

Internet Appendix to:

Hiring High-Skilled Labor through Mergers and Acquisitions

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Internet Appendix A: Additional Tables

Table A1. Randomness of the H-1B Lottery in Each Lottery Year

Panel A reports the number of public companies filing cap-subject Labor Condition Applications (LCAs), the average number of cap-subject foreign workers each LCA filer demanded (CAP_H1B_DEMAND), the average number of cap-subject H-1B visas granted to the company (CAP_H1B_GRANT), and the fraction of demand for high-skilled foreign labor that is met (H1B_WIN_RATE) by year and separately for manufacturing firms and services firms. The sample period is over years 2008–2009 and 2014–2017 in which lotteries are held to allocate all cap-subject H-1B visas. We estimate a company’s demand for cap-subject foreign workers using its LCA filings and the number of cap-subject H-1B visas granted to the company using its processed I-129 petitions (detailed in Internet Appendix B). Panel B presents the OLS regression results for each of the six lottery years. The dependent variable is the fraction of the company’s demand for cap-subject H-1B visas that is met by supply (H1B_WIN_RATE) in year t . The explanatory variables are company characteristics related to size, leverage, ROA, Tobin’s Q, cash, employment, and the fraction of the firm’s employees on LinkedIn with a master’s degree or higher, all measured at the end of year t . See the Appendix for variable definitions. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively. Standard errors in parentheses are clustered at the firm level.

Panel A. Demand for and Supply of High-Skilled Foreign Workers by Year and for Manufacturing Firms and Services Firms

Year	# Companies Demanding Cap-subject H-1B visa	CAP_H1B_DEMAND	CAP_H1B_GRANT	H1B_WIN_RATE
<u>All firms</u>				
2008	739	17.34	7.71	0.52
2009	734	22.42	10.09	0.54
2014	590	44.48	13.20	0.62
2015	614	51.89	11.53	0.46
2016	621	42.84	11.56	0.42
2017	571	48.05	12.54	0.36
<u>Manufacturing firms</u>				
2008	422	19.39	7.36	0.55
2009	442	24.69	8.30	0.56
2014	330	50.55	10.68	0.60
2015	351	42.80	8.96	0.50
2016	363	33.68	9.02	0.42
2017	351	44.60	9.92	0.38
<u>Services and other firms</u>				
2008	317	14.61	8.19	0.49
2009	292	18.99	12.80	0.51
2014	260	36.78	16.40	0.64
2015	263	64.03	14.97	0.42
2016	258	55.71	15.14	0.41
2017	220	53.55	16.73	0.33

Panel B. Regression Results for Each of the Six Lottery Years

Dependent variable	H1B_WIN_RATE					
	2008	2009	2014	2015	2016	2017
Year	1	2	3	4	5	6
SIZE	0.029 (0.027)	0.021 (0.024)	-0.022 (0.133)	-0.013 (0.061)	0.027 (0.041)	0.076 (0.056)
LEVERAGE	-0.004 (0.007)	-0.005 (0.015)	-0.024 (0.034)	0.001 (0.015)	0.006 (0.016)	-0.051 (0.041)
ROA	-0.121 (0.104)	0.015 (0.100)	0.428 (0.664)	0.078 (0.296)	-0.124 (0.184)	0.107 (0.140)
TOBINS_Q	-0.031 (0.022)	-0.008 (0.021)	-0.004 (0.045)	0.085 (0.091)	-0.015 (0.013)	-0.005 (0.015)
CASH	0.016 (0.017)	0.011 (0.020)	0.080 (0.122)	0.024 (0.029)	-0.029 (0.024)	0.033 (0.040)
EMPLOYMENT	4.927 (3.766)	6.653 (7.192)	31.248 (29.130)	-1.616 (2.931)	0.959 (3.831)	11.000 (15.434)
FRAC_ADV_DEG	0.224 (0.139)	0.191 (0.275)	0.350 (0.460)	-0.201 (0.369)	0.213 (0.266)	0.518 (0.375)
Observations	739	734	590	614	621	571
Adj. R-Squared	0.011	0.001	0.002	0.017	-0.008	0.008

Table A2. H-1B Visa Lottery Outcome and Labor Shortage

Panel A lists keywords related to labor shortage. We search each sample firm's 10-K/10-Q forms filed in each year and the transcripts of their earnings conference/shareholder/analyst calls (in the CIQ Transcripts database) held in each year for the keywords in Panel A. We then count the number of unique keywords for each firm-year. Panel B presents summary statistics of the number of unique keywords and the indicator for the existence of any keywords. Panel C presents OLS estimation results of company-year panel regressions in equation (1) over the lottery years 2008–2009 and 2014–2017. The dependent variable is the IHS transformation of the number of unique keywords in 10-K/10-Q forms (column 1), an indicator for the existence of any keywords in 10-K/10-Q forms (column 2), the IHS transformation of the number of unique keywords in transcripts (column 3), an indicator for the existence of any keywords in transcripts (column 4), the IHS transformation of the number of unique keywords in 10-K/10-Q forms and transcripts (column 5), and an indicator for the existence of any keywords in 10-K/10-Q forms and transcripts (column 6) in year $t+1$. The main independent variable is the fraction of the company's demand for H-1B visas that is met (H1B_WIN_RATE). We estimate a company's demand for cap-subject foreign workers using its Labor Condition Application (LCA) filings and the number of cap-subject H-1B visas granted to the company using its processed I-129 petitions (detailed in Internet Appendix B). Other explanatory variables are a set of firm characteristics measured in year t , the firm fixed effects, and the industry-times-year fixed effects (2-digit NAICS). See the Appendix for variable definitions. The last row of columns 1, 3, and 5 reports the percentage change in the dependent variable for each 1 standard deviation increase in H1B_WIN_RATE, while the last row of columns 2, 4, and 6 reports the percentage point change in the probability of the existence of keywords for each 1 standard deviation increase in H1B_WIN_RATE. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively. Standard errors in parentheses are clustered at the firm level.

Panel A. Keywords Related to Labor Shortage

Keywords related to labor shortage		
"talent shortage"	"job vacancies"	"hiring challenge"
"labor shortage"	"job crunch"	"under-recruit"
"skill shortage"	"low unemployment"	"under hiring"
"hiring difficulties"	"job market crunch"	"finding talent"
"hiring difficulty"	"hiring crunch"	"attract new talent"
"lack manpower"	"staffing shortage"	"fill jobs"
"competitive job market"	"staff crunch"	"fill positions"
"tight labor market"	"recruitment difficulty"	"retain staff"
"talent crunch"	"recruitment challenge"	"retain key workers"
"talent pool"		

Panel B. Summary Statistics of Keywords in 10-K/10-Q Filings and Call Transcripts

	N	Mean	Std. Dev.	5-%ile	25-%ile	50-%ile	75-%ile	95-%ile
# Unique Keywords in 10-K/10-Q in Year t+1	3869	0.211	0.481	0.000	0.000	0.000	0.000	1.000
Has Keywords in 10-K/10-Q in Year t+1	3869	0.183	0.386	0.000	0.000	0.000	0.000	1.000
# Unique Keywords in Transcripts in Year t+1	3869	0.116	0.403	0.000	0.000	0.000	0.000	1.000
Has Keywords in Transcripts in Year t+1	3869	0.095	0.293	0.000	0.000	0.000	0.000	1.000
# Unique Keywords in 10-K/10-Q/Transcripts in Year t+1	3869	0.303	0.613	0.000	0.000	0.000	0.000	1.000
Has Keywords in 10-K/10-Q/Transcripts in Year t+1	3869	0.239	0.427	0.000	0.000	0.000	0.000	1.000

