

Online Appendix to:

Leverage and Strategic Preemption: Lessons from Entry Plans and Incumbent Investments

A.I. Appendix

A.I.1. Joint distribution of location and leverage

The identification strategy employed in the paper relies on within-market variation in leverage, as well as within-firm variation in entry threats (i.e., entry threats to the incumbent firm's properties in different markets at different times). The discussion in the main text and the firm-level summary statistics in Table 1 suggest that there is sufficient variation in both the number of markets where public firms own properties (whether measured by states, counties, or ZIP codes), as well as the amount of leverage taken on by these firms. Further, the regional plots in Appendix Figures A2 through A6 indicate that there is substantial regional variation in the location of entry threats – i.e., it is unlikely that the results are driven by a particular region.

Nonetheless, a careful reader may be concerned that the observations are concentrated within one or two firms such that idiosyncratic reasons to undertake expansions at the firm level would influence the results. To evaluate the seriousness of this concern, Table A3 presents a table of observation counts by firm and U.S. state for publicly traded firms that are threatened by entry plans during the sample.²³ Consistent with the broad geographic dispersion of entry plans, the observation counts are quite well dispersed across public firms (with varying amounts of leverage).

As expected, in Table A3, there are more properties threatened by entry plans in Nevada than in other states, but there is substantial geographic variation within firm (as well as cross-firm variation within geography). Moreover, the table is ordered from low leverage to high leverage, which highlights the fact that this cross-geography variation is reasonably uncorrelated with typical leverage amounts (e.g., three firms are primarily based in Nevada – BYD, MGM, and STN; STN has low leverage, BYD has medium leverage, and MGM has high leverage).

Given the relatively small number of public firms in the analysis sample (nine firms), it is worth noting that other industry studies – notably [Khanna and Tice \(2000\)](#) – share this feature of having relatively few firms in their sample from the standpoint of typical cross-industry studies, but are nonetheless able to provide insight into the effects of leverage by exploiting sub-firm, cross-region variation. Further, although there are only nine firms in the threatened and publicly traded sample, there are 34 firm-state combinations in the sample, and given the local nature of the casino gambling market (as shown in [Cookson, 2014](#)), it makes sense that decisions about expansion in response to regional threats would be made relatively independently at the sub-firm level.

A.I.2. Market-level evidence on leverage and strategic investments

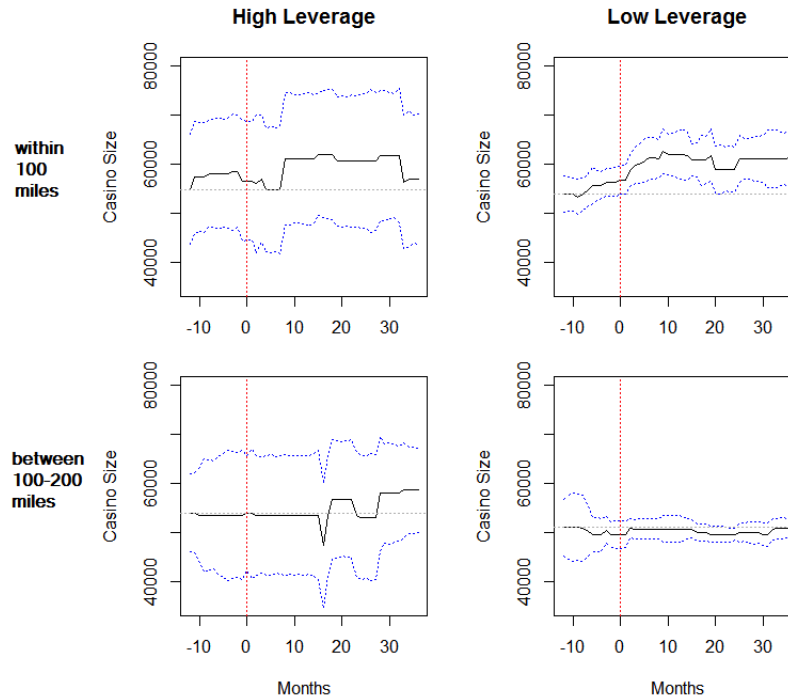
The specifications in the main text highlight effects that occur entirely within market. Nonetheless, it is also useful to examine whether leverage at the market level exhibits similar patterns. Setting endogeneity concerns aside, this finding would suggest that the well-identified effects from the firm-level evidence could extend to industry-level effects – i.e., leverage at the industry level could be an important determinant of competition.

