. These examples illustrate the diversity of firms in the sample, ranging from large-scale systems integrators to specialized service providers.

[Insert Figures C1, C2, C3, C4 here]

Post-Shock Firm Trajectories

Firms' post-shock trajectories also vary substantially. Appendix Figure C5 plots logged post-shock contracting dollars against logged pre-shock contracting dollars at the firm-level. While many firms expanded their contracting activity following the shock, others experienced stagnation or declines in total contract values. This dispersion indicates that the aggregate demand shock did not translate uniformly into firm-level growth and suggests that pre-shock characteristics and organizational structure may condition firms' ability to capitalize on new opportunities.

[Insert Figures C5 here]

Baseline Entry Patterns and Unconditional Associations

This section documents baseline entry patterns prior to multivariate analysis. Market entry is rare in the data: firms overwhelmingly remain out of new product markets during the post-shock period.

Table C1 reports a contingency analysis of firm–market–year observations, cross-classifying post-shock market entry with firms' pre-shock adjacent market experience. Firms without adjacent market experience enter new markets in only 0.31% of observations (1,276 out of 411,569), whereas firms with adjacent experience enter at a higher rate of 1.84% (2,815 out of 152,950). A Pearson chi-square test strongly rejects independence between adjacent experience and entry ($\chi^2 = 3.5 \times 10^3$, $p < 0.001$).

This unconditional association indicates that firms with adjacent market experience are substantially more likely to enter new markets than firms without such experience. However, these descriptive patterns do not account for organizational structure, firm heterogeneity, or market conditions. The multivariate analyses in the main text examine how these factors jointly shape market entry behavior.

[Insert Table C1 here]

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Appendices D to F (Overview)

This overview summarizes how we address potential omitted variable bias in the empirical analysis. The paper's theoretical argument concerns how organizational structure shapes the use of accumulated experience in market entry. The September 11 shock is not part of the theoretical mechanism; instead, it provides an empirical setting in which pre-shock experience accumulation can be separated from post-shock entry behavior. A central empirical concern is that pre-shock adjacent experience may reflect anticipatory responses to expected future demand rather than purely capability-based accumulation. If firms accumulate adjacent experience in markets where they anticipate growth, the estimated relationship between experience and entry may be inflated by omitted demand expectations. In this case, adjacent experience would proxy both organizational capabilities and anticipated demand conditions.

To address this concern, we implement three complementary approaches.

Appendix D presents a fixed-effects pre–post design that exploits the temporal separation between pre-shock experience and post-shock entry while accounting for firm- and division-level heterogeneity.

Appendix E applies coefficient stability analysis following Oster (2019) to assess how strong unobserved confounding would need to be to overturn the estimated effects. This approach provides a formal sensitivity analysis under proportional selection assumptions.

Appendix F develops a Monte Carlo simulation, following the logic of Davidson and MacKinnon (2004), to illustrate the mechanical bias that arises when experience accumulation is correlated with persistent demand expectations. The simulation further shows that this source of bias is attenuated when demand persistence is weakened by large and unanticipated disruptions such as the September 11 attacks.

Each approach addresses a distinct dimension of omitted variable bias. Taken together, they provide convergent evidence that the association between adjacent experience and entry is unlikely to be driven solely by anticipatory demand.

Appendix D: Pre-Post Fixed Effects Design

This appendix details the empirical design used to address omitted variable concerns at both the firm and divisional levels by incorporating fixed effects and leveraging the unanticipated September 11 demand shock. At the firm-level, we estimate:

$$y_{ijt} = \beta_0 + \beta_1 x_{1ij} \times Shock_t + \text{controls} + v_t + u_{ij} + \varepsilon_{ijt} \qquad \text{(D1)}$$

where y_{ijt} is firm–market–year entry, and x_{1ij} is firm adjacent product market experience. Index i denotes firms, j markets, and t years. $Shock_t$ is a dummy equal to 1 after the shock and 0 before. v_t are year fixed effects and u_{ij} are firm–market fixed effects. We include both pre- and post-shock years, with pre-shock years defined as 1999 and 2000 and post-shock years as 2002 to 2006. Pre-shock experience is constructed using data from 1996 to 1998.

We estimate these specifications using linear probability models (LPM) with high-dimensional fixed effects. This approach accommodates large numbers of fixed effects and rare-event outcomes while avoiding the bias associated with nonlinear fixed-effects logit models. Table D1 reports the results. The interaction term is positive and statistically significant (0.0036, $p < 0.001$), indicating that pre-shock adjacent experience remains positively associated with post-shock entry even after controlling for persistent firm–market differences. This suggests that experience continues to matter in the disrupted demand environment, rather than collapsing as

demand predictability weakens.

[Insert Table D1 about here]

We apply an analogous design at the unit-level:

$$y_{ijt} = \beta_0 + \beta_1 x_{1ij} \times Shock_t + \beta_2 x_{2ij} \times Shock_t + \text{controls} + v_t + u_{ij} + \varepsilon_{ijt} \qquad \text{(D2)}$$

where y_{ijt} is focal unit–market–year entry, x_{1ij} is focal unit adjacent market experience, and x_{2ij} is sister unit adjacent market experience . Index i denotes divisions, j markets, and t years. v_t are year fixed effects and u_{ij} are division–market fixed effects.

Table D2 shows that both interaction terms are positive and statistically significant. The coefficient on Focal unit adjacent market experience × Shock equals 0.0048 ($p < 0.001$), whereas the coefficient on Sister unit adjacent market experience × Shock equals 0.0003 ($p < 0.001$). The focal effect is substantially larger in magnitude, consistent with the main finding that locally embedded experience is more strongly associated with entry than experience located elsewhere in the firm.

[Insert Table D2 about here]

Appendix E: Omitted Variable Bias Sensitivity Analysis

While the fixed-effects design reduces concerns about persistent heterogeneity, unobserved time-varying factors may still be correlated with both experience and entry. To assess the magnitude of unobserved confounding required to overturn the results, we apply the coefficient stability approach developed by Oster (2019).

Oster's approach provides a systematic way to evaluate the sensitivity of regression results to omitted variable bias by assuming a proportional relationship between observed and unobserved factors. The method estimates how strongly omitted variables would need to influence the outcome in order to eliminate the observed effects. Because Oster's framework is derived for linear models and relies on interpreting R^2 as the proportion of outcome variance explained, we re-estimate our baseline specifications using a linear probability model (LPM) for the binary entry outcome, using the same set of controls as in Model (3-1). The results are reported in Table E1. For completeness, we report both the R^2 from the LPM and the pseudo-R^2 from the logit. Table E1 shows that introducing controls increases R^2 from 0.006 to 0.015 and attenuates the coefficient from 0.0153 to 0.0105 (31%) in the LPM.

[Insert Table E1 here]

Following Oster (2019), we first set $R_{\max}$ to 1.3 times the R^2 of the controlled model, a conservative threshold recommended in the original study. Under this assumption ($R_{\max} = 0.02$), the implied $\delta = 2.56$, indicating that omitted variables would need to explain 2.56 times the variation already accounted for by observed factors to nullify the findings.

