Online Appendix
The Not So Uniform Effect of Trade Secret Protection on Business Entry

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1 Appendix items

This appendix includes the following items:

- Table A1 listing the UTSA adoption years for each of the states in our sample.
- Table A2 providing data definitions and sources
- Brief description of the analysis on the timing of adoption of the UTSA in subsection 1.1, and its results in Table A3.
- Description of the results with banking deregulation indicators and the corresponding results in Table A4.
- Table A5 reporting the robustness of the baseline results to alternative identification methods.

1.1 Business entry and the timing of adoption of the UTSA

In order to show that business entry does not influence states' adoption of the UTSA, and hence does not lead to reverse causality, we follow the approach in Png (2017), among others. We estimate a random-effects parametric survival-time model, with the conditional distribution of the response given the random effects assumed to be an exponential. Our

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model evaluates the potential contribution of different factors that may affect each state's year of adoption of the UTSA.[1]

Our results from the random-effects parametric survival-time model are presented in Appendix Table A3. The estimates point to several important factors on the hazard of adopting the UTSA. In the first column, we seek to explain the year of adoption using a set of state-level variables that include population, gross state product, importance of the knowledge-intensive industries (manufacturing, information sector, and professional, scientific, and technical services) in the state measured by the ratio of the number of firms in the particular industry within that state to the total number of firms in that state. Our estimates imply that adoption of the UTSA is positively affected by gross state product and negatively affected by population. Among the three sectoral output variables the share of professional, scientific, and technical services firms in the state appear to positively and significantly affect the timing of the passage of the UTSA, which most likely is due to the fact that legal services are included in this sector.

In column (2), we additionally include an indicator variable showing if at least one of the neighboring states have adopted the UTSA. The estimated coefficient on the neighbor adoption is positive, economically and statistically significant, implying that having a neighbor that has adopted the UTSA significantly speeds up passage of the Act. In columns (3) and (4), we successively add firm and establishment entry rates to check if they exert any influence on the timing of the UTSA adoption. Neither of the estimated coefficients are economically or statistically significant, suggesting that business entry in the states is unlikely to have affected the timing of the passage of the UTSA.

1.2 Banking Deregulation and the UTSA

Table A4 reports the results for the firm and establishment entry rate specifications when we include banking deregulation indicators, along with the UTSA adoption indicator. We obtain the interbanking and interbranching dates from Table 1 of Kroszner and Strahan (1999). The first two columns show the results similar to the one in Kerr and Nanda (2009), with both the interstate banking and intrastate branching deregulation indicators, and adds the UTSA indicator. Following the convention in the literature that studies the impact of the banking deregulation on new business formation (for example, Black and Strahan, 2002; Cetorelli and Strahan, 2006; and Kerr and Nanda, 2009), in the first set of results we end the sample in 1994, the year the Riegle–Neal Interstate Banking and Branching Efficiency

[1]For a comprehensive analysis of the reasons why states enact the UTSA, interested readers are referred to Ribstein and Kobayashi (1996) and Png (2017).

Act was passed. As in Kerr and Nanda (2009), we find a positive and significant impact of interstate banking, but not the intrastate branching, deregulation on the entry rates.[2] The coefficient on the UTSA is negative as in Table 2 of the main text, but not significant, likely due to the fact that we lose half of the variation in the UTSA adoption by ending our sample in 1994. The coefficient on the UTSA becomes significant at the 10% level when we include the interaction term between the UTSA and the interbanking deregulation in columns (3) and (4). The positive interaction term confirms the results in Table 5 of the main text, showing that availability of banks partially mitigates the negative impact of the UTSA on business entry rates. Columns (5) and (6) add covariates to the previous two columns, and column (7) and (8) extend the sample to 2015, to have the results comparable to the baseline results in the paper. Qualitatively and quantitatively, we obtain similar results to the ones in the paper using the full sample.

1.3 Robustness to alternative identification and estimation methods

We provide results to two additional robustness checks. First, as an alternative identification strategy to using the differences in the timing and intensity of the change in the legal protection arising from the UTSA, we follow Png (2017) and use the industries in California post-UTSA adoption (1985) as the treated group and the industries New York, Massachusetts and North Carolina (states that had still not adopted the UTSA by 2015, the last year in our sample) as the states in the "never-treated" group. The results in columns 1 and 2 of Table A5 show that our results are robust to this alternative identification strategy.