²³As in the main specifications, observations are measured at the pre/post x threatened property level. The fact that there are only 9 publicly traded firms in the analysis sample implies that not all publicly traded casinos are affected by entry plans. In fact, referring to Table 1 in comparison to the publicly traded firms that face an entry threat, 8 of the 17 publicly traded casino firms are not threatened by entry plans during the sample period.

To examine the market-level relationship between leverage and incumbent capacity adjustments, I split the sample of entry plans into high incumbent leverage and low incumbent leverage using the median debt-to-assets ratio of incumbents within 100 miles.²⁴ As Figure A1 indicates, incumbent firms make significant strategic investments when the average incumbent firm has low leverage, but incumbents do not make these investments in markets with high leverage. At the median, low leverage incumbents expand capacity by nearly 30 percent from one year before the first planning event to one year after. In contrast, high leverage incumbent firms do not adjust capacity appreciably. The comparison with incumbent casinos that are between 100 and 200 miles away alleviates the concern that geographic determinants of casino firm leverage drive this result. In other words, it appears that leverage itself – rather than market-specific factors – affects how incumbents respond to entry plans.

Figure A1

Leverage and capacity adjustments at the market level. For each lag relative to first planning, the figure plots the median of event-level data on average incumbent casino size. Point wise 90 percent confidence bands (conducted using a bootstrapping procedure) are depicted in blue.



These market-level results may also understate the extent to which leverage affects strategic investments once we allow financial leverage to be chosen by incumbent firms. If firms avoid adopting high leverage when leverage is costly (i.e., markets with high incumbent leverage are subject to more entry threats and more vulnerable to successful entry; see Section 4.1), the choice of leverage will tend to mask the observed relationship between financial leverage and strategic investments. Despite this masking effect, I find a significant market-level response of incumbents in low leverage markets to the threat of entry.

²⁴To map the incumbent leverage data to entry plans, incumbent leverage is computed as the average of incumbent leverage for publicly-traded firms within 100 miles of potential entrant. Then, to split entry plans into high and low leverage, we split by the median of this average incumbent leverage, which is 0.652.

As Figure A1 indicates, the adjustment in capacity takes place over time, which is expected for significant durable investments in capacity. There does, however, seem to be some anticipation of the entry plan announcement (increase in incumbent capacity that precedes the announcement date). As the planning events I identify in the data are well-identified management teams in the Gambling Business Directory, this pre-event investment may reflect industry knowledge of the entry attempt that precedes formalization in the data. One way to flexibly control for event-level time trends of this sort is to conduct the analysis using firm-level responses to entry plans with event fixed effects. As I show in the next subsection, my findings on the effect of leverage on strategic investment continue to hold when identification comes from within-market variation in leverage.

A.I.3. Decomposition of triple-difference effect

Table A4 constructs a fixed-effects-adjusted decomposition of the triple-difference effect from Column (4) of Table 2 by separately estimating the change in casino square footage, and how that change differs by nearby / far incumbents, on different subsamples. Because of the incumbent owner fixed effects, this is not a true decomposition of the total effect, but the exercise provides some useful intuition about where the triple-difference effect is coming from. In particular, first row indicates that low leverage incumbents within 100 miles of the proposed site of entry increase casino square footage by approximately 10,000 square feet while low leverage incumbents 100 to 200 miles away (a distance that shares similar geographic/institutional characteristics) do not make significant investments, and the difference-in-difference estimate is statistically significant. The second row, which conditions on high leverage incumbents qualitatively exhibits the opposite pattern, but the difference-in-difference estimate (though negative) is not significant.

Taken together, these results imply that low leverage incumbents exhibit an economically important and highly statistically significant capacity response to entry plans. Both the difference-in-difference estimate in row 1 of Table A4 and the triple difference estimate (additional comparison of low leverage with high leverage firms) indicate that low leverage firms are more aggressive in investing preemptively in capacity than high leverage firms. As a note of explanation, the opposite sign results in the control group of incumbents between 100 and 200 miles from the proposed entry site indicate – because of the incumbent firm fixed effects – that strategic investments are lower than the typical investment made by the incumbent firm in adjacent regions (not an actual physical decline in capacity). The fact that most of the result arises from the effect within the 100-mile region suggests that this pattern of investments is not driven by unobserved regional factors such as local regulation or local demand shocks.

According to Table A5, the set of incumbents within 100 miles of the proposed entry site is very similar to the set of incumbents between 100 and 200 miles of the proposed entry site. Splitting the sample by leverage, casinos owned by low leverage firms are slightly *smaller* than casinos owned high leverage firms. Hence, the large capacity adjustments indicated in the difference-in-difference estimates are even more important relative to average low leverage casino.