Because the absolute R^2 is modest, we also examine sensitivity to larger values of $R_{\max}$. As $R_{\max}$ increases to 0.03 (twice the R^2 of the controlled model), the implied δ declines to 1.05, indicating borderline robustness. These results illustrate how the implied robustness varies with assumptions about the explanatory power of unobservables and underscore that the Oster bounds are best interpreted as sensitivity checks.

We also clarify the interpretation of model fit across linear and nonlinear specifications. Because the dependent

variable is binary and entry is rare, the R^2 from the LPM and the pseudo-R^2 from the logit capture different notions of fit and are not directly comparable in magnitude. The LPM R^2 reflects explained variance, which is mechanically constrained in rare-event settings, whereas the logit pseudo- R^2 reflects proportional improvement in log-likelihood relative to a null model and can appear substantially larger. This difference does not indicate a discrepancy in substantive effects: the LPM coefficient (0.0105) closely matches the average marginal effect from the logit (0.009), indicating that the linear model provides a good local approximation on the probability scale.

We perform the same analysis at the divisional level. As shown in Table E2, the inclusion of controls increases R^2 from 0.00054 to 0.00137 and attenuates the coefficient on Focal unit adjacent market experience from 0.00175 to 0.00134 (approximately 23%), while the coefficient on Sister unit adjacent market experience increases from 0.0000 to 0.0001 and becomes statistically significant.

Using the controlled specification, we compute Oster bounds separately for each focal variable. For focal unit experience, the implied $\delta = 4.23$ under $R_{\max}$ equal to 1.3 times the R^2, indicating that unobserved factors would need to be more than four times as strongly related to both the outcome and the focal regressor, relative to the observed controls, to fully explain away the estimated effect. Even under a more conservative assumption ($R_{\max} = 2 \times R^2$), the implied $\delta = 1.77$, remaining above one.

For sister unit experience, the implied δ is negative. This reflects that the coefficient increases after the inclusion of controls. In this case, eliminating the estimated effect would require selection on unobservables to operate in the opposite direction of selection on observables. This pattern is less consistent with standard omitted-variable bias and suggests that the result is unlikely to be driven by such bias.

[Insert Table E2 here]

Appendix F. Monte Carlo Simulation: Omitted Variable Problem of Anticipation of Market Demand

Executive Summary

This appendix illustrates how anticipatory demand can generate omitted variable bias when estimating the effect of adjacent experience on market entry. In the simulated environment, firms accumulate adjacent market experience based on anticipated future demand, and entry depends on both experience and realized demand. When future demand is highly persistent from past demand, omitting realized demand inflates the estimated effect of experience. As demand persistence weakens, the magnitude of this bias declines.

Figures F1–F3 visualize this mechanism. Figure F1 compares the distribution of estimated experience coefficients from a probit model that omits realized demand with one that includes it. Figure F2 presents the corresponding distributions of marginal effects, showing that the marginal effect of experience can be substantially overstated when demand is omitted. Figure F3 varies the persistence parameter governing the relationship between past and current demand and shows that the gap between biased and unbiased marginal effects shrinks as persistence declines.

In the empirical setting examined in this paper, the September 11 shock substantially altered the allocation and composition of U.S. defense procurement demand. To the extent that this disruption weakened continuity between pre-shock and post-shock demand patterns, it attenuates the anticipatory-demand channel illustrated in the simulation.

Simulation Setup and Results

We simulate 10,000 observations with an entry rate of 10 percent. The stylized model consists of two periods:

- Period 1 demand (D_1)
- Period 2 realized demand (D_2)
- Anticipated period 2 demand formed in period 1 ($AntD$)
- Adjacent market experience (x)
- Entry decision in period 2 (y)

Anticipated demand is generated as:

$$AntD = c_0 + c_1 D_1 + u \qquad \text{(F1)}$$

where u is normally distributed noise.

Experience is determined from a latent index:

$$x^* = a_0 + a_1 AntD + v \qquad \text{(F2)}$$

$$x = \begin{cases} 1 & \text{if } x^* > D \\ 0 & \text{if } x^* \leq D \end{cases} \qquad \text{(F3)}$$

Thus, adjacent experience is probabilistically linked to anticipated demand rather than assigned randomly. Realized period-2 demand is generated as:

$$D_2 = d_0 + d_1 D_1 + w \qquad \text{(F4)}$$

where $d_1$governs demand persistence and w is normally distributed.

Entry in period 2 depends on both experience and realized demand:

$$y^* = b_0 + b_1 x + b_3 D_2 + e \qquad \text{(F5)}$$

$$y = \begin{cases} 1 & \text{if } y^* > 0 \\ 0 & \text{if } y^* \leq 0 \end{cases} \qquad \text{(F6)}$$

We estimate two probit models: one omitting realized demand (D_2) and one including it. Marginal effects of x are computed after each estimation. The parameters are set as $c_0 = 0$, $c_1 = 1$, $a_0 = -2$, $a_1 = 1$, $b_0 = -5$, and $b_1 = 1$.

Figures F1 and F2: High Persistence Case

For Figures F1 and F2, we set $d_1 = 1$ and the standard deviation of w to 1.

Figure F1 shows that the distribution of estimated experience coefficients shifts upward when D_2 is omitted.

Figure F2 shows that the marginal effect of experience without controlling for demand can be several times larger than the marginal effect from the correctly specified model.

[Insert Figure F1, F2 here]

Figure F3: Varying Demand Persistence

In Figure F3, we vary the persistence parameter $d_1 \in \{0.1, 0.3, 0.5\}$and the standard deviation of the demand shock $w \in \{1, 5, 10\}$in Equation (F4). As $d_1$declines, the difference between marginal effects estimated without

and with D_2narrows substantially. This demonstrates that the magnitude of omitted variable bias depends critically on demand persistence across periods.

[Insert Figure F3 here]

Interpretation

The simulation shows that when demand is highly predictable from past conditions, experience accumulation based on anticipated demand can inflate estimated experience effects if realized demand is omitted. As the mapping between past and current demand weakens, this bias attenuates.

In the defense procurement context, the September 11 shock altered demand priorities and reduced continuity between pre-shock and post-shock demand patterns. To the extent that demand persistence declined, the anticipatory-demand channel illustrated here becomes less severe.

Appendix G. Likelihood-Ratio Tests and Stepwise Comparisons

To assess the added value of examining market entry at the unit-level, we first estimate a model using firm-level variables with a unit-level dependent variable (Model G-1). We then introduce the unit-level independent variable, Focal unit adjacent market experience, in Model G-2 and conduct a likelihood-ratio test comparing the two models.

Model G-1 shows that firm adjacent product-market experience has a positive and significant effect on divisional market entry, with control variables exhibiting patterns similar to those observed in the firm-level analysis. In Model G-2, Focal unit adjacent market experience has a strong, positive, and significant effect, while the coefficient on firm adjacent product-market experience decreases but remains positive and significant. Model fit improves substantially, with the pseudo-R^2 increasing from 0.065 in Model G-1 to 0.101 in Model G-2. The likelihood-ratio test yields $\chi^2(1) = 2909.23$, $p = 0.000$, allowing us to reject the null hypothesis that Model G-1 is sufficient and indicating that Model G-2 provides a significantly better fit.