Panel C. H-1B Visa Lottery Outcome and Labor Shortage

Dependent variable	No. Unique Keywords in 10-K/10-Q in Year t+1	Has Keywords in 10-K/10-Q in Year t+1	No. Unique Keywords in Transcripts in Year t+1	Has Keywords in Transcripts in Year t+1	No. Unique Keywords in 10-K/10- Q/Transcript s in Year t+1	Has Keywords in 10-K/10- Q/Transcript s in Year t+1
	1	2	3	4	5	6
H1B_WIN_RATE	-0.011* (0.006)	-0.012** (0.006)	-0.038** (0.018)	-0.044** (0.019)	-0.049** (0.023)	-0.045** (0.022)
SIZE	0.007 (0.013)	0.003 (0.013)	0.015 (0.014)	0.013 (0.014)	0.005 (0.020)	-0.000 (0.020)
LEVERAGE	-0.061 (0.052)	-0.084 (0.052)	0.002 (0.041)	0.007 (0.041)	-0.071 (0.064)	-0.080 (0.063)
ROA	-0.009 (0.025)	-0.008 (0.027)	0.022 (0.037)	0.036 (0.041)	0.025 (0.047)	0.028 (0.048)
TOBINS_Q	0.001 (0.005)	0.002 (0.005)	-0.005 (0.006)	-0.002 (0.007)	0.001 (0.006)	0.007 (0.006)
CASH	0.009 (0.074)	0.028 (0.071)	0.093 (0.065)	0.085 (0.068)	0.075 (0.088)	0.075 (0.086)
EMPLOYMENT	2.647*** (0.497)	2.730*** (0.522)	5.946** (2.662)	4.525* (2.652)	7.218*** (2.611)	3.344 (2.422)
FRAC_ADV_DEG	0.068 (0.229)	-0.041 (0.208)	0.002 (0.191)	-0.003 (0.180)	0.207 (0.266)	0.134 (0.228)
Observations	3869	3869	3869	3869	3869	3869
Adj. R-Squared	0.704	0.693	0.250	0.176	0.575	0.535
Company FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Economic Magnitude	-2.02%	-0.45%	-12.50%	-1.67%	-6.40%	-1.71%

Table A3. H-1B Visa Lottery Outcome and Firm Acquisitions with Disclosed vs. Undisclosed Transaction Value

Panel A presents summary statistics of the number of acquisitions undertaken by the sample firms. The acquisitions are divided into sub-categories depending on whether the transaction value of the acquisition is disclosed or not. Panel B presents OLS estimation results of company-year panel regressions in equation (1) over the years 2008–2009 and 2014–2017. The dependent variables are the IHS transformations of the number of acquisitions with undisclosed transaction value (column 1), an indicator for acquisitions with undisclosed transaction values (column 2), the IHS transformation of the number of acquisitions with disclosed transaction values (column 3), and an indicator for acquisitions with disclosed transaction values (column 4). The main independent variable is the fraction of the company’s demand for H-1B visas that is met (H1B_WIN_RATE). We estimate a company’s demand for cap-subject foreign workers using its Labor Condition Application (LCA) filings and the number of cap-subject H-1B visas granted to the company using its processed I-129 petitions (detailed in Internet Appendix B). Other explanatory variables are a set of firm characteristics measured in year t , the firm fixed effects, and the industry-times-year fixed effects (2-digit NAICS). See the Appendix for variable definitions. The last row for columns 1 and 3 reports the percentage change in dependent variable for each 1 standard deviation increase in H1B_WIN_RATE, while the last row for columns 2 and 4 reports the percentage point change in the probability of acquisitions for each 1 standard deviation increase in H1B_WIN_RATE. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively. Standard errors in parentheses are clustered at the firm level.

Panel A. Summary Statistics

	N	Mean	Std. Dev.	5-%ile	25-%ile	50-%ile	75-%ile	95-%ile
No. Undisclosed-Size Acq	3869	0.217	0.730	0.000	0.000	0.000	0.000	1.000
Has Undisclosed-Size Acq	3869	0.133	0.340	0.000	0.000	0.000	0.000	1.000
No. Disclosed-Size Acq	3869	0.182	0.487	0.000	0.000	0.000	0.000	1.000
Has Disclosed-Size Acq	3869	0.149	0.357	0.000	0.000	0.000	0.000	1.000

Panel B. Regression Results

	No. Undisclosed- Size Acq.	Has Undisclosed- Size Acq.	No. Disclosed- Size Acq.	Has Disclosed- Size Acq.
	1	2	3	4
H1B_WIN_RATE	-0.029*** (0.009)	-0.029*** (0.009)	-0.017** (0.008)	-0.017** (0.008)
SIZE	0.022 (0.013)	0.020 (0.013)	0.016 (0.014)	0.020 (0.014)
LEVERAGE	-0.116** (0.055)	-0.076 (0.049)	-0.076 (0.054)	-0.060 (0.053)
ROA	-0.013 (0.031)	-0.003 (0.033)	-0.019 (0.054)	0.007 (0.045)
TOBINS_Q	-0.004 (0.006)	-0.005 (0.006)	0.007 (0.005)	0.006 (0.006)
CASH	0.010 (0.078)	0.008 (0.073)	0.173** (0.071)	0.137* (0.072)
EMPLOYMENT	-0.395 (0.706)	-0.443 (0.787)	-0.016 (0.672)	0.110 (0.608)
FRAC_ADV_DEG	0.254 (0.307)	0.136 (0.291)	-0.189 (0.165)	-0.124 (0.160)
Observations	3869	3869	3869	3869
Adj. R-Squared	0.318	0.232	0.185	0.158
Company FE	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes
Economic Magnitude	-5.18%	-1.10%	-3.60%	-0.64%

Table A4. H-1B Visa Lottery Outcome and Firm Acquisitions in the Future

Panel A presents OLS estimation results of company-year panel regressions in equation (1) over the years 2008–2009 and 2014–2017, where the dependent variable is the firm’s acquiring activity in year $t+2$: the IHS transformation of the number of acquisitions (column 1), an indicator of whether the firm (acquirer) has an acquisition (column 2), the IHS transformation of the number of acquired workers identifiable from LinkedIn (column 3), and the IHS transformation of the number of acquired STEM workers identifiable from LinkedIn (column 4). Panel B is the same as Panel A except that the dependent variable is now the firm’s acquiring activity in year $t+3$. The main independent variable is the fraction of the company’s demand for H-1B visas that is met (H1B_WIN_RATE). We estimate a company’s demand for cap-subject foreign workers using its Labor Condition Application (LCA) filings and the number of cap-subject H-1B visas granted to the company using its processed I-129 petitions (detailed in Internet Appendix B). Other explanatory variables are a set of firm characteristics measured in year t , the firm fixed effects, and the industry-times-year fixed effects (2-digit NAICS). See the Appendix for variable definitions. The last row of columns 1, 3, and 4 reports the percentage change in the dependent variable for each 1 standard deviation increase in H1B_WIN_RATE, while the last row of column 2 reports the percentage point change in the probability of acquisitions for each 1 standard deviation increase in H1B_WIN_RATE.

We also estimate an event study model to examine the dynamic effects of H-1B visa lottery losses on acquiring activity in year $t+0$ up to year $t+5$ after the lottery, following Deryugina (2017) and Dobkin, et al. (2018). The sample used is the firm-year observations over the 2008–2018 period for the firms in our H-1B visa lottery experiment. The dependent variables are the same as in Panels A–B. The variable High Lottery Loss takes the value of 1 if the firm’s fraction of H-1B demand met is below the sample’s bottom 25th percentile in a lottery year, and takes a value of 0 if it is above the 75th percentile. Firms with a High Lottery Loss of 1 are then compared to firms with a High Lottery Loss of 0. Panel C reports the coefficients on the interactions between the High Lottery Loss indicator and the four indicators for the years relative to the lottery year (year 0 to year 3). ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively. Standard errors in parentheses are clustered at the firm level.

Panel A. Acquiring Activity in Year $t+2$

	NUM_ACQ	IND_ACQ	NUM_ACQUIHI RED	NUM_ACQUIHI RED_STEM
	1	2	3	4
H1B_WIN_RATE	-0.002 (0.012)	0.007 (0.012)	0.021 (0.054)	0.030 (0.044)
SIZE	0.000 (0.023)	-0.000 (0.020)	-0.111 (0.094)	-0.086 (0.074)
LEVERAGE	-0.182** (0.092)	-0.126* (0.075)	-0.439 (0.325)	-0.294 (0.265)
ROA	0.067 (0.056)	0.101** (0.051)	0.208 (0.211)	0.074 (0.163)
TOBINS_Q	0.016 (0.011)	0.010 (0.010)	0.083* (0.045)	0.065* (0.038)
CASH	0.140 (0.129)	0.054 (0.112)	0.181 (0.436)	0.207 (0.368)
EMPLOYMENT	-1.472 (0.895)	-1.628** (0.816)	-9.503*** (3.661)	-1.935 (2.570)
FRAC_ADV_DEG	0.131 (0.329)	0.254 (0.280)	0.242 (1.137)	-0.103 (0.866)
Observations	3003	3003	3003	3003
Adj. R-Squared	0.373	0.291	0.228	0.207
Company FE	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes
Economic Magnitude	-0.20%	0.27%	0.80%	1.14%