Appendix figures

Figure A2

Public incumbents threatened by entry plans in the southwest region: This figure depicts public incumbents and entry plan sites during the 2003-2012 sample period in the Southwest region. The blue circles are established public incumbents, while the red crosses are entry plans that threaten these public incumbents.

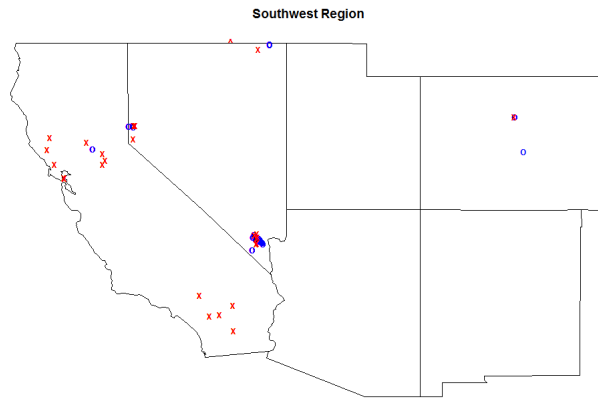
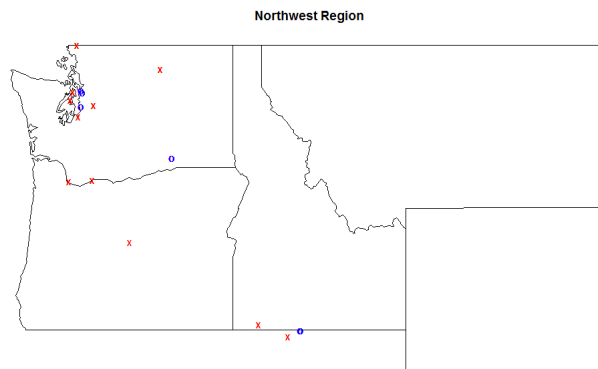


Figure A3

Public incumbents threatened by entry plans in the pacific northwest region: This figure depicts public incumbents and entry plan sites during the 2003-2012 sample period in the Pacific Northwest region. The blue circles are established public incumbents, while the red crosses are entry plans that threaten these



public incumbents.

Figure A4

Public incumbents threatened by entry plans in the midwest region: This figure depicts public incumbents and entry plan sites during the 2003-2012 sample period in the Midwest region. The blue circles are established public incumbents, while the red crosses are entry plans that threaten these public incumbents.

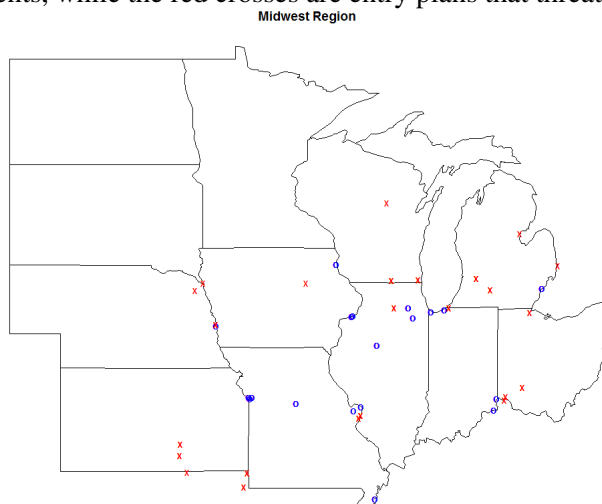


Figure A5

Public incumbents threatened by entry plans in the Gulf region: This figure depicts public incumbents and entry plan sites during the 2003-2012 sample period in the Gulf region. The blue circles are established public incumbents, while the red crosses are entry plans that threaten these public incumbents.

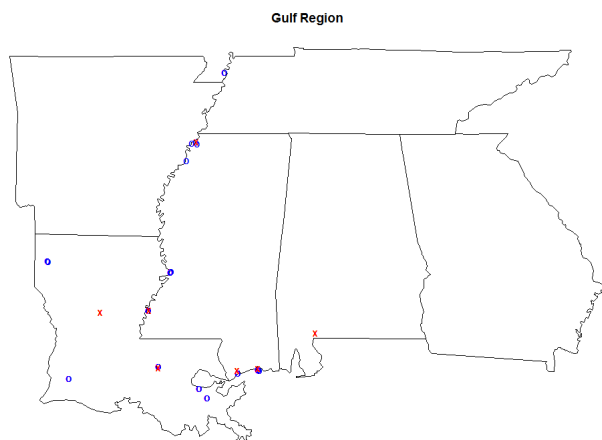
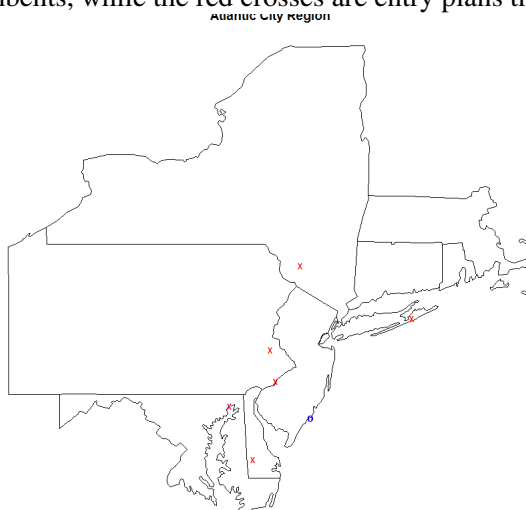