These findings underscore the value of analyzing market entry at the unit-level. While firm-level capabilities remain important, the results indicate that unit-level capabilities provide additional explanatory power in understanding market entry and adaptation.

[Insert Table G1 about here]

Appendix H. Entry Types

To further characterize the nature of market entry, we classify entries into three types: (1) entry with focal unit adjacent market experience, (2) entry based solely on sister unit adjacent market experience , and (3) entry without prior experience. Figure H1 illustrates the distribution of the share of entries that rely exclusively on sister unit-related experience across the 138 PSC2 codes in our dataset.

The density plot shows a concentration at the lower end of the distribution (0% to 20%), indicating that most entries involve limited reliance on sister unit experience. This pattern suggests that entries based on focal unit adjacent market experience are more prevalent.

At the same time, the distribution exhibits a long right tail, indicating that in some product areas a substantial share of entries depends on sister unit adjacent market experience . For example, PSC53 (Hardware and Abrasives) records the highest number of entries (309), with 55.7% based on sister unit adjacent market

experience . Similarly, PSCJ0 (Maintenance, Repair, and Rebuilding of Equipment) shows a high number of entries, with 47% based on sister unit adjacent market experience . Other product areas where sister-led entries are more prominent include PSC AD (R&D – Defense Other), PSC AJ (R&D – General Science and Technology), PSC B5 (Special Studies and Analyses – Scientific Data), and PSC D3 (Information Technology and Telecommunications).

These patterns indicate that while focal unit adjacent experience is the primary driver of entry on average, sister unit experience plays a meaningful role in specific product categories.

[Insert Figure H1 here]

Appendix I. Robustness to Alternative Diversification Specification

To ensure that the results are not sensitive to the operationalization of diversification, we re-estimate the firm-level models using an alternative measure based on $1 - HHI$ rather than entropy. As shown in Table I1, the coefficient on firm adjacent product-market experience remains positive and statistically significant, and the interaction between adjacent experience and divisionalization remains negative and significant.

The substantive conclusions are unchanged, indicating that the findings are not driven by the choice of diversification measure.

[Insert Table I1 about here]

Appendix J. Division-Level Models with Firm Fixed Effects (Robustness)

To assess whether the division-level results are robust to absorbing unobserved firm-level heterogeneity, we re-estimate the division-level entry models including firm and year fixed effects. Because the dependent variable is a rare binary outcome and the model includes high-dimensional fixed effects, the corresponding fixed-effects logit specification does not converge reliably in our setting, consistent with known convergence and separation issues in nonlinear models with sparse outcomes. We therefore report the linear probability model (LPM) analogue with firm and year fixed effects and standard errors clustered at the firm-level.

Table J1 shows that the coefficients on focal-division adjacent experience and sister-division adjacent experience remain positive and statistically significant. The coefficient on focal unit adjacent market experience is 0.00131 ($p < 0.001$), and the coefficient on sister unit adjacent market experience is 0.00015 ($p < 0.001$). The interaction between sister unit adjacent market experience and External engagement (political) remains negative and statistically significant.

These results are consistent in direction with the main logit estimates, indicating that the unit-level findings are not driven by cross-firm differences. The magnitude of the LPM coefficients is broadly consistent with the logit average marginal effects reported in the main text. In particular, the sister unit coefficient in the LPM (0.00015) closely matches the corresponding logit average marginal effect (0.00014). The focal unit coefficient is larger in the LPM (0.00131 versus 0.00042 in the logit AME), which is expected given differences between linear and nonlinear probability models in rare-event settings. Importantly, the relative ordering of effects (focal > sister) remains unchanged across specifications.

[Insert Table J1 about here]

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Appendix K. Sustained Entry at the Firm and Unit-Levels

To address concerns that first-entry events may reflect temporary or incidental contracting, we construct an alternative outcome capturing sustained entry. Sustained entry is defined as either (i) entry through a DoD-designated multi-year contract or (ii) entry followed by contracting activity in at least two subsequent years. This definition distinguishes one-off participation from durable market engagement.

Firm-Level Sustained Entry

We re-estimate the firm-level models using sustained firm–market entry as the dependent variable. The specification mirrors the main firm-level logit models, with fixed effects and standard errors clustered at the market level. The results are reported in Table K1. The coefficient on firm adjacent product market experience remains positive and statistically significant, and the interaction between adjacent experience and divisionalization remains negative and significant.

[Insert Table K1 about here]

Unit-Level Sustained Entry

At the unit-level, sustained entry is rarer than first entry. Estimating nonlinear models leads to convergence instability due to rare events and quasi-separation. We therefore estimate linear probability models (LPM) with year fixed effects and standard errors clustered at the firm-level. The results are reported in Table K2.

The coefficient on focal unit adjacent market experience remains positive and statistically significant. The coefficient on sister unit adjacent market experience is also positive and statistically significant, but smaller in magnitude. The relative ordering of effects (focal > sister) is preserved.

These results indicate that the main findings are not driven by temporary contracting.

[Insert Table K2 about here]

Appendix L. Binned Specification of External Engagement (Political)

For completeness, we present a binned version of Figure 4 in Figure L1. Because external (political) engagement is highly skewed with a large mass at zero, we separate non-donors (0) and partition positive donations into terciles (Low, Mid, High).

The binned estimates yield a qualitatively similar pattern. The marginal effect remains small and statistically indistinguishable from zero for non-donors and for low- to mid-level donations, and becomes negative in the highest donation category, albeit with wider confidence intervals. These results are consistent with the main specification.

[Insert Figure L1 about here]

References for Appendix

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Table A1. Sub-Sampling Process for Analyzing Public Defense Firms with U.S. Government Contracts (1996-2006)

Step	Description	Number of Firms
Initial dataset	All firms (identified as unique b5a3) that have any contract between 1996 to 2006	192,446
Filter public firms with gvkey	Limited to public firms with gvkey	372
Filter public defense firms	Filtered to include only public defense firms based on D&B Hoover's Standard	92
Remove firms with incomplete Compustat data	Excluded firms with b5a3=='153561212' & gvkey=='147988', i.e. AECOM Inc. and b5a3=='878090687' & gvkey=='114421', i.e.L-3 Communications Holdings Inc., due to unavailable Compustat data until 2001	90
Restrict to incumbent organization units	Excluded firms with only new organization units having contract post-shock	86

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Table A2. D&B Hoover's Defense Industry SIC Code

SIC Code	Title	Example Products and Services
3483	Ammunition, Except for Small Arms, nec*	Ammunition larger than .50 caliber and other ordnance
3489	Ordnance and Accessories, nec	Grenades, parts of artillery
3721	Aircraft	Complete aircraft manufacturing or assembling
3724	Aircraft Engines and Engine Parts	Aircraft engines and parts
3728	Aircraft Parts and Auxiliary Equipment, nec	Aircraft parts and equipment not elsewhere classified, e.g. hydraulic or pneumatic components
3731	Ship Building and Repairing	Building and repairing ships, barges, and lighters; Cargo vessels, combat ships
3732	Boat Building and Repairing	Constructing and repairing boats other than ships and barges; Lifeboats, Motorboats
3761	Guided Missiles and Space Vehicles	Complete guided missiles and space vehicles
3764	Space Propulsion Units and Parts	Propulsion units for space vehicles and their parts
3769	Space Vehicle Equipment, nec	Space vehicle equipment not classified elsewhere
3795	Tanks and Tank Components	Military tanks and components
3812	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical Systems and Instruments	Radar systems, guidance equipment, navigational and detection systems
5088	Transportation Equipment and Supplies, Except Motor Vehicles	Wholesale distributors of transportation equipment (excluding motor vehicles)
8711	Engineering Services	Professional engineering services
9711	National Security	Government establishments for national security activities

*nec stands for not elsewhere classified.