Second, we carry out an instrumental variables estimation, where we employ four non-commercial laws drafted by the Uniform Law Commission, that were adopted by states staggeredly over a similar time period to the UTSA. The acts are: Uniform Transfers to Minors Act, Uniform Determination of Death Act, Uniform Wills Recognition Act, and Uniform Conservation Easement Act (Uniform Law Commission, 2023, 2023). These acts are not related to business entry rates but are related to the UTSA since they were introduced by the Uniform Law Commission to harmonize state regulation during the same period. We report the instrumental variable (IV) estimation results, along with the Kleibergen-Paap under-identification test result (p-value), and the Hansen test of over-identification (p-value) in the last two columns of Table A5. The diagnostic tests reject the null hypothesis of under-identification and fail to reject the validity of the instruments. More importantly, as in our

[2]In the following columns we exclude intrastate branching, as it's never estimated to be significant. If we include it, the coefficient on the UTSA doesn't change.

baseline specifications, the IV estimation yields negative and significant coefficients on the UTSA for both firm and establishment entry rates.

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Table A1: UTSA Adoption Years

State	Year	State	Year
Alabama	2016	Nevada	1987
Arizona	1990	New Hampshire	1990
Arkansas	1981	New Jersey	2012
California	1985	New Mexico	1989
Colorado	1986	New York	
Connecticut	1983	North Carolina	
Florida	1988	North Dakota	1983
Georgia	1990	Ohio	1994
Idaho	1981	Oklahoma	1986
Illinois	1988	Oregon	1988
Indiana	1982	Pennsylvania	2004
Iowa	1990	Rhode Island	1986
Kansas	1981	South Carolina	1992
Kentucky	1990	South Dakota	1988
Louisiana	1981	Tennessee	2000
Maine	1987	Texas	2013
Maryland	1989	Utah	1989
Massachusetts		Vermont	1996
Michigan	1998	Virginia	1986
Minnesota	1980	Washington	1982
Mississippi	1990	West Virginia	1986
Missouri	1995	Wisconsin	2012
Montana	1985	Wyoming	2006
Nebraska	1988		

Notes: Blanks in the year columns indicate that the state had not adopted UTSA as of 2016, the last year in our sample. Sources: Png (2017) up to 1998 and states' legislature websites post 1998.

Table A2: Variable Definitions - Entry, Exit, Job Creation

Variable	Description	Source
Firm entry	# of firm entrants	BDS
Firm entry rate	# of firm entrants / Mean of total # of firms in current and previous year	BDS
Estab. entry	# of estab. entrants	BDS
Estab. entry rate	# of estab. entrants / Mean of total # of estab. in current and previous year	BDS
New firm estab. entry	# of estab. opened by new firms (i.e. startups)	BDS
New firm estab. entry rate	# of new firm estab. entry / Mean of the total # of estab. in current and previous year	BDS
Incumbent firm estab. entry	# of estab. opened by incumbent firms (firm age > 0)	BDS
Incumbent firm estab. entry rate	# of incumbent firm estab. entry / Mean of total # of estab. in current and previous year	BDS
Net job creation rate	(Job creation - Job destruction) / Mean of current and previous year's total employment	BDS
Gross job creation rate	Sum of all jobs created / Mean of current and previous year's total employment	BDS
Job creation rate, new estabs.	Job creation from estab. births / Mean of current and previous year's total employment	BDS
Firm exit rate	# of firm exits / Mean of total # of firms in current and previous year	BDS
Estab. exit rate	# of estab. exits / Mean of total # of estab. in the current and previous year	BDS

Variable Definitions - State and Industry Traits

Variable	Description	Source
Ln (GSP)	Natural logarithm of the real gross state product	BEA/BLS
Ln (wage)	Natural logarithm of the state's average wage rate	BEA
Ln (population)	Natural logarithm of the state's population	Census Bureau
Corporate tax rate	State's corporate tax rate	Office of Tax Policy Research
R&D tax credit	State level satutory R&D tax credit rate for the median tier of R&D spending	Wilson (2009)
R&D intensity	Industry mean of (Capital R&D compensation / Total output)	BEA/BLS
IP intensity	Industry mean of (Investment in intellectual property / Total output)	BEA/BLS
Trade secret intensity	Industry median of (Trade secret word count / Total word count) in 10-K reports	Authors' calculations
Patent citation intensity	Pre-UTSA state mean of (# of same-state citations received by patents granted in state s) / (Total # of patents granted in state s)	Authors' calculations
External finance dependence	Industry median of (Total capital expenditure - Cash flows from operations)/ (Total capital expenditure)	Compustat
Bank Herfindahl index	Sum of squared share of deposits of each bank in an MSA, averaged across all MSAs in a state, weighted by total deposits	FDIC
Banks per 1000 people	Number of banks per 1000 people in each state in a given year	FDIC

Table A3: Random Effects Parametric Hazard Model Explaining the Passage of the UTSA across U.S. States