Figure A6

Public incumbents threatened by entry plans in the Atlantic City region: This figure depicts public incumbents and entry plan sites during the 2003-2012 sample period in the Atlantic City region. The blue circles are established public incumbents, while the red crosses are entry plans that threaten these public



incumbents.

Appendix tables

Table A1

Examples of debt-financed casino expansions: This table presents information on a variety of debt-financed casino expansions, obtained using web searches for keywords “casino expansion” and “financing.” This is not an exhaustive list of debt-financed casino expansions, but it does show examples of expansions that are financed for various locations (e.g., Montana and Las Vegas), size of expansion (\$10 million to \$700 million), ownership structures (public/private), and dates of expansion completion (1999 through 2017). The linked and referenced articles provide additional details (e.g., size of issues, purpose of the expansion, and in some cases, consequences of expansion).

| Casino | Location | Year | Size of Expansion | Source |
|------------------------|------------------|------|-------------------|---|
| Gray Wolf Peak | Evaro, MT | 2017 | \$27.4 million | Media Article on Gaming Expansion |
| Sugar House Casino | Philadelphia, PA | 2015 | \$164 million | Media Article on Gaming Expansion |
| Harrah’s Cherokee | Cherokee, NC | 2012 | \$650 million | Media Article on Gaming Expansion |
| Rosebud Casino | US 83, SD | 2012 | \$10 million | Media Article on Gaming Expansion |
| Twin River Casino | Lincoln, RI | 2007 | \$700 million | Retrospective Article on Path to Bankruptcy |
| WinStar World Casino | Thackerville, OK | 2007 | \$180 million | Media Article About Debt-Financing Hedge Fund |
| Ameristar - Black Hawk | Black Hawk, CO | 2006 | \$260 million | Reporting on Earnings Release |
| Palms Resort Casino | Las Vegas, NV | 2005 | \$600 million | Law Article |
| Atlantis Casino | Reno, NV | 1999 | \$60 million | Archived EDGAR Filing |

Table A2

Comparison of publicly traded sample to full sample, own and rival casino attributes: The means in this table are computed on the casino-month level data set. Casinos in the publicly traded subsample are those for which the casino vendor database provides casino stock ticker information. The means in this table are computed by taking the mean of each attribute for all casinos within 100 miles of a casino, except for those owned by the same owner as the casino in question.

(a) Characteristics of own casinos: whole sample versus publicly traded

| | Whole Sample | Publicly Traded |
|------------------------|--------------|-----------------|
| Fraction with Hotel | 0.37 | 0.64 |
| Hotel Rooms | 610.47 | 1023.32 |
| Restaurants | 2.90 | 5.42 |
| Slot Machines | 746.11 | 1291.00 |
| Entertainment Venues | 0.91 | 1.72 |
| Number of Table Games | 18.69 | 38.25 |
| Number of Poker Tables | 3.95 | 6.30 |
| Casino Size (Sq. Ft.) | 38405.77 | 51771.59 |
| Parking Spaces | 882.69 | 1863.30 |
| Employees | 870.21 | 1630.72 |

(b) Characteristics of rival casinos: whole sample versus casinos with a publicly traded rival

| | Whole Sample | Publicly Traded Rival |
|------------------------|--------------|-----------------------|
| Fraction with Hotel | 0.42 | 0.52 |
| Hotel Rooms | 498.38 | 754.32 |
| Restaurants | 3.58 | 4.62 |
| Slot Machines | 841.28 | 1080.30 |
| Entertainment Venues | 1.09 | 1.45 |
| Number of Table Games | 21.70 | 31.41 |
| Number of Poker Tables | 4.87 | 5.43 |
| Casino Size (Sq. Ft.) | 43474.11 | 47350.36 |
| Parking Spaces | 1049.18 | 1426.21 |
| Employees | 915.49 | 1261.61 |