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Table B1. Market Concentration Categories and Examples

Concentration Category	Description	Examples
Low (<0.15)	Highly competitive markets	PSC 1005 (Guns, through 30mm), PSC 1025 (Guns, over 150mm)
Moderate (0.15–0.5)	Moderate firm dominance	PSC H318 (Inspection – Communication, Detection, and Coherent Radiation Equipment)
High (>0.5)	Near-monopolistic or monopolistic	PSC H116 (Quality Control – Aircraft Components), PSC H216 (Equipment and Materials Testing – Aircraft Components and Accessories)

Table C1. Firm-Level Contingency Analysis

Firm-market-year entry	Firm adjacent product market experience		
	0	1	Total
0	410,293	150,135	560,428
1	1276	2815	4091
Total	411,569	152,950	564,519
Observations	564,519		

Table D1. Firm-Level Analysis of Market Entry (Post vs. Pre-Shock)

	(1) Firm-market-year entry
Firm adjacent experience × Shock	0.0036***
	(5.38)
Constant	0.0208***
	(105.09)
Observations	835183

t statistics in parentheses * p < 0.05, ** p < 0.01, *** p < 0.001. The model includes firm-market, and year fixed effects.
Fixed effects absorbed: firm–market (119,711), year (7; 1 redundant).

Table D2. Unit-Level Analysis of Market Entry (Post vs. Pre-Shock)

	(1) Unit market year entry
Focal unit adjacent market experience× Shock	0.0048***
	(135.89)
Sister unit adjacent market experience × Shock	0.0003***
	(18.83)
Constant	0.0002***
	(24.32)
Observations	36669650

*** p < 0.001.All models include uni–market and year fixed effects.
Unit–market fixed effects: 5,934,873; year fixed effects: 7 (1 redundant).

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Table E1. Comparisons Across LPM and Logit Specifications at the Firm-Level

	(1) LPM Uncontrolled	(2) LPM Controlled	(3) Logit Uncontrolled	(4) Logit Controlled
Firm adjacent product market	0.0153***	0.0105***	1.7965***	1.2884***
	(0.0007)	(0.0006)	(0.0555)	(0.0623)
Diversification (entropy)		0.0013***		0.4228***
		(0.0002)		(0.0307)
Firm customer scope		0.0001***		0.0082***
		(0.0000)		(0.0002)
L Firm total dollars		-0.0003**		-0.0825***
		(0.0002)		(0.0223)
L Firm cash position		-0.0000		0.0724***
		(0.0000)		(0.0118)
Redeployment capability(Exit count)		-0.0002***		-0.0255***
		(0.0000)		(0.0011)
Product market size		0.0009***		0.2567***
		(0.0001)		(0.0119)
L Post shock market growth		0.0002***		0.0124
		(0.0001)		(0.0095)
Post-shock year dummies 2002-2005	No	Yes	No	Yes
Constant	0.0031***	-0.0094***	-5.7731***	-10.8259***
	(0.0002)	(0.0021)	(0.0518)	(0.3899)
Observations	564,519	564,519	564,519	564,519
R-squared (LPM)	0.006	0.015		
Pseudo R2 (Logit)			0.064	0.150

Table E2. Comparisons Across LPM and Logit Specifications at the Unit-Level

	(1) LPM Uncontrolled	(2) LPM Controlled	(3) Logit Uncontrolled	(4) Logit Controlled
Focal unit adjacent product market	0.0018***	0.0013***	2.3947***	1.8555***
	(0.0002)	(0.0002)	(0.0918)	(0.0825)
Sister unit adjacent product market	0.0000	0.0001***	0.2349*	0.5989***
	(0.0000)	(0.0000)	(0.1259)	(0.0781)
Divisionalization		0.0000		0.0006
		(0.0000)		(0.0011)
Diversification (entropy)		0.0000		0.2341**
		(0.0000)		(0.1192)
Focal unit customer scope		0.0000***		0.0166***
		(0.0000)		(0.0020)
L Focal unit total dollars		0.0000		0.1292***
		(0.0000)		(0.0377)
L Firm cash position		0.0000		-0.0260
		(0.0000)		(0.0503)
Redeployment capability (Exit count)		0.0000***		-0.0190***
		(0.0000)		(0.0051)
Product market size		0.0000***		0.2586***
		(0.0000)		(0.0105)
L Post-shock market growth		0.0000***		0.0158*
		(0.0000)		(0.0089)
Constant	0.0001***	0.0001	-8.8641***	-14.0286***
	(0.0000)	(0.0002)	(0.1035)	(0.9058)
Observations	1.90e+07	1.90e+07	1.90e+07	1.90e+07
R-squared (LPM)	0.00054	0.00137		
Pseudo R2 (Logit)			0.05160	0.11725
Post-shock year dummies 2002-2005	No	Yes	No	Yes

Table G1. Stepwise Comparison and Likelihood Test

	DV: Focal division-market-year entry	
Firm adjacent product	1.208***	0.562***
market experience	(0.035)	(0.039)
Focal unit adjacent market		2.161***
experience		(0.037)
Divisionalization	-0.005***	-0.005***
	(0.000)	(0.000)
Firm customer scope	0.008***	0.008***
	(0.000)	(0.000)
L Firm Total dollars	0.103***	0.026
	(0.019)	(0.019)
L Firm cash position	-0.120***	-0.087***
	(0.010)	(0.010)
Redeployment capability	-0.027***	-0.027***
(Exit count)	(0.001)	(0.001)
L Product market size	0.258***	0.258***
	(0.006)	(0.007)
L Post-shock market	0.013**	0.017***
growth	(0.006)	(0.006)
Post-shock year dummies	Yes	Yes
2002–2005		
Constant	-11.747***	-11.392***
	(0.304)	(0.305)
N	1.90e+07	1.90e+07
pr2	0.065	0.101

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Table I1. Alternative Diversification Measure