Panel B. Acquiiring Activity in Year t+3

	NUM_ACQ	IND_ACQ	NUM_ACQUIHI RED	NUM_ACQUIHI RED_STEM
	1	2	3	4
H1B_WIN_RATE	-0.019 (0.025)	-0.013 (0.018)	-0.012 (0.069)	-0.006 (0.051)
SIZE	0.032 (0.024)	0.036* (0.021)	0.026 (0.097)	0.014 (0.078)
LEVERAGE	-0.065 (0.131)	-0.056 (0.107)	-0.169 (0.492)	-0.144 (0.404)
ROA	0.033 (0.062)	0.014 (0.054)	0.104 (0.222)	0.048 (0.178)
TOBINS_Q	0.005 (0.010)	-0.000 (0.009)	-0.013 (0.041)	-0.000 (0.031)
CASH	0.222* (0.134)	0.233* (0.125)	0.458 (0.567)	0.162 (0.463)
EMPLOYMENT	-3.077*** (1.053)	-3.004*** (1.096)	-12.695*** (4.335)	-0.993 (3.053)
FRAC_ADV_DEG	-0.365 (0.351)	-0.195 (0.380)	-0.051 (1.456)	-0.087 (1.153)
Observations	2256	2256	2256	2256
Adj. R-Squared	0.368	0.292	0.214	0.198
Company FE	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes
Economic Magnitude	-1.87%	-0.49%	-0.45%	-0.23%

Panel C. Dynamics of the Effects of H-1B Lottery Outcome on Acquiiring

	NUM_ACQ	IND_ACQ	NUM_ACQUIH IRED	NUM_ACQUIH IRED_STEM
	1	2	3	4
High Lottery Loss x Dummy(Lottery Yr + 0)	-0.027 (0.046)	-0.004 (0.038)	-0.216 (0.185)	-0.164 (0.154)
High Lottery Loss x Dummy(Lottery Yr + 1)	0.146*** (0.053)	0.144*** (0.045)	0.558** (0.226)	0.383** (0.194)
High Lottery Loss x Dummy(Lottery Yr + 2)	0.097 (0.065)	0.103** (0.051)	0.257 (0.263)	0.145 (0.219)
High Lottery Loss x Dummy(Lottery Yr + 3)	0.039 (0.083)	0.057 (0.065)	0.118 (0.335)	0.047 (0.275)
Observations	4732	4732	4732	4732
Adj. R-Squared	0.341	0.266	0.248	0.231
Company x Lottery Yr FE	Yes	Yes	Yes	Yes
Industry x Year x Lottery Yr FE	Yes	Yes	Yes	Yes

Table A5. Alternative Transformations of the Dependent Variables

The first three columns of this table present OLS estimation results of company-year panel regressions in equation (1) over the years 2008–2009 and 2014–2017, where the dependent variable is the firm’s acquiring activity in year $t+1$ as measured by the natural logarithm of 1 plus the number of acquisitions (column 1), the natural logarithm of 1 plus the number of acquired workers identifiable from LinkedIn (column 2), and the natural logarithm of 1 plus the number of acquired STEM workers identifiable from LinkedIn (column 3). The last three columns present the estimated Poisson regression results of equation (1) over the years 2008–2009 and 2014–2017, where the dependent variable is the firm’s unadjusted acquiring activity in year $t+1$. The main independent variable is the fraction of the company’s demand for H-1B visas that is met (H1B_WIN_RATE). We estimate a company’s demand for cap-subject foreign workers using its Labor Condition Application (LCA) filings and the number of cap-subject H-1B visas granted to the company using its processed I-129 petitions (detailed in Internet Appendix B). Other explanatory variables are a set of firm characteristics measured in year t , the firm fixed effects, and the industry-times-year fixed effects (2-digit NAICS). See the Appendix for variable definitions. The last row reports the percentage change in dependent variable for each 1 standard deviation increase in H1B_WIN_RATE.¹ ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively. Standard errors in parentheses are clustered at the firm level.

	ln(NUM_AC Q)	ln(NUM_ ACQUIHIRE D)	ln(NUM_ ACQUIHIRE D_ STEM)	NUM_ACQ (Poisson)	NUM_ ACQUIHIRE D (Poisson)	NUM_ ACQUIHIRE D_ STEM (Poisson)
	1	2	3	4	5	6
H1B_WIN_RATE	-0.033*** (0.009)	-0.110*** (0.029)	-0.110*** (0.030)	-0.161*** (0.061)	-0.245*** (0.077)	-0.226*** (0.073)
SIZE	0.032** (0.014)	0.107** (0.042)	0.093** (0.046)	0.198* (0.120)	0.255 (0.158)	0.363** (0.178)
LEVERAGE	-0.128** (0.058)	-0.256 (0.164)	-0.095 (0.192)	-1.453*** (0.552)	-0.531 (0.534)	-0.490 (0.583)
ROA	-0.025 (0.046)	-0.063 (0.138)	-0.043 (0.134)	0.348 (0.939)	1.553 (1.009)	1.438 (1.092)
TOBINS_Q	0.001 (0.006)	-0.015 (0.018)	-0.007 (0.020)	-0.008 (0.063)	-0.131* (0.071)	-0.155** (0.078)
CASH	0.110 (0.081)	0.316 (0.225)	0.493* (0.257)	0.784 (0.501)	0.689 (0.588)	1.003 (0.642)
EMPLOYMENT	-0.349 (0.772)	-0.336 (2.396)	3.432 (2.181)	-3.623 (6.657)	-12.085 (13.284)	3.207 (40.070)
FRAC_ADV_DEG	0.027 (0.255)	0.214 (0.660)	0.770 (0.792)	0.442 (1.413)	-0.775 (1.027)	-0.721 (1.128)
Observations	3869	3869	3869	3869	3869	3869
Adj./Pseudo R-Squared	0.345	0.240	0.158	0.227	0.173	0.106
Company FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Economic Magnitude	-4.31%	-4.02%	-4.14%	-5.92%	-8.87%	-8.21%

¹ The regressions in the first three columns have this form: $\ln(1 + Y) = a + bX + u$. For each unit of change in X , the change in Y , ΔY , is approximately $(1 + Y + \Delta Y)/(1 + Y) = \exp(b)$. Solving the equation yields $\frac{\Delta Y}{Y} = [\exp(b) - 1](1 + 1/Y)$. For each unit change in X , Y changes by $100 * [\exp(b) - 1](1 + 1/Y)$ percent.

Table A6. Large H-1B Visa Lottery Losses and Acquiiring Activity

We estimate equation (1) across different subsamples based on the size of unmet H-1B demand over the years 2008–2009 and 2014–2017. The dependent variable is the firm’s acquirring activity in year $t+1$ as measured by the IHS transformation of the number of acquisitions (column 1), an indicator of whether the firm (acquirer) has an acquisition (column 2), the IHS transformation of the number of acquirred workers identifiable from LinkedIn (column 3), and the IHS transformation of the number of acquirred STEM workers identifiable from LinkedIn (column 4). The subsamples require that the firm loses at least 5, 6, 7, 8, 9, or 10 H-1B lotteries in the lottery years. This table presents the coefficient on H1B_WIN_RATE for each of the subsample regressions. The main independent variable of the regressions is the fraction of the company’s demand for H-1B visas that is met (H1B_WIN_RATE). We estimate a company’s demand for cap-subject foreign workers using its Labor Condition Application (LCA) filings and the number of cap-subject H-1B visas granted to the company using its processed I-129 petitions (detailed in Internet Appendix B). Other explanatory variables are a set of firm characteristics measured in year t , the firm fixed effects, and the industry-times-year fixed effects (2-digit NAICS). See the Appendix for variable definitions. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively. Standard errors in parentheses are clustered at the firm level.

	NUM_ACQ	IND_ACQ	NUM_ACQUI HIRED	NUM_ACQUI HIRED_STEM
Sample (# Observations)	1	2	3	4
Whole sample (3869)	-0.043*** (0.011)	-0.040*** (0.010)	-0.180*** (0.047)	-0.129*** (0.035)
Unmet H-1B demand \geq 5 (845)	-0.350** (0.166)	-0.279** (0.128)	-1.650*** (0.607)	-1.288** (0.532)
Unmet H-1B demand \geq 6 (747)	-0.348* (0.179)	-0.312** (0.143)	-1.880*** (0.710)	-1.449** (0.624)
Unmet H-1B demand \geq 7 (648)	-0.270 (0.186)	-0.260* (0.144)	-1.471* (0.783)	-1.059 (0.671)
Unmet H-1B demand \geq 8 (605)	-0.222 (0.166)	-0.237 (0.145)	-1.316 (0.840)	-0.896 (0.726)
Unmet H-1B demand \geq 9 (558)	-0.223 (0.162)	-0.280* (0.148)	-1.501* (0.860)	-1.047 (0.748)
Unmet H-1B demand \geq 10 (512)	-0.056 (0.178)	-0.107 (0.158)	-0.244 (1.010)	-0.056 (0.889)

Table A7. H-1B Visa Lottery Outcome and Firm Acquisition Activity: Controlling for H-1B Demand

This table presents results from estimating equation (1) over the years 2008–2009 and 2014–2017 after adding the natural logarithm of the firm’s number of H-1B visas demanded as an additional control variable. The dependent variables are the IHS transformation of the number of acquisitions (column 1), an indicator of whether the firm (acquirer) has an acquisition (column 2), the IHS transformation of the number of acquihired workers identifiable from LinkedIn (column 3), and the IHS transformation of the number of acquihired STEM workers identifiable from LinkedIn (column 4) in year $t+1$. The main independent variable is the fraction of the company’s demand for H-1B visas that is met (H1B_WIN_RATE). We estimate a company’s demand for cap-subject foreign workers using its Labor Condition Application (LCA) filings and the number of cap-subject H-1B visas granted to the company using its processed I-129 petitions (detailed in Internet Appendix B). Other explanatory variables are a set of firm characteristics measured in year t , the firm fixed effects, and the industry-times-year fixed effects (2-digit NAICS). See the Appendix for variable definitions. The last row of columns 1, 3, and 4 reports the percentage change in the dependent variable for each 1 standard deviation increase in H1B_WIN_RATE, while the last row for column 2 reports the percentage point change in the probability of acquisitions for each 1 standard deviation increase in H1B_WIN_RATE. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively. Standard errors in parentheses are clustered at the firm level.