Table A3

Observation counts by parent company and U.S. state: This table summarizes the number of observations by parent company and state. The parent companies are ordered from smallest to largest in terms of their mean leverage over the sample observations. The two dashed lines are placed at the 33rd percentile and the median cutoffs for leverage. The table illustrates that there is substantial sub-firm variation in geography as well as within geography variation in the amount of leverage that firms take on.

| TICKER | Owner | Mean Leverage | # obs | CO | IA | IN | MO | MS | NV | IL | LA | NJ | MI | WA | CA |
|--------|------------------------|---------------|-------|----|----|----|----|----|-----|----|----|----|----|----|----|
| MCRI | Monarch Casino | 0.309 | 26 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 |
| UWN | Nevada Gold Casinos | 0.454 | 64 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62 | 0 |
| STN | Station Casinos | 0.462 | 382 | 0 | 0 | 0 | 0 | 0 | 356 | 0 | 0 | 0 | 0 | 0 | 26 |
| PNK | Pinnacle Entertainment | 0.637 | 46 | 0 | 0 | 6 | 0 | 0 | 26 | 0 | 14 | 0 | 0 | 0 | 0 |
| PENN | Penn National Gaming | 0.722 | 78 | 2 | 0 | 6 | 10 | 22 | 0 | 28 | 10 | 0 | 0 | 0 | 0 |
| BYD | Boyd Gaming | 0.733 | 270 | 0 | 0 | 14 | 0 | 4 | 210 | 14 | 16 | 12 | 0 | 0 | 0 |
| ASCA | Ameristar Casinos | 0.796 | 54 | 2 | 6 | 12 | 14 | 12 | 8 | 0 | 0 | 0 | 0 | 0 | 0 |
| MGM | MGM Resorts | 0.797 | 336 | 0 | 0 | 0 | 0 | 12 | 312 | 0 | 0 | 0 | 12 | 0 | 0 |
| ISLE | Isle of Capri | 0.851 | 89 | 4 | 24 | 0 | 24 | 31 | 0 | 0 | 6 | 0 | 0 | 0 | 0 |

Table A4

Decomposition of low leverage strategic investment estimate: Each of estimates reported in this table is an estimate from a regression specification in equation (1), which controls for incumbent owner fixed effects. For low and high leverage incumbents, the estimates in the Difference column are the coefficient on a difference-in-difference specification, i.e., the coefficient on $after \times nearby$ using the subsample of observations (low or high leverage). Similarly, the estimates in the Low Minus High Leverage row for $< 100miles$ and $100 - 200miles$ are estimates of the coefficient on in an analogous difference-in-difference specification where the interaction term is $after \times lowleverage$ using either the nearby or the far subsample. The lower right hand estimate ("Difference" x "Low Minus High Leverage") is taken from the triple difference specification in Panel A, column 4. The rest of the estimates in Panel B are fixed effects adjusted estimates of changes in the mean casino size for particular subsamples (e.g., the upper left hand estimate uses the sample of nearby low leverage incumbents). To ensure robustness of this mean-based test to outliers, capacity were winsorized prior to conducting the test. Standard errors are clustered by potential entrant. *, **, and *** indicate statistical significance at the ten, five, and one percent level respectively.

| | < 100 miles | 100-200 miles | Difference |
|--------------------------|----------------------------|---------------------------|----------------------------|
| Low-leverage incumbents | 10,249.61*** (3,419.57) | -3,645.86* (2,163.01) | 14,501.40*** (4,258.06) |
| High leverage incumbents | -538.86 (2,160.00) | 5,729.03** (2,073.91) | -5,783.70** (2,909.37) |
| Low minus high leverage | 10,653.42** (4,709.15) | -8,981.30** (3,717.45) | 19,644.54*** (6,163.11) |

Table A5

Balance of attributes for difference-in-difference tests: This table presents a balance of attributes exercise across each difference in my difference-in-difference approach. Although the preferred specifications employ incumbent owner fixed effects and potential entrant fixed effects to achieve balance across treatment and control, this balance of attributes exercise highlights any important differences between near-far or high-low leverage in the raw data. Panel A compares incumbents within 100 miles of the proposed entry site to incumbents between 100 and 200 miles of the proposed entry site. Panel B compares the attributes of high leverage incumbents to low leverage incumbents.