	DV: Firm Year Market Entry		
Firm adjacent product market		1.317***	1.611***
		(0.062)	(0.067)
Divisionalization			0.001***
			(0.000)
Firm adjacent product market * Divisionalization			-0.004***
			(0.000)
Diversification (1 - HHI)	1.538***	1.127***	0.858***
	(0.118)	(0.116)	(0.118)
Firm Customer scope	0.010***	0.009***	0.010***
	(0.000)	(0.000)	(0.000)
L Firm Total dollars	-0.096***	-0.122***	-0.109***
	(0.023)	(0.022)	(0.023)
L Firm cash position	0.087***	0.065***	0.054***
	(0.011)	(0.012)	(0.012)
Redeployment Capability (Exit count)	-0.022***	-0.024***	-0.023***
	(0.001)	(0.001)	(0.001)
Product market size	0.266***	0.256***	0.253***
	(0.012)	(0.012)	(0.012)
L Post shock market growth	-0.004	0.013	0.011
	(0.010)	(0.009)	(0.010)
Constant	-10.951***	-10.218***	-10.196***
	(0.401)	(0.394)	(0.388)
N	5.65e+05	5.65e+05	5.65e+05
pr2	0.118	0.147	0.151

Table J1. Unit-Level LPM with Firm and Year Fixed Effects

	(1)
Focal unit adjacent experience	0.001309***
	(0.000189)
Sister unit adjacent market experience	0.000144***
	(0.000037)
Sister unit adjacent market experience *External engagement (political)	-0.000016***
	(0.000004)
Shared customer focal-sister	-0.000005
	(0.000042)
Sister unit adjacent market experience x Shared customer focal-sister	0.000072*
	(0.000036)
Unit customer scope	0.000041***
	(0.000011)
L Unit total dollars	-0.000022+
	(0.000013)
L Product market size	0.000030***
	(0.000003)
L Post-shock market growth	0.000007***
	(0.000001)
Constant	-0.000266+
	(0.000142)
Firm fixed effects	Yes
Year fixed effects	Yes
Clusters	86 (firm-level)
Observations	1.90e+07
R-squared (LPM)	0.001504

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Table K1. Sustained Entry – Firm-Level

	DV: Sustained firm-market entry		
Firm adjacent product market		1.991***	2.147***
		(0.133)	(0.143)
Divisionalization			0.002**
			(0.001)
Firm adjacent product market * Divisionalization			-0.002***
			(0.001)
Diversification (entropy)	0.867***	0.649***	0.628***
	(0.091)	(0.091)	(0.093)
Customer scope	0.011***	0.011***	0.011***
	(0.001)	(0.001)	(0.001)
L Total dollars	0.126**	0.067	0.068
	(0.058)	(0.056)	(0.057)
L Firm cash position	0.145***	0.115***	0.111***
	(0.029)	(0.030)	(0.030)
Redeployment Capability	-0.043***	-0.043***	-0.043***
	(0.004)	(0.004)	(0.004)
Product market size t - 1	0.389***	0.379***	0.378***
	(0.023)	(0.023)	(0.023)
L Post shock market growth	0.013	0.040**	0.039**
	(0.016)	(0.016)	(0.016)
Constant	-19.642***	-18.695***	-18.719***
	(0.964)	(0.972)	(0.965)
N	5.63e+05	5.63e+05	5.63e+05
Pseudo R2	0.158	0.203	0.204

Table K2. Sustained Entry – Unit-Level

	DV: Sustained Unit-market entry		
Focal unit adjacent market experience		0.000177***	0.000169***
		(0.000023)	(0.000022)
Sister unit adjacent market experience			0.000018***
			(0.000004)
Divisionalization	-0.000000	0.000000	-0.000000
	(0.000000)	(0.000000)	(0.000000)
Diversification (entropy)	0.000003	0.000003	0.000002
	(0.000002)	(0.000002)	(0.000002)
Unit Customer scope	0.000005**	0.000005**	0.000005**
	(0.000002)	(0.000002)	(0.000002)
L Unit Total dollars	0.000000	-0.000001	-0.000001
	(0.000003)	(0.000003)	(0.000003)
L Firm cash position	-0.000001	-0.000001	-0.000001
	(0.000001)	(0.000001)	(0.000001)
Redeployment Capability	-0.000000***	-0.000000***	-0.000000***
	(0.000000)	(0.000000)	(0.000000)
L Product market size	0.000004***	0.000004***	0.000003***
	(0.000001)	(0.000001)	(0.000001)
L Post shock market growth	0.000001***	0.000001***	0.000002***
	(0.000000)	(0.000000)	(0.000000)
N	18,955,403	18,955,403	18,955,403
R-squared	0.0002	0.0002	0.0002