	NUM_ACQ	IND_ACQ	NUM_AQUIHIR ED	NUM_ACQUIHI RED_STEM
	1	2	3	4
H1B_WIN_RATE	-0.044*** (0.012)	-0.042*** (0.010)	-0.117*** (0.032)	-0.121*** (0.035)
ln(CAP_H1B_DEMAND)	-0.007 (0.018)	-0.007 (0.014)	-0.000 (0.040)	0.039 (0.050)
SIZE	0.042** (0.019)	0.044*** (0.017)	0.115*** (0.043)	0.106* (0.054)
LEVERAGE	-0.166** (0.075)	-0.090 (0.062)	-0.259 (0.167)	-0.141 (0.223)
ROA	-0.034 (0.060)	-0.005 (0.051)	-0.066 (0.137)	-0.049 (0.159)
TOBINS_Q	0.001 (0.008)	-0.002 (0.008)	-0.016 (0.019)	-0.008 (0.024)
CASH	0.143 (0.105)	0.067 (0.092)	0.313 (0.234)	0.587* (0.300)
EMPLOYMENT	-0.451 (0.995)	-0.515 (1.018)	-0.261 (2.422)	3.848 (2.573)
FRAC_ADV_DEG	0.054 (0.335)	-0.016 (0.317)	-0.010 (0.743)	0.757 (0.922)
Observations	3869	3869	3869	3869
Adj. R-Squared	0.344	0.265	0.248	0.171
Company FE	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes
Economic Magnitude	-4.49%	-1.59%	-4.44%	-4.59%

Table A8. Estimation Results Adjusted for Potential Omitted Variables

This table presents the coefficient estimates in Table 2 Panel B adjusted for possible omitted variables following the method of Oster (2019). Following Oster (2019), we focus on the results corresponding to the case when Rmax is set to 1.3 times the R-squared but also consider the cases when Rmax is set to the R-squared or 1.

	NUM_ACQ	IND_ACQ	NUM_ACQUIHIRE D	NUM_ACQUIHIRED_STE M
Rmax = R-squared	-0.0386	-0.0360	-0.1638	-0.1163
Rmax = 1.3 * R-squared	-0.0389	-0.0362	-0.1625	-0.1159
Rmax = 1	-0.1775	-0.1287	0.0857	-0.0367

Table A9. H-1B Visa Lottery Outcome and Firm Acquisition Activity: Cross-Sectional Tests

We augment equation (1) by including each of the 13 moderating variables mentioned in Section V.B.6 and VI.A–VI.D (related to the acquirer’s valuation level, the existence of Canadian affiliates, the tightness of labor market, the level of the firm’s human capital, the firm’s team structure, seniority of the firm’s workers measured by their work experience, and the firm’s acquisition experience) and each variable’s interaction with H1B_WIN_RATE. See Sections V.B.6 and VI.A–VI.D for definitions of the moderating variables. Panels A–M present the OLS regression results for each of the 13 moderating variables. The dependent variables are the IHS transformation of the number of acquisitions (column 1), an indicator of whether the firm has an acquisition (column 2), the IHS transformation of the number of acquired workers identifiable from LinkedIn (column 3), and the IHS transformation of the number of acquired STEM workers identifiable from LinkedIn (column 4) in year $t+1$. The main independent variable in the regressions is the fraction of the company’s demand for H-1B visas that is met (H1B_WIN_RATE). We estimate a company’s demand for cap-subject foreign workers using its Labor Condition Application (LCA) filings and the number of cap-subject H-1B visas granted to the company using its processed I-129 petitions (detailed in Internet Appendix B). Other explanatory variables are a set of firm characteristics measured in year t , the firm fixed effects, and the industry-times-year fixed effects (2-digit NAICS). See the Appendix for variable definitions. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively. Standard errors in parentheses are clustered at the firm level.

Panel A. Book-to-Market Ratio

	NUM_ACQ	IND_ACQ	NUM_ACQUIHI RED	NUM_ACQUIHI RED_STEM
	1	2	3	4
H1B_WIN_RATE	0.005	0.011	-0.078	-0.033
x Acq. Book/Market Ratio	(0.047)	(0.041)	(0.180)	(0.147)
H1B_WIN_RATE	-0.071**	-0.065**	-0.368***	-0.297***
	(0.035)	(0.030)	(0.137)	(0.114)
Acquirer Book/Market Ratio	-0.117***	-0.071**	-0.328**	-0.230*
	(0.037)	(0.033)	(0.162)	(0.134)
SIZE	0.028	0.036**	0.121*	0.090*
	(0.019)	(0.017)	(0.069)	(0.054)
LEVERAGE	-0.220***	-0.125*	-0.448	-0.232
	(0.079)	(0.064)	(0.294)	(0.236)
ROA	-0.030	-0.002	-0.080	-0.057
	(0.060)	(0.051)	(0.211)	(0.159)
TOBINS_Q	-0.009	-0.009	-0.054*	-0.036
	(0.008)	(0.008)	(0.029)	(0.023)
CASH	0.125	0.060	0.482	0.530*
	(0.105)	(0.093)	(0.363)	(0.301)
EMPLOYMENT	-0.902	-0.838	-2.637	2.751
	(0.928)	(0.977)	(3.498)	(2.446)
FRAC_ADV_DEG	0.082	-0.007	0.679	0.953
	(0.314)	(0.307)	(1.072)	(0.892)
Observations	3869	3869	3869	3869
Adj. R-Squared	0.346	0.264	0.199	0.174
Company FE	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes

Panel B. Employees in Canada

	NUM_ACQ	IND_ACQ	NUM_ACQUIHI RED	NUM_ACQUIHI RED_STEM
	1	2	3	4
H1B_WIN_RATE	0.037*	0.041**	0.162**	0.114*
x Has Employee in Canada	(0.021)	(0.017)	(0.078)	(0.061)
H1B_WIN_RATE	-0.067***	-0.067***	-0.286***	-0.204***
	(0.016)	(0.012)	(0.054)	(0.048)
SIZE	0.041**	0.043***	0.155**	0.113**
	(0.019)	(0.017)	(0.067)	(0.053)
LEVERAGE	-0.168**	-0.093	-0.296	-0.129
	(0.074)	(0.061)	(0.274)	(0.219)
ROA	-0.033	-0.005	-0.076	-0.051
	(0.060)	(0.051)	(0.212)	(0.160)
TOBINS_Q	0.002	-0.002	-0.016	-0.010
	(0.008)	(0.008)	(0.029)	(0.023)
CASH	0.146	0.071	0.550	0.575*
	(0.104)	(0.092)	(0.361)	(0.299)
EMPLOYMENT	-0.536	-0.609	-1.479	3.528
	(0.974)	(0.991)	(3.661)	(2.556)
FRAC_ADV_DEG	0.032	-0.039	0.497	0.833
	(0.330)	(0.316)	(1.086)	(0.902)
Observations	3869	3869	3869	3869
Adj. R-Squared	0.344	0.267	0.197	0.172
Company FE	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes

Panel C. Low Occupational Unemployment Rate

	NUM_ACQ	IND_ACQ	NUM_ACQUIHI RED	NUM_ACQUIHI RED_STEM
	1	2	3	4
H1B_WIN_RATE	-0.047***	-0.040***	-0.128*	-0.081
x Low Unemployment	(0.017)	(0.015)	(0.069)	(0.051)
H1B_WIN_RATE	-0.018	-0.019	-0.113	-0.087*
	(0.015)	(0.016)	(0.070)	(0.049)
Low Occu. Unemployment	-0.000	-0.004	-0.044	-0.032
	(0.027)	(0.024)	(0.106)	(0.084)
SIZE	0.040**	0.042**	0.151**	0.110**
	(0.019)	(0.017)	(0.067)	(0.053)
LEVERAGE	-0.162**	-0.087	-0.270	-0.112
	(0.075)	(0.062)	(0.277)	(0.222)
ROA	-0.033	-0.004	-0.070	-0.047
	(0.060)	(0.051)	(0.212)	(0.160)
TOBINS_Q	0.003	-0.000	-0.011	-0.007
	(0.008)	(0.008)	(0.029)	(0.023)
CASH	0.147	0.070	0.543	0.570*
	(0.104)	(0.092)	(0.361)	(0.299)
EMPLOYMENT	-0.344	-0.420	-0.778	4.002
	(0.986)	(1.007)	(3.723)	(2.594)
FRAC_ADV_DEG	0.054	-0.015	0.598	0.902
	(0.330)	(0.314)	(1.091)	(0.911)
Observations	3869	3869	3869	3869
Adj. R-Squared	0.346	0.268	0.197	0.172
Company FE	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes

Panel D. Low Occupational Hire Rate

	NUM_ACQ	IND_ACQ	NUM_ACQUIHI RED	NUM_ACQUIHI RED_STEM
	1	2	3	4
H1B_WIN_RATE	-0.093*	-0.093**	-0.496***	-0.455***
x Low Hire Rate	(0.049)	(0.043)	(0.182)	(0.147)
H1B_WIN_RATE	-0.024	-0.016	-0.160	-0.088
	(0.035)	(0.032)	(0.123)	(0.092)
Low Hire Rate	0.033	0.025	0.339**	0.307***
	(0.042)	(0.036)	(0.151)	(0.117)
SIZE	0.040**	0.042**	0.158**	0.113**
	(0.019)	(0.017)	(0.069)	(0.054)
LEVERAGE	-0.164**	-0.086	-0.275	-0.120
	(0.077)	(0.063)	(0.281)	(0.224)
ROA	0.005	0.022	0.034	0.012
	(0.049)	(0.046)	(0.185)	(0.144)
TOBINS_Q	-0.001	-0.005	-0.034	-0.025
	(0.008)	(0.008)	(0.029)	(0.023)
CASH	0.137	0.060	0.469	0.513*
	(0.106)	(0.093)	(0.365)	(0.302)
EMPLOYMENT	-0.663	-0.729	-1.942	3.151
	(0.984)	(1.005)	(3.756)	(2.600)
FRAC_ADV_DEG	0.103	0.039	0.723	1.053
	(0.331)	(0.316)	(1.091)	(0.902)
Observations	3729	3729	3729	3729
Adj. R-Squared	0.346	0.267	0.199	0.174
Company FE	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes

Panel E. High Employee Wage

	NUM_ACQ	IND_ACQ	NUM_ACQUIHI RED	NUM_ACQUIHI RED_STEM
	1	2	3	4
H1B_WIN_RATE	-0.107**	-0.099**	-0.327*	-0.218
x High Wage	(0.046)	(0.041)	(0.179)	(0.143)
H1B_WIN_RATE	-0.021	-0.015	-0.260**	-0.215**
	(0.033)	(0.029)	(0.122)	(0.097)
High Occupational Wage	0.050	0.057*	0.195	0.119
	(0.034)	(0.030)	(0.140)	(0.111)
SIZE	0.041**	0.043***	0.159**	0.116**
	(0.019)	(0.017)	(0.067)	(0.053)
LEVERAGE	-0.169**	-0.097	-0.304	-0.131
	(0.075)	(0.062)	(0.277)	(0.222)
ROA	-0.035	-0.005	-0.091	-0.066
	(0.060)	(0.051)	(0.212)	(0.160)
TOBINS_Q	-0.000	-0.003	-0.024	-0.016
	(0.008)	(0.008)	(0.029)	(0.023)
CASH	0.151	0.075	0.566	0.586*
	(0.105)	(0.093)	(0.363)	(0.300)
EMPLOYMENT	-0.654	-0.711	-1.841	3.287
	(0.988)	(1.011)	(3.768)	(2.605)
FRAC_ADV_DEG	0.030	-0.039	0.500	0.836
	(0.330)	(0.316)	(1.080)	(0.892)
Observations	3869	3869	3869	3869
Adj. R-Squared	0.343	0.264	0.196	0.172
Company FE	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes

Panel F. High Fraction of STEM Employees

	NUM_ACQ	IND_ACQ	NUM_ACQUIH	NUM_ACQUIH
	1	2	3	4
H1B_WIN_RATE	-0.109**	-0.111**	-0.255**	-0.270*
x High Frac. STEM	(0.050)	(0.044)	(0.119)	(0.145)
H1B_WIN_RATE	0.004	0.015	-0.055	-0.138
	(0.040)	(0.035)	(0.094)	(0.107)
SIZE	0.042**	0.044***	0.118***	0.115**
	(0.019)	(0.017)	(0.043)	(0.053)
LEVERAGE	-0.164**	-0.090	-0.244	-0.099
	(0.076)	(0.062)	(0.168)	(0.222)
ROA	-0.033	-0.004	-0.069	-0.063
	(0.060)	(0.051)	(0.137)	(0.159)
TOBINS_Q	-0.001	-0.005	-0.023	-0.017
	(0.008)	(0.008)	(0.019)	(0.024)
CASH	0.153	0.076	0.336	0.602**
	(0.105)	(0.092)	(0.233)	(0.300)
EMPLOYMENT	-0.736	-0.790	-1.020	2.983
	(0.975)	(0.998)	(2.421)	(2.633)
FRAC_ADV_DEG	0.071	0.000	0.072	0.949
	(0.329)	(0.311)	(0.727)	(0.901)
Observations	3869	3869	3869	3869
Adj. R-Squared	0.343	0.264	0.248	0.173
Company FE	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes

Panel G. High Fraction of Employees with Technology Skills

	NUM_ACQ	IND_ACQ	NUM_ACQUIH	NUM_ACQUIH
	1	2	3	4
H1B_WIN_RATE	-0.139***	-0.116***	-0.239**	-0.104
x High Frac. Tech Workers	(0.047)	(0.042)	(0.116)	(0.075)
H1B_WIN_RATE	0.023	0.016	-0.066	-0.072
	(0.038)	(0.034)	(0.090)	(0.057)
SIZE	0.041**	0.043***	0.116***	0.066**
	(0.019)	(0.017)	(0.043)	(0.027)
LEVERAGE	-0.168**	-0.094	-0.264	-0.132
	(0.075)	(0.062)	(0.167)	(0.106)
ROA	-0.028	-0.000	-0.060	-0.022
	(0.060)	(0.051)	(0.136)	(0.091)
TOBINS_Q	-0.000	-0.004	-0.021	-0.014
	(0.008)	(0.008)	(0.019)	(0.013)
CASH	0.159	0.082	0.340	0.263*
	(0.105)	(0.092)	(0.234)	(0.157)
EMPLOYMENT	-0.578	-0.627	-0.519	0.518
	(0.987)	(1.013)	(2.429)	(1.500)
FRAC_ADV_DEG	0.072	-0.003	0.049	0.165
	(0.336)	(0.319)	(0.734)	(0.411)
Observations	3869	3869	3869	3869
Adj. R-Squared	0.343	0.264	0.247	0.230
Company FE	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes

Panel H. High Fraction of Employees with Creative Skills

	NUM_ACQ	IND_ACQ	NUM_ACQU IHIRE	NUM_ACQUI HIRED_STE M
	1	2	3	4
H1B_WIN_RATE	-0.068***	-0.057**	-0.160**	-0.101**
x High Frac. Creative Workers	(0.026)	(0.024)	(0.071)	(0.044)
H1B_WIN_RATE	0.011	0.005	0.009	0.015
	(0.023)	(0.022)	(0.065)	(0.040)
SIZE	0.041**	0.043***	0.116***	0.067**
	(0.019)	(0.017)	(0.043)	(0.027)
LEVERAGE	-0.166**	-0.090	-0.254	-0.126
	(0.075)	(0.062)	(0.167)	(0.106)
ROA	-0.027	0.001	-0.051	-0.014
	(0.060)	(0.050)	(0.136)	(0.091)
TOBINS_Q	0.003	-0.001	-0.013	-0.010
	(0.008)	(0.008)	(0.019)	(0.013)
CASH	0.152	0.075	0.330	0.261*
	(0.104)	(0.092)	(0.232)	(0.156)
EMPLOYMENT	-0.817	-0.822	-1.137	0.051
	(0.955)	(0.965)	(2.310)	(1.416)
FRAC_ADV_DEG	0.063	-0.015	0.048	0.181
	(0.326)	(0.309)	(0.726)	(0.415)
Observations	3869	3869	3869	3869
Adj. R-Squared	0.345	0.267	0.250	0.232
Company FE	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes

Panel I. High Fraction of Employees with Bachelor's Degrees or Higher

	NUM_ACQ	IND_ACQ	NUM_ACQU IHIRE	NUM_AQUIHI RED_STEM
	1	2	3	4
H1B_WIN_RATE	-0.102**	-0.094**	-0.399**	-0.309**
x High Frac. Bachelor's Degree or Higher	(0.050)	(0.043)	(0.181)	(0.141)
H1B_WIN_RATE	-0.010	-0.006	-0.177	-0.135
	(0.038)	(0.033)	(0.134)	(0.096)
SIZE	0.043**	0.045***	0.169**	0.123**
	(0.019)	(0.017)	(0.067)	(0.053)
LEVERAGE	-0.175**	-0.099	-0.313	-0.141
	(0.075)	(0.062)	(0.277)	(0.222)
ROA	-0.036	-0.007	-0.102	-0.073
	(0.061)	(0.051)	(0.213)	(0.160)
TOBINS_Q	-0.001	-0.005	-0.029	-0.020
	(0.008)	(0.008)	(0.029)	(0.023)
CASH	0.148	0.073	0.555	0.579*
	(0.105)	(0.093)	(0.362)	(0.299)
EMPLOYMENT	-0.756	-0.804	-2.267	2.942
	(0.970)	(0.995)	(3.680)	(2.542)
FRAC_ADV_DEG	0.015	-0.053	0.433	0.780
	(0.326)	(0.312)	(1.079)	(0.894)
Observations	3869	3869	3869	3869
Adj. R-Squared	0.343	0.264	0.197	0.173
Company FE	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes

Panel J. High Fraction of Employees with Master's Degrees or Higher

	NUM_ACQ	IND_ACQ	NUM_ACQU IHIRE	NUM_ACQUI HIRED_STEM
	1	2	3	4
H1B_WIN_RATE	-0.100*	-0.090*	-0.574***	-0.459***
x High Frac. Master's Degree or Higher	(0.055)	(0.051)	(0.212)	(0.151)
H1B_WIN_RATE	0.014	0.011	0.046	0.050
	(0.049)	(0.046)	(0.185)	(0.121)
SIZE	0.043**	0.044***	0.167**	0.122**
	(0.019)	(0.017)	(0.067)	(0.053)
LEVERAGE	-0.161**	-0.097	-0.295	-0.128
	(0.074)	(0.062)	(0.277)	(0.222)
ROA	-0.030	-0.004	-0.081	-0.057
	(0.060)	(0.051)	(0.213)	(0.160)
TOBINS_Q	-0.002	-0.004	-0.027	-0.018
	(0.008)	(0.008)	(0.029)	(0.024)
CASH	0.145	0.075	0.564	0.586*
	(0.104)	(0.093)	(0.364)	(0.301)
EMPLOYMENT	-0.800	-0.833	-2.789	2.513
	(1.006)	(1.032)	(3.924)	(2.723)
FRAC_ADV_DEG	-0.044	-0.104	-0.113	0.355
	(0.333)	(0.319)	(1.101)	(0.935)
Observations	3869	3869	3869	3869
Adj. R-Squared	0.320	0.263	0.199	0.175
Company FE	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes

Panel K. High Fraction of Employees with Doctoral Degrees

	NUM_ACQ	IND_ACQ	NUM_ACQU IHIRE	NUM_ACQUI IHIRED_STE M
	1	2	3	4
H1B_WIN_RATE	-0.120**	-0.094**	-0.346*	-0.279*
x High Frac. Doctoral Degree	(0.054)	(0.047)	(0.194)	(0.151)
H1B_WIN_RATE	0.016	0.007	-0.160	-0.115
	(0.046)	(0.041)	(0.158)	(0.120)
SIZE	0.044**	0.046***	0.174**	0.126**
	(0.019)	(0.017)	(0.068)	(0.053)
LEVERAGE	-0.169**	-0.093	-0.277	-0.117
	(0.076)	(0.062)	(0.278)	(0.222)
ROA	-0.036	-0.007	-0.101	-0.071
	(0.061)	(0.051)	(0.212)	(0.159)
TOBINS_Q	-0.002	-0.005	-0.029	-0.020
	(0.008)	(0.008)	(0.029)	(0.024)
CASH	0.150	0.075	0.566	0.586**
	(0.105)	(0.092)	(0.362)	(0.298)
EMPLOYMENT	-0.537	-0.599	-1.382	3.611
	(0.985)	(1.012)	(3.764)	(2.609)
FRAC_ADV_DEG	0.078	0.003	0.666	0.959
	(0.324)	(0.307)	(1.083)	(0.904)
Observations	3869	3869	3869	3869
Adj. R-Squared	0.345	0.267	0.201	0.176
Company FE	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes

Panel L. Seniority of Acquirers' Workers

	NUM_ACQ	IND_ACQ	NUM_ACQUIHI RED	NUM_ACQUIHI RED_STEM
	1	2	3	4
H1B_WIN_RATE	-0.078	-0.053	-0.521**	-0.443**
x Firm with Senior Workers	(0.062)	(0.054)	(0.231)	(0.189)
H1B_WIN_RATE	-0.058	-0.058	-0.224	-0.154
	(0.046)	(0.040)	(0.164)	(0.130)
SIZE	0.046*	0.044**	0.161*	0.112
	(0.025)	(0.022)	(0.090)	(0.075)
LEVERAGE	-0.071	-0.008	0.304	0.348
	(0.086)	(0.071)	(0.310)	(0.264)
ROA	0.033	0.047	0.078	0.060
	(0.060)	(0.053)	(0.209)	(0.162)
TOBINS_Q	0.002	0.000	-0.019	-0.015
	(0.010)	(0.009)	(0.034)	(0.028)
CASH	0.109	0.045	0.487	0.526
	(0.127)	(0.114)	(0.440)	(0.371)
EMPLOYMENT	-2.193	-2.708	-8.800	-0.447
	(1.612)	(1.789)	(5.683)	(3.768)
FRAC_ADV_DEG	-0.243	-0.227	-0.223	0.441
	(0.382)	(0.365)	(1.433)	(1.242)
Observations	3869	3869	3869	3869
Adj. R-Squared	0.301	0.215	0.176	0.131
Company FE	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes

Panel M. Experienced Acquirers

	NUM_ACQ	IND_ACQ	NUM_ACQUI HIRED	NUM_AQUIHI RED_STEM
	1	2	3	4
H1B_WIN_RATE	-0.041**	-0.036**	-0.222***	-0.167***
x Experienced Acquirer	(0.018)	(0.016)	(0.074)	(0.058)
H1B_WIN_RATE	-0.018*	-0.019*	-0.049	-0.031
	(0.011)	(0.010)	(0.038)	(0.031)
Experienced Acquirer	-0.186***	-0.169***	-0.510***	-0.309**
	(0.049)	(0.044)	(0.198)	(0.151)
SIZE	0.048***	0.050***	0.179***	0.128**
	(0.019)	(0.017)	(0.067)	(0.053)
LEVERAGE	-0.164**	-0.089	-0.282	-0.120
	(0.075)	(0.061)	(0.273)	(0.218)
ROA	-0.038	-0.009	-0.090	-0.060
	(0.060)	(0.050)	(0.213)	(0.160)
TOBINS_Q	-0.004	-0.007	-0.035	-0.023
	(0.008)	(0.008)	(0.029)	(0.024)
CASH	0.097	0.026	0.376	0.460
	(0.103)	(0.091)	(0.356)	(0.293)
EMPLOYMENT	0.221	0.088	1.265	5.380**
	(0.993)	(1.010)	(3.698)	(2.623)
FRAC_ADV_DEG	0.018	-0.050	0.435	0.788
	(0.329)	(0.315)	(1.082)	(0.901)
Observations	3869	3869	3869	3869
Adj. R-Squared	0.352	0.275	0.203	0.176
Company FE	Yes	Yes	Yes	Yes
Industry x Year FE	Yes	Yes	Yes	Yes

Internet Appendix B:

Measuring Demand and Supply of High-Skilled Foreign Labor Subject to H-1B Visa Caps

B.1. Demand for Cap-Subject High-Skilled Foreign Labor

Companies must file LCAs and have their LCAs certified before petitioning the USCIS for H-1B visas. We therefore proxy their demand with their LCA filings, following Kerr and Lincoln (2010) and Xu (2023). Each LCA filing contains information on the intended hires, including employment start date and end date, job title, prevailing wage, and worksite address. However, LCA petitioners do not indicate whether their intended hires are subject to the annual H-1B visa cap or not. We determine whether the intended hires are cap-subject using the certification or approval date of the LCA by the U.S. Department of Labor.