	(1)	(2)	(3)	(4)
$Ln(Population_{st-1})$	-1.041	-0.874	-0.838	-0.842
	(0.313)	(0.301)	(0.305)	(0.304)
$Ln(GSP_{st-1})$	0.559	0.489	0.469	0.468
	(0.325)	(0.296)	(0.292)	(0.293)
$ManufacturingShare_{st-1}$	0.055	0.019	0.020	0.021
	(0.052)	(0.055)	(0.055)	(0.054)
$ProfServicesShare_{st-1}$	0.193	0.116	0.102	0.105
	(0.050)	(0.046)	(0.048)	(0.047)
$InformationShare_{st-1}$	-0.106	-0.166	-0.148	-0.150
	(0.260)	(0.258)	(0.263)	(0.262)
$NeighborUTSA_{st-1}$		0.900	0.889	0.895
		(0.229)	(0.227)	(0.227)
$Firmentryrate_{st-1}$			-0.020	
			(0.019)	
$Est.entryrate_{st-1}$				-0.018
				(0.018)
Observations	1,739	1,739	1,739	1,739
Number of states	47	47	47	47

Notes: This table provides evidence on the factors important in determining the timing of the passage of the UTSA across states. We employ a random effects parametric hazard (survival time) model estimated via maximum likelihood. The dependent variable is the hazard (per unit of time (year)) of a given state adopting the UTSA. ProfServices refers to the professional, scientific, and technical services sector. Robust standard errors are clustered at the state level and are reported in parentheses.

Table A4: Banking Deregulation and the UTSA

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. variable:	Firm entry rate				Total establishment entry rate			
$Interbanking_{st-1}$	0.222	0.158	-0.155	-0.219	0.360	0.288	0.021	-0.166
	(0.153)	(0.171)	(0.162)	(0.232)	(0.167)	(0.177)	(0.172)	(0.217)
$Interbranching_{st-1}$	-0.079				-0.057			
	(0.147)				(0.124)			
$UTSA_{st-1}$	-0.081	-0.192	-0.196	-0.312	-0.206	-0.333	-0.330	-0.389
	(0.162)	(0.202)	(0.163)	(0.184)	(0.149)	(0.205)	(0.189)	(0.183)
$UTSA_{st-1}Interbanking_{st-1}$		0.171	0.227	0.067		0.195	0.244	0.156
		(0.168)	(0.146)	(0.152)		(0.160)	(0.174)	(0.165)
$Neighbor\ UTSA_{st-1}$	-0.427	-0.430	-0.378	-0.624	-0.461	-0.465	-0.417	-0.532
	(0.160)	(0.159)	(0.147)	(0.171)	(0.161)	(0.159)	(0.155)	(0.174)
$Ln(GSP_{st-1})$			7.786	4.154			6.607	3.908
			(1.038)	(0.824)			(1.029)	(0.715)
$Ln(Wage_{st-1})$			-3.379	-1.855			-2.374	-1.277
			(2.557)	(1.651)			(2.500)	(1.370)
$Ln(Population_{st-1})$			-12.110	-3.640			-10.930	-3.824
			(1.795)	(1.208)			(2.224)	(0.964)
$Corporate\ tax_{st-1}$			-1.299	-2.646			-0.950	-3.253
			(6.657)	(3.368)			(5.831)	(3.149)
Observations	11,186	11,186	11,186	27,965	11,186	11,186	11,186	27,965
R-squared	0.676	0.676	0.682	0.732	0.700	0.700	0.704	0.708

Notes: All specifications include state effects, 2-digit NAICS industry specific time effects, and region specific time effects. The first six columns covers the 1979-1994 sample. The last two columns covers the 1979-2015 sample. Interbanking refers to the interstate banking deregulation and intrastate refers to the intrastate branching deregulation indicator variables that take on a value one the year a state adopts the particular deregulation and afterwards. Robust standard errors clustered at the state level are reported in parentheses.

Table A5: Robustness

	(1)	(2)	(3)	(4)
Dep. variable:	firm entry rate	estab. entry rate	firm entry rate	estab. entry rate
$UTSA_{st-1}$	-0.657	-0.905	-0.981	-0.889
	(0.237)	(0.400)	(0.497)	(0.426)
$Ln(GSP_{st-1})$	6.179	3.779	5.952	5.382
	(2.854)	(3.010)	(1.092)	(0.999)
$Ln(Wage_{st-1})$	-5.121	-4.638	-3.803	-2.208
	(2.703)	(2.403)	(2.883)	(2.815)
$Ln(Population_{st-1})$	-8.470	-6.455	-8.366	-8.427
	(0.988)	(2.150)	(3.187)	(3.327)
$Corporate\ tax_{st-1}$	-20.569	-14.035	-0.493	-1.402
	(10.853)	(10.909)	(3.862)	(3.771)
Observations	2,592	2,592	30,456	30,456
Under-identification test (p-value)			0.0653	0.0653
Over-identification test (p-value)			0.240	0.295

Notes: The first two columns estimate the specification only with CA, MA, NY, and NC. The last two columns reports results from the instrumental variables estimation for the full sample. All specifications include state effects, 2-digit NAICS industry specific time effects, and region specific time effects. Robust standard errors clustered at the state level are reported in parentheses.