Figure B1. Histogram of Market Concentration at year t-1 post-shock

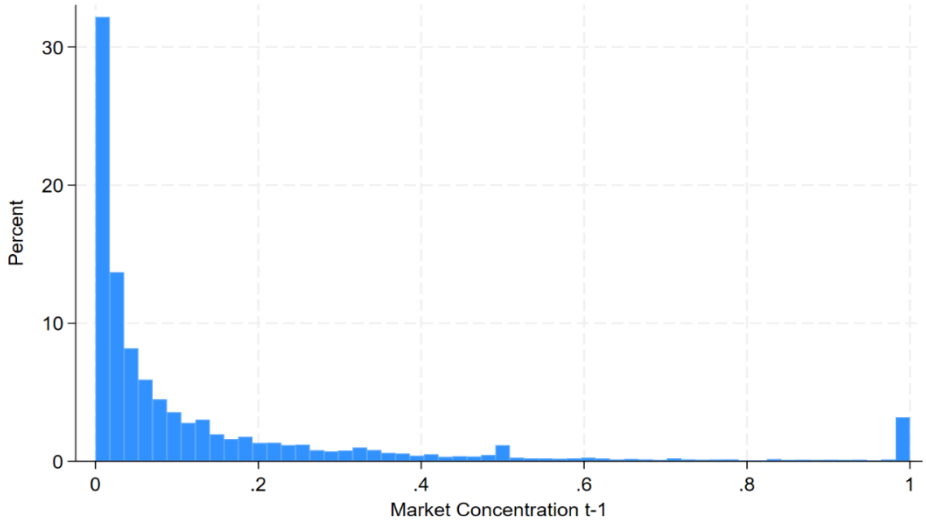


Figure B2. Kernel Density Plot of Market Concentration by Market Entry

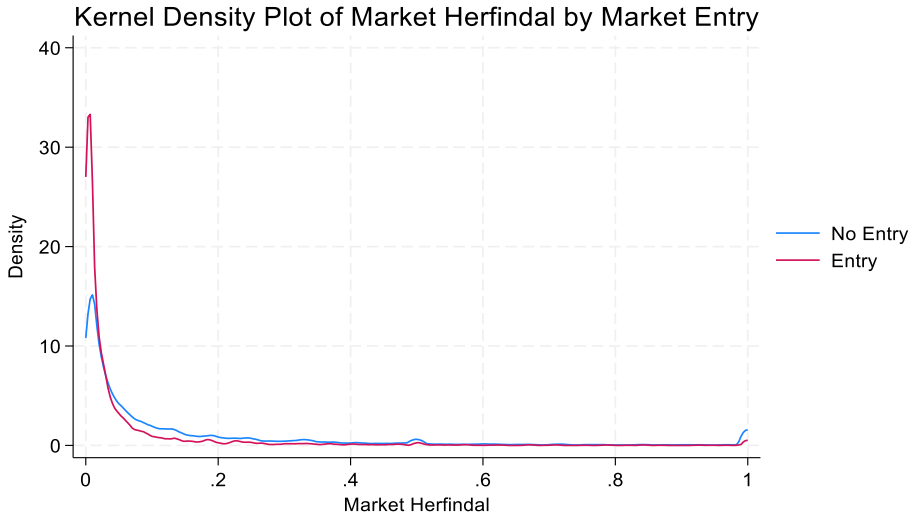


Figure B3. Histogram of Logged post-shock market growth

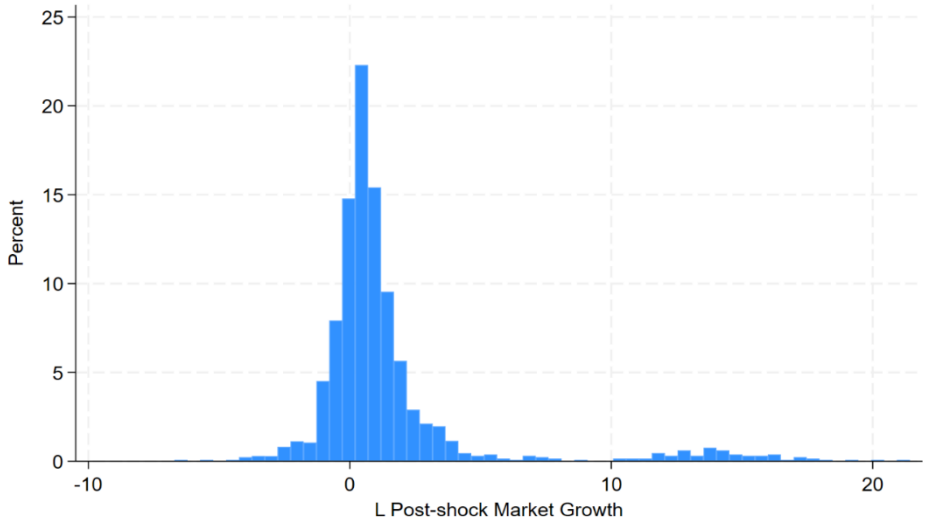


Figure B4. Kernel Density Plot of Market Growth by Market Entry

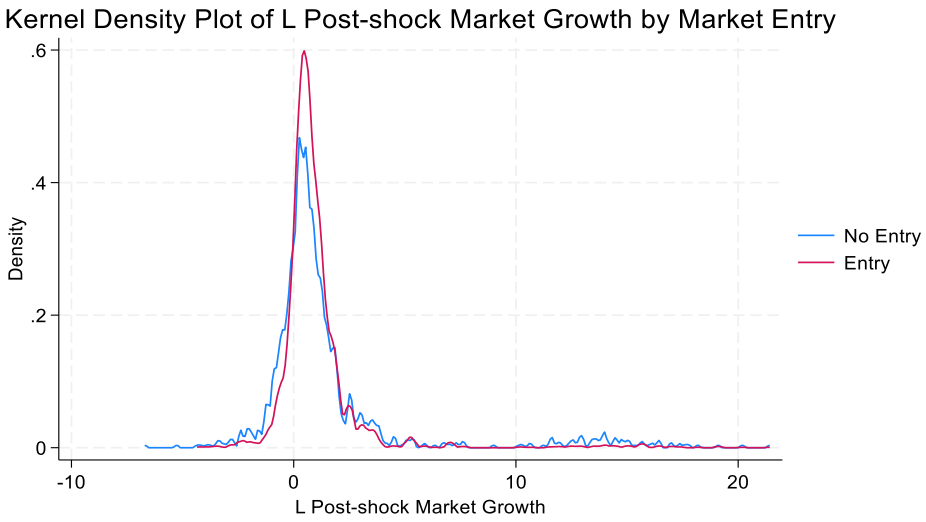


Figure B5. Histogram of Market Contract Volume (Larger than Average)