LCAs certified after April are unlikely intended for cap-subject H-1B visas. The USCIS starts accepting I-129 petitions on the first business day in April; employers race to file I-129 petitions as early as possible because, in recent years, the annual cap has been reached within a few days. To win the race, employers must obtain approved LCAs prior to April. Therefore, LCAs certified after April are unlikely intended for petitions subject to the annual H-1B visa cap.

Although employers must have their LCAs certified before April to be eligible for H-1B visa lotteries, they are also incentivized to have their LCAs certified as late as possible. To illustrate this point, take the fiscal year 2009 as an example. Suppose a firm won an H-1B visa in the lottery conducted on April 14, 2008. The earliest day the beneficiary H-1B foreign worker can start working for the firm is October 1, 2008, the start date of the government fiscal year of 2009.¹ The H-1B visa allows the worker to work for the firm for a maximum of 3 years; the firm has to petition the USCIS for an extension to the H-1B visa 3 years later if it wants to continue employing the worker after the H-1B visa expires. At the time of submitting the I-129 petition for the H-1B visa, the firm must also submit the certified LCA. The LCA itself has an employment start date, which is at most 180 days after the LCA certification date. For example, if the LCA was certified by the Department of Labor on November 1, 2007, the employment start date associated with the LCA can be any day in the 180-day window from November 1,

¹ While H-1B workers do not actually have to start employment exactly on October 1, their visa status will change on October 1; any previously held visa status (e.g., student visas) will no longer be valid. This means that regardless of whether employment begins on October 1, the worker's H-1B visa will expire in roughly 3 years from that date unless extended earlier.

2007 to April 29, 2008. The LCA is also valid for 3 years. Suppose the firm chooses the LCA employment start date of April 29, 2008 (the latest possible employment start date), the LCA would expire on April 28, 2011. But the earliest employment start date on the H-1B visa is October 1, 2008, which corresponds to an expiration date of September 30, 2011. The beneficiary H-1B worker must stop working for the firm when the H-1B visa expires or when the LCA expires, whichever is earlier. Therefore, the H-1B worker can only work for the firm from October 1, 2008 (the H-1B employment start date) to April 28, 2011 (the LCA expiration date), which is 2 years and 7 months rather than 3 years. If the firm wants to continue to hire the H-1B worker after the LCA expires on April 28, 2011, it must petition the USCIS for an extension to the H-1B visa, which is costly and time consuming. On the other hand, if the LCA was certified on March 31, 2008, the employment start dates of the LCA and the H-1B visa will coincide with each other (October 1, 2008), and they will expire on the same day (September 30, 2011). In this case, the H-1B worker can work for the firm for 3 years. To maximize the H-1B visa validity period, the firm should have the LCA certified as late as possible but before April 1, 2008 to avoid being excluded from the H-1B visa lotteries.

The example illustrates that companies are incentivized to have their cap-subject LCAs certified on a day as close as possible to, yet still before, April 1 so that they can submit their I-129 petitions on or right after April 1. Indeed, LCA filings drastically surge in March every year. Although companies try to maximize the H-1B visa validity period, doing so does not exclude the possibility that some companies choose to file LCAs earlier than March, probably due to worries that the LCA will not be certified in time for the I-129 petition starting on April 1 (it usually takes 1 week for the Department of Labor to certify an LCA, but the time it takes is uncertain *ex ante*). In addition, some companies could have filed cap-subject LCAs after April 1 in the few years after 2004. The H-1B visa cap of 65,000 was reached within 192 days after April 1 in 2004, within 132 days in 2005, and within 56 days in 2006. In these years, I-129 petitions submitted in late April (or even in May) were still eligible for cap-subject H-1B visas. In more recent years, however, only petitions submitted within a few days after April 1 are eligible for H-1B lotteries.

Taking these factors into account, we measure a company's demand for cap-subject high-skilled foreign workers with the number of intended hires in its LCAs certified between January and April. LCAs certified prior to January or after April are most likely for H-1B visa extensions

or are not capped by the annual quota. In addition, the recruiting cycle of high-skilled foreign labor might start at the beginning of the year in January. We further require that the intended LCA hires must have an employment start date falling in the window of 5–6 months after the LCA certification date because companies want to choose the LCA employment start date as close as possible to October 1 (the first day a cap-subject H-1B employee can legally work under an H-1B) in order to maximize the validity period of the cap-subject H-1B visa.

B.2. The Number of Cap-Subject H-1B Visas a Company Wins in Lotteries

The I-129 petitions database from the USCIS includes three types of processed H-1B petitions: 1) cap-subject petitions (notably, these include the lucky petitions that have been selected through lotteries), 2) cap-exempt petitions, and 3) petitions for extension of existing H-1Bs, which are also cap-exempt. The second category includes I-129 petitions for foreign workers who hold advanced degrees and will be employed in higher education or non-profit institutions in the U.S.; they are exempt from the annual cap.

The key to measuring the supply of cap-subject H-1B visas for each firm is determining into which of the three categories listed above a processed I-129 petition can be sorted. The employer must indicate whether an I-129 petition is for a visa extension. Therefore, it is easy to single out petitions in the third category. Yet it is more difficult to separate petitions in the first and second categories. The I-129 form does not contain any questions regarding whether the sought H-1B visa is cap-subject or cap-exempt until the version dated November 23, 2010. This and all subsequent versions of the I-129 form require the employer to specify whether the petition is cap-subject or cap-exempt. Although the I-129 forms after 2010 contain the information on identifying cap-subject vs. cap-exempt petitions, we only have such information for petitions after 2015 in the I-129 database. This is because USCIS continues to accept older versions of the I-129 form.

For petitions filed before 2015, we determine whether they are cap-subject using the following four criteria. First, we filter out petitions filed by non-profit organizations and higher education and government research institutions. These institutions are cap-exempt by definition. Second, we filter out I-129 petitions filed in months other than April, May, and June. Cap-subject employees are expected to file I-129 petitions within a short period after April 1 to be eligible for working in the U.S. in the coming fiscal year, which starts on October 1. Third, we

require cap-subject petitions to have an employment start date after October 1. Whereas a cap-exempt applicant may very well have the leisure of belatedly submitting an I-129 petition in May to start a job in August, cap-subject applicants must apply for H-1B visas for the next fiscal year, which starts on October 1. In other words, it is not possible for the employment start date of cap-subject petitions to be before October 1. Lastly, cap-subject petitions must check “new employment” for part 2 of question 2 on the I-129 form. We filter out petitions that do not check “new employment.”

The four filters accurately separate cap-exempt petitions from those that are cap-subject. To verify their accuracy, we apply the four filters to the sample of processed I-129 petitions in 2015 and 2016, for which we have information on their cap status directly from the I-129 database. Among the 194,303 cap-subject petitions, with our filters we identify 193,606, with a rate of 99.6%. Among the 534,162 cap-exempt petitions, we identify 528,154, with a rate of 98.9%.

Our demand and supply measures turn out to be accurate. The demand measure is positively associated with the supply measure. In addition, the fraction of demand that is met, the ratio of supply to demand, is not correlated with company characteristics or past company performance. Furthermore, the fraction of capped H-1B visa demand met based on our measures is very close to the likelihood of winning H-1B lotteries disclosed by the USCIS. Had our demand or supply measure been too noisy, we would not observe these results.

Internet Appendix C:

Exogenous Reduction in the H-1B Visa Quota and Acquisition Activity

The annual H-1B quota reverted from 195,000 in 2003 to 65,000 in 2004 (see Table C1). This abrupt drop was largely unanticipated (Kato and Sparber (2013), Xu (2023)) and caused a shortage in high-skilled workers for firms dependent on H-1B workers. We hypothesize that these H-1B dependent firms are more likely to acquire firms (and especially firms with H-1B workers) than other firms that are not reliant on H-1B workers.