Panel A: Close and adjacent-region incumbents

| | within 100 miles | between 100 and 200 miles |
|----------------------------------|------------------|---------------------------|
| Casino Size (Sq. Ft.) | 46,711.59 | 49,886.58 |
| Slot Machines | 895.65 | 895.93 |
| Number of Table Games | 23.90 | 21.61 |
| Number of Poker Tables | 4.94 | 4.99 |
| Convention Center Size (Sq. Ft.) | 17,289.32 | 9,832.16 |
| Hotel Rooms | 513.92 | 288.23 |
| Properties Owned | 10.59 | 6.78 |
| Restaurants | 3.86 | 3.42 |
| Entertainment Venues | 1.20 | 1.10 |
| Parking Spaces | 1,151.39 | 1,087.21 |
| Employees | 981.40 | 809.33 |

Panel B: High versus low leverage

| | Low leverage | High leverage |
|----------------------------------|--------------|---------------|
| Casino Size (Sq. Ft.) | 51,615.88 | 56,264.30 |
| Slot Machines | 1,354.42 | 1,486.83 |
| Number of Table Games | 35.65 | 45.64 |
| Number of Poker Tables | 6.26 | 7.19 |
| Convention Center Size (Sq. Ft.) | 28,428.56 | 47,017.55 |
| Hotel Rooms | 877.00 | 1,090.44 |
| Properties Owned | 19.01 | 18.20 |
| Restaurants | 6.16 | 5.94 |
| Entertainment Venues | 1.65 | 2.34 |
| Parking Spaces | 2,040.86 | 2,247.44 |
| Employees | 1,620.27 | 1,808.30 |

Table A6

Robustness to leverage cutoff: This table presents specifications as in Table 4, but using three different cutoffs for low leverage, as well as a specification that uses a continuous measure of leverage. The lowlev dummy variables are defined by the 33rd percentile (0.529; column 1), 66th percentile (0.759; column 2) and 75th percentile (0.805; column 3). To ensure robustness of this mean-based test to outliers, capacity were winsorized prior to conducting the test. All specifications use potential entrant property fixed effects and incumbent firm fixed effects, and thus, compare directly with column (5) of Table 4. In the table, (Z) indicates that the variable is standardized to have mean of 0 and standard deviation 1 for easy of interpretation. Standard errors are clustered by potential entrant property. *, **, and *** indicate statistical significance at the ten, five, and one percent level respectively.

| | (1) | (2) | (3) | (4) |
|--|----------------------------|---------------------------|--------------------------|---------------------------|
| <i>post</i> | 2,940.24*** (867.29) | 4,722.61*** (1,720.51) | 5,125.75** (2,294.65) | 2,171.75*** (371.30) |
| <i>close</i> | 12,074.49*** (2,949.66) | 11,014.35** (5,446.01) | 10,395.31* (6,005.97) | 11,510.55** (5,688.93) |
| <i>post</i> × <i>close</i> | -250.23 (3,012.16) | -2,974.37 (2,625.75) | -1,969.23 (3,426.08) | 3,650.77** (1,667.71) |
| <i>lowlev</i> | -6,151.14 (4,087.74) | -5,425.02** (2,588.12) | -4,131.77 (2,973.06) | |
| <i>leverage</i> (Z) | | | | 3,013.53* (1,657.35) |
| Interactions with low leverage | | | | |
| <i>post</i> × <i>lowlev</i> | 1,338.69 (3448.09) | 1,161.35 (2,588.12) | 975.72 (3,462.89) | |
| <i>close</i> × <i>lowlev</i> | -1,389.66 (1,805.11) | -3,830.50 (2,691.92) | -5,057.47* (2,976.25) | |
| <i>post</i> × <i>close</i> × <i>lowlev</i> | 10,368.39** (4,990.46) | 9,987.79** (4,673.51) | 8,681.24* (5,000.68) | |
| <i>post</i> × <i>leverage</i> (Z) | | | | -158.98 |
| <i>close</i> × <i>leverage</i> (Z) | | | | 340.33 (1,228.65) |
| <i>post</i> × <i>close</i> × <i>leverage</i> (Z) | | | | -3,930.06* (2,269.09) |
| Incumbent owner fixed effects | x | x | x | x |
| Potential entrant fixed effects | x | x | x | x |
| <i>N</i> | 1,345 | 1,345 | 1,345 | 1,345 |
| <i>R</i> ² | 0.337 | 0.337 | 0.337 | 0.337 |