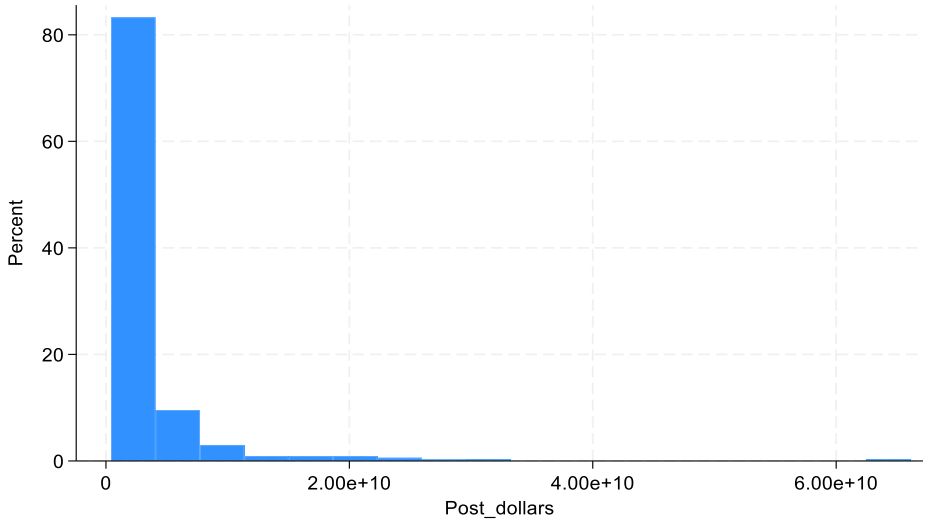


Figure C1. Histogram of Firms' Number of Divisions Pre-shock

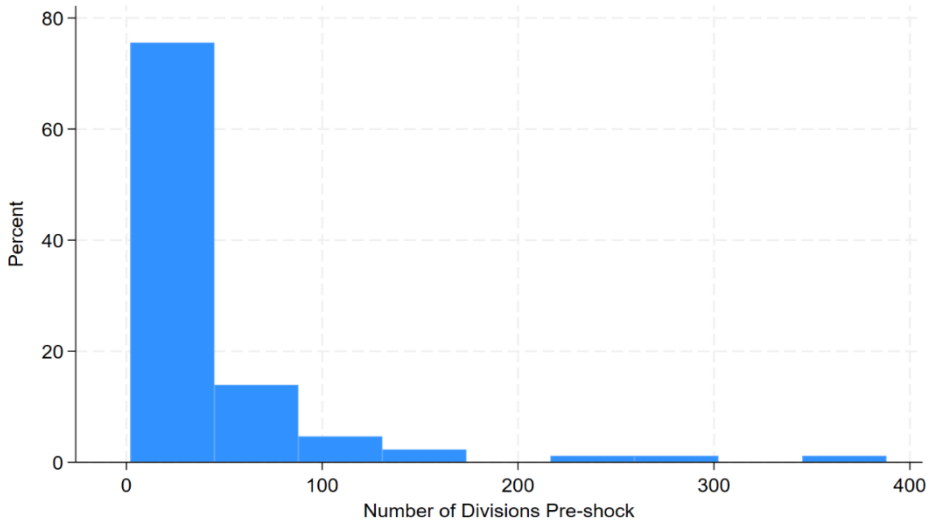


Figure C2. Histogram of Firms' Total Contracting Dollars Pre-shock

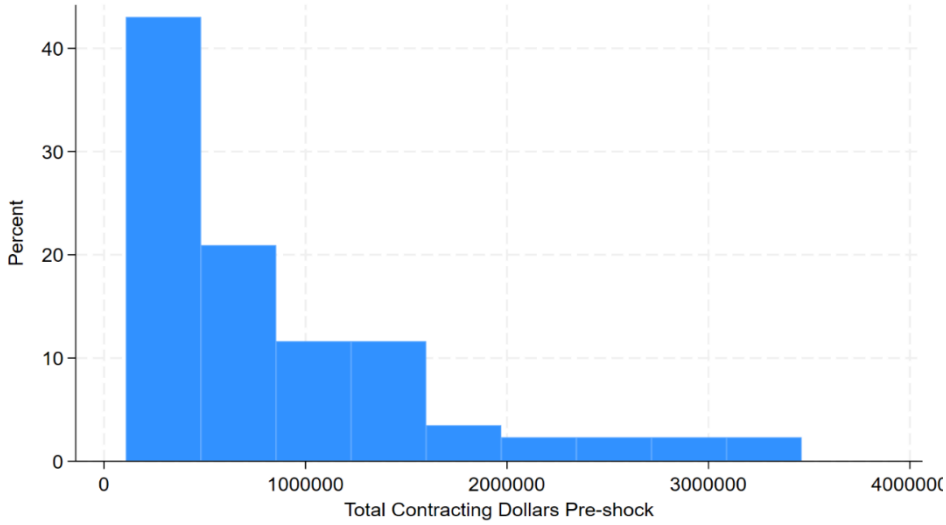


Figure C3. Histogram of Firms' Customer Scope Pre-shock

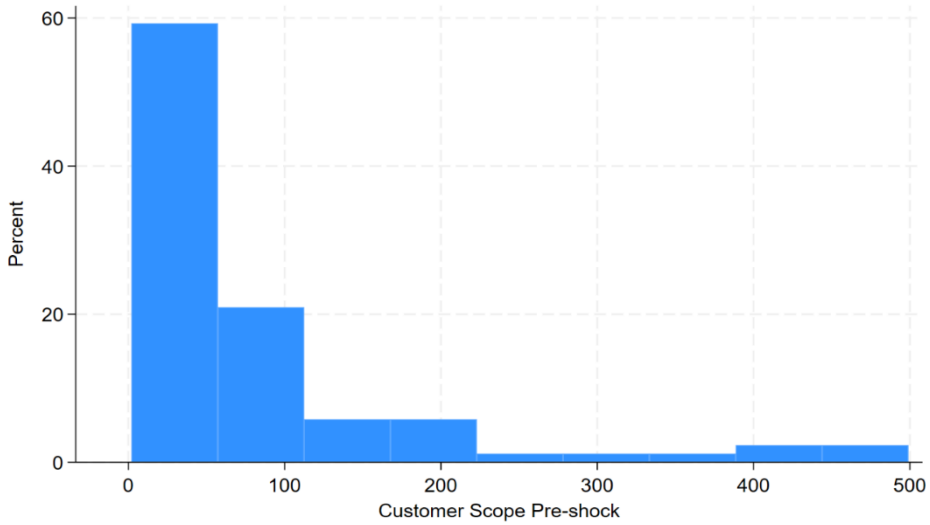


Figure C4. Histogram of Firms' Product Scope Pre-shock

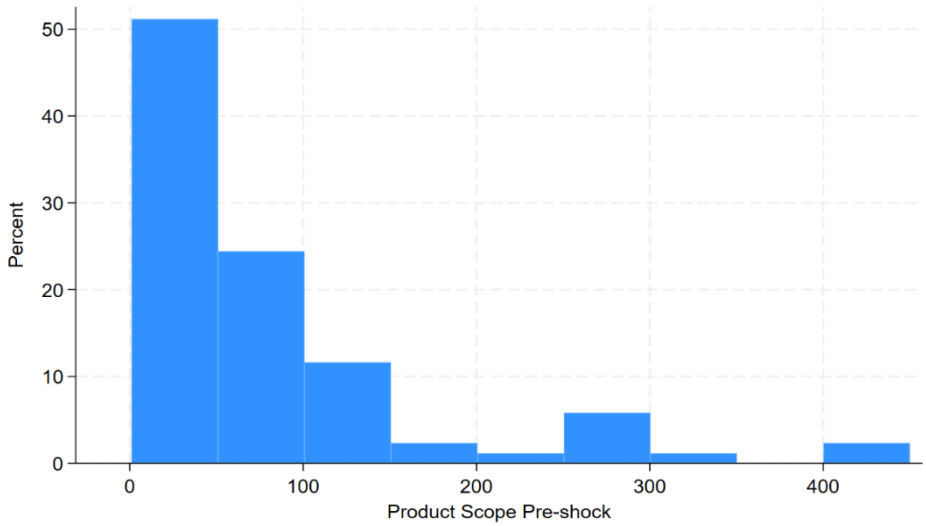
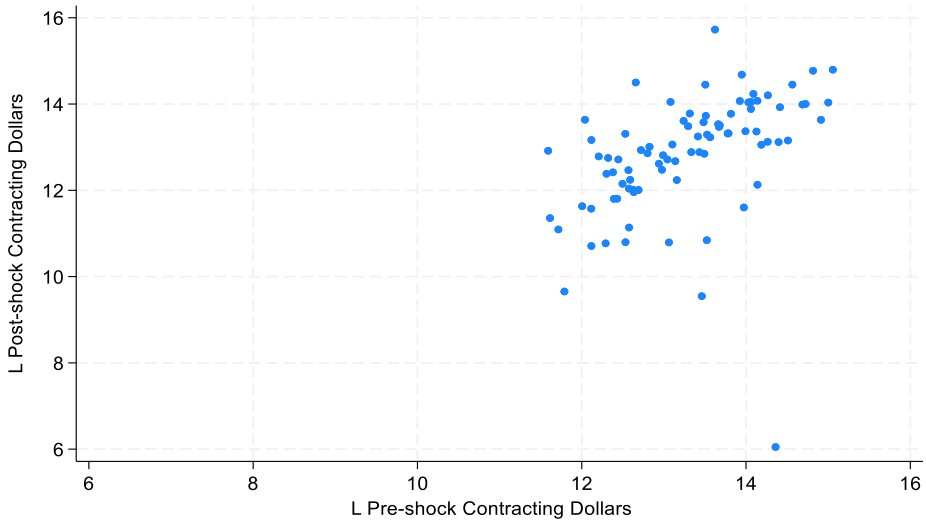
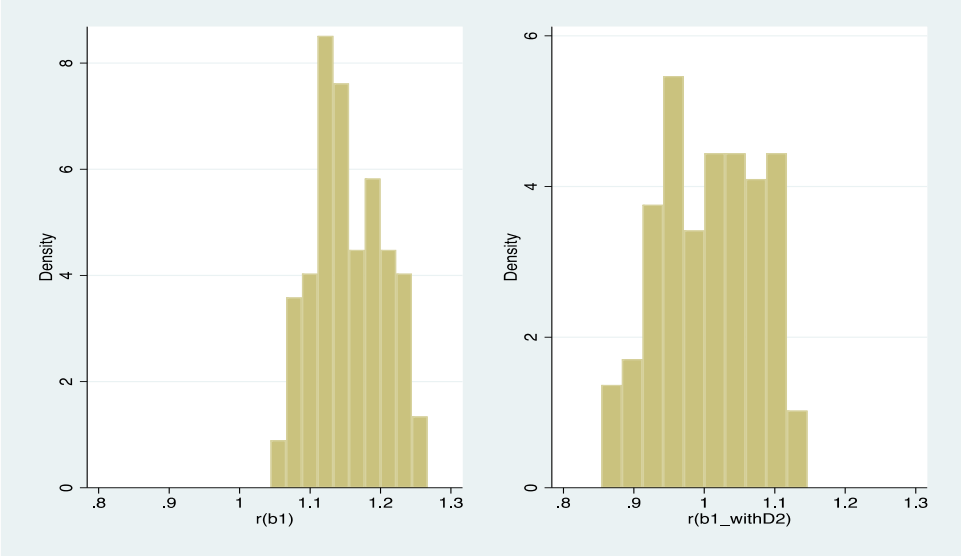