We classify a firm into the treated group if it received H-1B visas before 2004 and into the control group otherwise.¹ We then estimate the following diff-in-diff model:

$$(C1) \quad y_{i,t+1} = \beta(Treatment_i \times Year_t \geq 2004) + \gamma X_{it} + \alpha_i + I_j \times \alpha_t + \varepsilon_{it}.$$

The dependent variable is firm i 's acquisition activity in year $t+1$. We do not examine the effects on the number of acquired workers in this analysis because LinkedIn, which was launched in 2003, has only thin coverage over the 2001–2007 period. $Treatment_i$ is a dummy variable equal to 1 for the treated firms, and 0 otherwise. $Year_t \geq 2004$ is a dummy variable equal to 1 if year t is greater than or equal to 2004, and 0 otherwise. X_{it} is a vector of firm characteristics. α_i and $I_j \times \alpha_t$ are firm and industry-times-year fixed effects, respectively. We cluster standard errors at the firm level following the suggestions of Petersen (2009). We estimate the model using firms active in 2003 over the 7 years (2001–2007) around 2004. The estimation sample starts in 2001 because LCA data are unavailable before 2001; the sample ends in 2007 to avoid any confounding effects of the financial crisis starting in 2008 or any overlap with the sample period for the H-1B lottery-based natural experiment.²

Table C2 Panel A reports summary statistics of the variables used to estimate equation (C1). About 47% of the firm-year observations are from treated firms, and 51% of the firm-years occur after 2004. The average company acquires 0.29 targets per annum. Table C2 Panel B presents the estimation results for equation (C1). The dependent variables in the two columns are the IHS transformation of the number of acquisitions in year $t+1$ and the indicator for acquisitions in year $t+1$. The two dependent variables are the same as those in the first two columns of Table 2 Panel

¹ Our treatment classification is similar to Kerr and Lincoln (2010) and Xu (2023). The results remain qualitatively unchanged when we classify a firm into the treated group if it filed LCAs before 2004.

² Our diff-in-diff results are unlikely to be driven by confounding events in 2004. Such confounding events must not only affect acquisition activities of firms but also have effects that correlate with H-1B dependency.

B, which are the baseline results for our H-1B lottery experiment. The coefficient on the interaction variable is positive and statistically significant at the 1% or 5% level. The results show that the 2004 reduction in H-1B visa cap caused H-1B-dependent firms to make more acquisitions, particularly acquisitions targeting firms that have hired H-1B workers. The average treatment effects are economically substantial. Compared to the control firms, the treated firms acquired 12% more targets per annum after 2004 than before. Concerning the extensive margins, the treated firms are about 2.0 percentage points more likely to acquire targets.³

A diff-in-diff model could produce false positive treatment effects if the treated and control firms have heterogeneous characteristics that are not controlled for in equation (C1) (Roberts and Whited (2013)). To address this concern, we conduct the following falsification test. Imagining that the annual H-1B quota significantly dropped in 2014, we classify a firm into the treated group if it received H-1B visas before 2014 and into the control group otherwise. We then estimate a diff-in-diff model identical to equation (C1) with two differences: we replace the post-2004 indicator with the post-2014 indicator, and we alter the estimation period to 2011–2017. The falsification test results, reported in Table C3, show that the coefficient on the interaction variable is insignificant throughout the two columns. These results indicate that the diff-in-diff model does not produce false positive treatment effects in our setting.

In sum, Internet Appendix C shows that H-1B dependent firms are more likely to acquire firms than the control firms after the 2004 reduction in the annual H-1B visa cap. This result and the results based on H-1B visa lotteries are all consistent with our hypothesis that firms obtain high-skilled workers through mergers and acquisitions when facing shortages of high-skilled labor.

³ Untabulated results show that these baseline results are robust to excluding the control variables from the regressions, log transformation of the dependent variable, and Poisson regressions.

Table C1. Frequencies of Companies and their Acquisitions

This table summarizes the number of public companies, the number of public companies filing Labor Condition Applications (LCAs), the number of public companies with approved I-129 petitions, and the number of acquisitions made by public companies for each fiscal year in our sample. The last column lists the annual H-1B visa cap for each fiscal year.

	# Public Companies	# Companies Filing LCA	# Companies Filing I-129	# Acquisitions	H-1B visa quota
2001	4356	1403	1283	1037	195000
2002	4012	1619	1445	954	195000
2003	3744	1454	1295	903	195000
2004	3698	1561	1431	1099	65000
2005	3610	1568	1440	1034	65000
2006	3537	1480	1345	1189	85000
2007	3423	1445	1283	1140	85000
2008	3210	1326	1167	1031	85000
2009	3024	1194	1045	636	85000
2010	2908	1114	1022	758	85000
2011	2836	1101	1004	946	85000
2012	2795	1064	950	820	85000
2013	2844	1054	940	939	85000
2014	2966	1073	977	1020	85000
2015	2931	1086	934	905	85000
2016	2855	1016	901	772	85000
2017	2837	1005	631	752	85000

Table C2. Diff-in-Diff Estimation Results Based on the 2004 Reduction in H-1B Visa Cap

Panel A presents summary statistics of the relevant variables in the diff-in-diff model from equation (C1). Panel B presents the OLS regression results of the diff-in-diff model from equation (C1) over the 2001–2007 period. The dependent variables are the IHS transformation of the number of acquisitions in year $t+1$ in column 1 and an indicator of whether the firm (acquirer) has an acquisition in $t+1$ in column 2. Treatment is a dummy variable equal to 1 if the firm received any approved I-129 petitions prior to 2004, and 0 otherwise. The control variables include size, leverage, ROA, Tobin's Q, cash, employment, company fixed effects, and the industry times-year fixed effects (2-digit NAICS). See the Appendix in the text for variable definitions. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively. Standard errors in parentheses are clustered at the firm level.

Panel A. Summary Statistics

	N	Mean	Std. Dev.	5-%ile	25-%ile	50-%ile	75-%ile	95-%ile
Treatment	21930	0.473	0.499	0.000	0.000	0.000	1.000	1.000
Year \geq 2004	21930	0.506	0.500	0.000	0.000	1.000	1.000	1.000
No. of Acq.	21930	0.290	0.815	0.000	0.000	0.000	0.000	2.000
Has Acq.	21930	0.179	0.384	0.000	0.000	0.000	0.000	1.000
Size (\$B)	21930	3.047	14.710	0.011	0.073	0.316	1.229	11.070
Leverage	21930	0.205	0.277	0.000	0.007	0.149	0.313	0.600
ROA	21930	-0.024	0.974	-0.501	-0.025	0.060	0.115	0.216
Tobin's Q	21930	2.182	3.376	0.803	1.147	1.579	2.418	5.274
Cash	21930	0.222	0.238	0.005	0.035	0.127	0.342	0.744
Employment (thousands)	21930	9.770	45.175	0.037	0.236	1.089	5.250	40.670

Panel B. Regression Results

	NUM_ACQ	IND_ACQ
	1	2
Treatment x Year \geq 2004	0.033** (0.013)	0.020*** (0.008)
SIZE	0.057*** (0.006)	0.020*** (0.003)
LEVERAGE	-0.046** (0.022)	-0.011 (0.009)
ROA	0.000 (0.002)	-0.003** (0.001)
TOBINS_Q	0.000 (0.001)	-0.001 (0.001)
CASH	0.206*** (0.032)	0.006 (0.017)
EMPLOYMENT	0.012 (0.032)	-0.006 (0.028)
Observations	21930	21930
Adj. R-Squared	0.369	0.272
Company FE	Yes	Yes
Industry x Year FE	Yes	Yes

Table C3. Falsification Test of the Diff-in-Diff Model

This table presents results of the falsification test of the diff-in-diff model. Imagining that the annual H-1B quota was significantly reduced in 2014, we classify a firm into the treated group if it has been granted H-1B visas before 2014 and into the control group otherwise. We then estimate a diff-in-diff model identical to the model in equation (C1) except for two changes: the post-2004 indicator is replaced with the post-2014 indicator and the estimation period is changed to 2011–2017. The dependent variables are the IHS transformation of the number of acquisitions in year $t+1$ in column 1 and an indicator of whether the firm has an acquisition in $t+1$ in column 2. Treatment is a dummy variable equal to 1 if the firm received any approved I-129 petitions prior to 2014, and 0 otherwise. The control variables include size, leverage, ROA, Tobin's Q, cash, employment, company fixed effects, and the industry-times-year fixed effects (2-digit NAICS). See the Appendix in the text for variable definitions. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively. Standard errors in parentheses are clustered at the firm level.

	NUM_ACQ	IND_ACQ
	1	2
Treatment x Year \geq 2014	-0.008 (0.016)	-0.012 (0.013)
SIZE	0.043*** (0.007)	0.035*** (0.006)
LEVERAGE	-0.098*** (0.026)	-0.088*** (0.023)
ROA	-0.005 (0.009)	-0.003 (0.008)
TOBINS_Q	-0.000* (0.000)	-0.000** (0.000)
CASH	0.185*** (0.036)	0.176*** (0.034)
EMPLOYMENT	-0.153 (0.268)	-0.251 (0.243)
Observations	16488	16488
Adj. R-Squared	0.371	0.283
Company FE	Yes	Yes
Industry x Year FE	Yes	Yes