Table A7

Entry plans, incumbent capacity adjustment, and leverage, using logged casino size: This table presents regression results that link changes of incumbent capacity around the time of entry plans to the financial position of incumbents. The specification is the same as Table 4, but using logged casino size as the dependent variable rather than casino size in levels. The *lowlev* dummy variable is defined to be 1 if the owner firm's financial leverage is below the property-level median of 0.733. To ensure robustness of this mean-based test to outliers, capacity were winsorized prior to conducting the test. Standard errors are clustered by potential entrant property. *, **, and *** indicate statistical significance at the ten, five, and one percent level respectively.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--|--------------------|---------------------|--------------------|--------------------|---------------------|--------------------|
| <i>post</i> | 0.031** (0.014) | 0.044*** (0.007) | 0.072** (0.033) | 0.006 (0.036) | - - | - - |
| <i>close</i> | -0.151 (0.095) | -0.291 (0.260) | -0.014 (0.049) | -0.179 (0.237) | 0.007 (0.194) | 0.361 (0.333) |
| <i>post</i> × <i>close</i> | 0.219** (0.096) | 0.218** (0.100) | -0.047 (0.067) | -0.051 (0.058) | -0.064 (0.262) | -0.715 (0.492) |
| <i>lowlev</i> | | | -0.031 (0.067) | -0.091 (0.075) | 0.092 (0.127) | -0.009 (0.097) |
| Interactions with low leverage | | | | | | |
| <i>post</i> × <i>lowlev</i> | | | -0.098* (0.053) | 0.062 (0.065) | -0.285** (0.144) | -0.066 (0.108) |
| <i>close</i> × <i>lowlev</i> | | | -0.301 (0.193) | -0.233 (0.187) | -0.209 (0.215) | -0.236 (0.191) |
| <i>post</i> × <i>close</i> × <i>lowlev</i> | | | 0.527** (0.227) | 0.490** (0.221) | 0.494** (0.250) | 0.512** (0.224) |
| Incumbent owner fixed effects | x | x | x | x | x | x |
| Potential entrant fixed effects | | x | | x | | x |
| Differential trend by nearby | | | | | x | x |
| Differential trend by <i>lowlev</i> | | | | | x | x |
| <i>N</i> | 1,345 | 1,345 | 1,345 | 1,345 | 1,345 | 1,345 |
| <i>R</i> ² | 0.610 | 0.643 | 0.611 | 0.644 | 0.612 | 0.645 |

Table A8

The effect is not purely a small casino effect: This table presents regression results that link changes of incumbent capacity around the time of entry plans to the financial position of incumbents, as well as to whether the incumbent casino is below the median size using the indicator variable *small*, which equals 1 if the casino size is below the median. The *lowlev* dummy variable is defined to be 1 if the owner firm's financial leverage is below the property-level sample median of 0.733. To ensure robustness of this mean-based test to outliers, capacity were winsorized prior to conducting the test. As with the main specifications, main effects for *post*, *close*, and *lowlev* are included in the specification, but they are not reported for clarity of presentation. Standard errors are clustered by potential entrant property. *, **, and *** indicate statistical significance at the ten, five, and one percent level respectively.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--|-----------|------------|-------------|------------|-------------|------------|
| Interactions with low leverage | | | | | | |
| <i>post</i> × <i>lowlev</i> | | | -6,792.1* | -1,479.8 | -5,734.7 | -4,084.9 |
| | | | (3,567.2) | (3,088.0) | (5,544.6) | (5,381.6) |
| <i>close</i> × <i>lowlev</i> | | | -3,507.8 | 1,412.3 | -2,186.1 | 1,577.7 |
| | | | (3,476.7) | (3,043.6) | (2,854.6) | (2,823.1) |
| <i>post</i> × <i>close</i> × <i>lowlev</i> | | | 13,729.8*** | 9,257.9** | 13,238.8*** | 9,448.8** |
| | | | (4,797.1) | (4,639.0) | (4,560.2) | (4,589.6) |
| Interactions with small size | | | | | | |
| <i>post</i> × <i>small</i> | 1,688.3* | -1,623.4** | -567.2 | -638.0 | -795.2 | -784.8 |
| | (1,015.2) | (797.4) | (1,094.2) | (905.4) | (1,173.2) | (953.6) |
| <i>close</i> × <i>small</i> | -3,896.3 | -5,402.6 | -3,146.6 | -4,995.2 | -3,514.0 | -5,084.4 |
| | (4,366.0) | (5,511.7) | (4,348.6) | (5,551.7) | (4,429.7) | (5,598.8) |
| <i>post</i> × <i>close</i> × <i>small</i> | -3,298.2 | -3,641.5* | 5,606.8** | -5,795.4** | -5,802.5** | -5,834.4** |
| | (2,093.4) | (2,077.6) | (2,330.7) | (2,308.3) | (2,321.1) | (2,331.0) |
| Incumbent owner fixed effects | x | x | x | x | x | x |
| Potential entrant fixed effects | | x | | x | | x |
| Differential trend by nearby | | | | | x | x |
| Differential trend by lowlev | | | | | x | x |
| <i>N</i> | 1,345 | 1,345 | 1,345 | 1,345 | 1,345 | 1,345 |
| <i>R</i> ² | 0.749 | 0.776 | 0.751 | 0.778 | 0.754 | 0.779 |