Figure C5. Logged Post-Shock Contracting Dollars vs. Logged Pre-Shock Contracting Dollars



<u>Figure F1</u>. The Distribution of Estimation of Adjacent Experience without (Left) and with (Right) True Demand



<u>Figure F2</u>. The Distribution of Estimation of Entry without (Left) and with (Right) True Demand

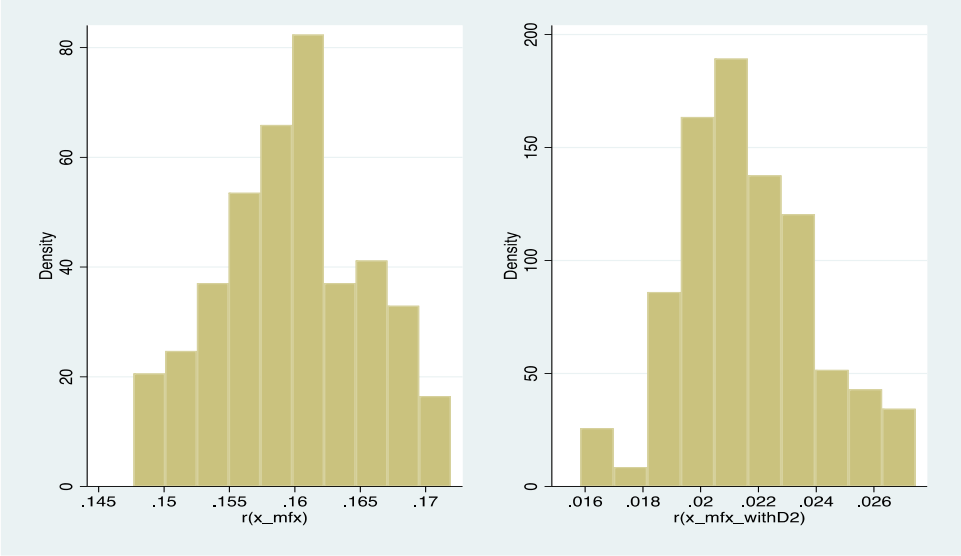


Figure F3. The Impact on Marginal Effects of Adjacent Experience without and with True Demand

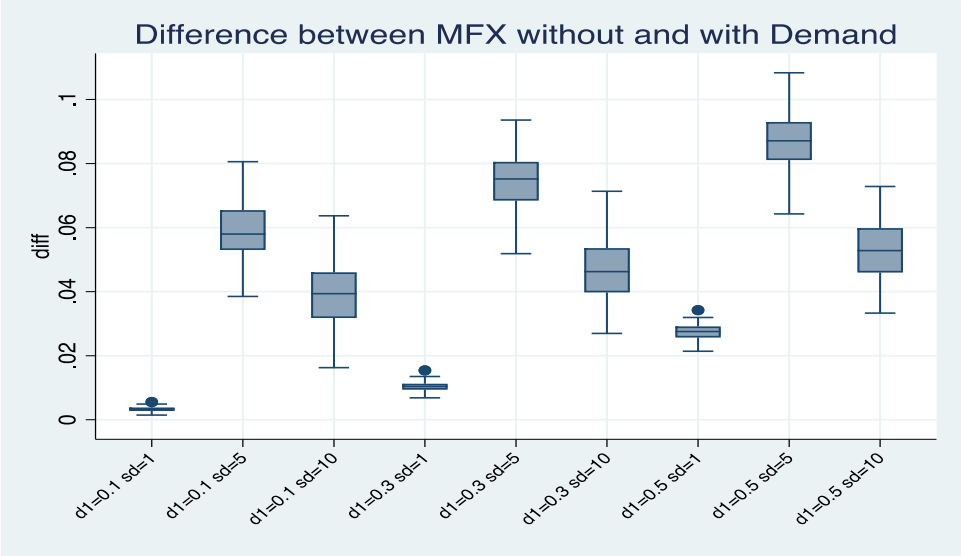
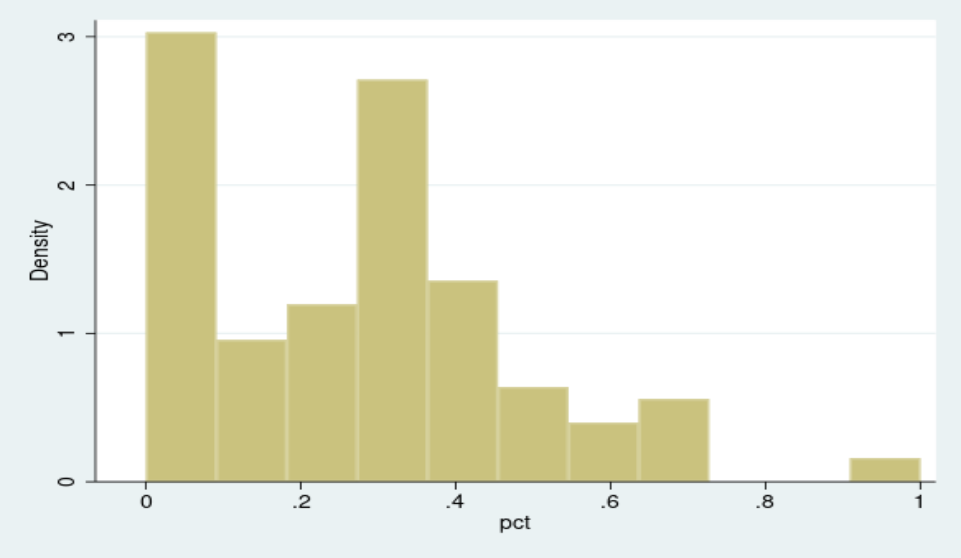


Figure G1. Percentage of Entry with Only Sister Division Related Market Experience across All PSC2



<u>Figure L1</u>. Unit-Level: AME of Sister adjacent experience with External engagement (political) as a Moderator (Binned)