Table A9

Determinants of the hazard rate out of the planning stage: This table presents the full results from the specification presented in Table 9. These are estimates of the Cox proportional hazards model, using the Efron (1974) approximation to the partial likelihood. Wald Z-scores in parentheses. Standard errors are from a robust variance-covariance matrix that clusters standard errors by state. *, **, and *** indicate statistical significance at the ten, five, and one percent level respectively. Variables denoted with (Z) are standardized to have mean 0 and standard deviation 1 for ease of interpretation.

| | (1) | (2) | (3) | (4) |
|--------------------------------------|----------------------|----------------------|----------------------|----------------------|
| Incumbent capacity variables | | | | |
| Capacity adjustment (Z) | 0.592*** (-3.494) | 0.546*** (-2.668) | 0.874 (-0.681) | 0.853 (-0.882) |
| ... × Public entrant | – | 2.447** (2.451) | – | 1.581 (1.056) |
| ... × Far from airport (>50 mi.) | – | – | 0.504** (-2.492) | 0.572* (-1.953) |
| Casino size (Z) | 0.479 (-1.343) | 0.258** (-2.437) | 1.581 (0.584) | 0.621 (-0.507) |
| ... × Public Entrant | – | 4.432*** (2.866) | – | 3.287** (2.104) |
| ... × Far From Airport (>50 mi.) | – | – | 0.297* (-1.794) | 0.403 (-1.048) |
| Incumbent and market controls | | | | |
| Open casinos | 0.994 (-0.653) | 0.993 (-1.118) | 1.003 (0.261) | 0.999 (-0.114) |
| Convention center size (Z) | 0.460* (-1.893) | 0.598 (-1.328) | 0.401 (-1.640) | 0.541 (-1.26) |
| Properties owned (Z) | 0.782 (-1.186) | 0.831 (-1.157) | 0.803 (-1.190) | 0.784 (-1.307) |
| Slot machines (100s) | 1.072 (0.650) | 1.012 (0.091) | 1.055 (0.526) | 0.998 (-0.013) |
| Hotel rooms (100s) | 1.231* (1.928) | 1.228 (1.559) | 1.205* (1.797) | 1.185 (1.309) |
| Parking spaces (Z) | 0.437 (-0.525) | 0.606 (-0.306) | 0.701 (-0.219) | 1.030 (0.016) |
| Employees (100s) | 0.998 (-0.034) | 0.986 (-0.233) | 0.970 (-0.415) | 0.977 (-0.404) |
| Entrant attributes | | | | |
| Early entrant (before 2007) | 1.119 (0.375) | 0.774 (-0.723) | 1.127 (0.379) | 0.881 (-0.357) |
| Casino size (Z) | 1.070 (0.292) | 1.386** (2.313) | 1.135 (0.619) | 1.412** (2.562) |
| Convention center size (Z) | 1.960** (2.451) | 1.882** (2.134) | 2.239*** (3.073) | 2.104** (2.333) |
| Properties owned (Z) | 1.685*** (3.011) | 1.474*** (3.027) | 1.882*** (3.437) | 1.517*** (3.063) |
| Slot machines (100s) | 1.034* (1.684) | 1.027 (1.224) | 1.029 (1.486) | 1.026 (1.165) |
| Hotel rooms (100s) | 0.908*** (-2.686) | 0.922*** (-2.613) | 0.894*** (-3.176) | 0.912*** (-2.887) |
| Parking spaces (Z) | 0.882 (-0.586) | 0.754 (-1.345) | 0.852 (-0.930) | 0.718 (-1.486) |
| Employees (100s) | 0.817*** (-4.468) | 0.815*** (-3.065) | 0.806*** (-3.107) | 0.810*** (-2.905) |
| Public entrant | – | 3.137* (1.930) | – | 3.069* (1.699) |
| Far from airport (> 50 mi.) | – | – | 0.939 (-0.152) | 0.867 (-0.323) |
| P-values for notable tests | | | | |
| Capacity adjustment (public entrant) | – | 0.4918 | – | 0.480 |
| Capacity adjustment (far entrant) | – | – | 0.0003*** | 0.0042*** |
| R-squared | 0.375 | 0.429 | 0.401 | 0.437 |
| Observations | 109 | 109 | 109 | 109 |
| Number of events | 50 | 50 | 50 | 50 |