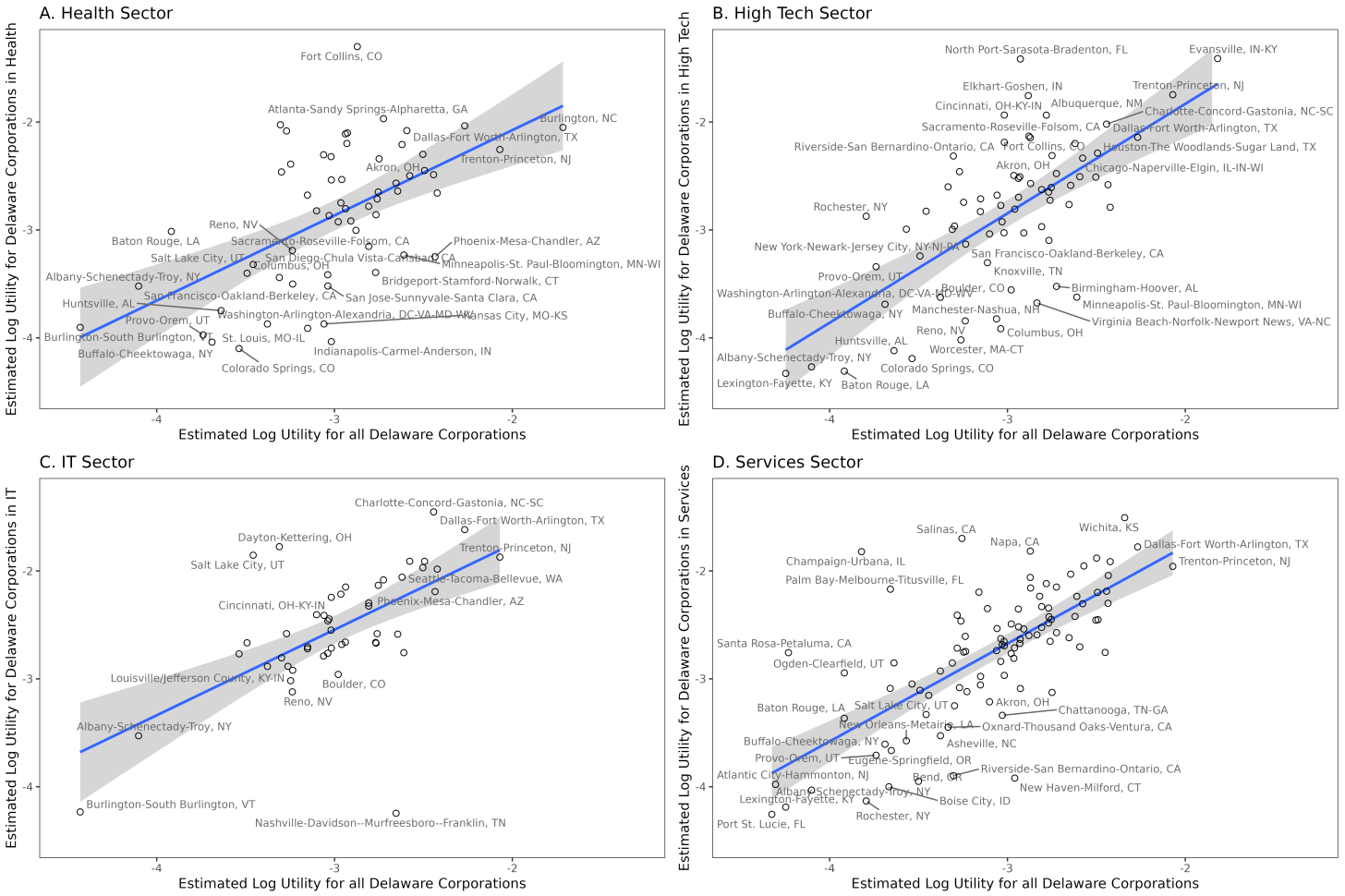
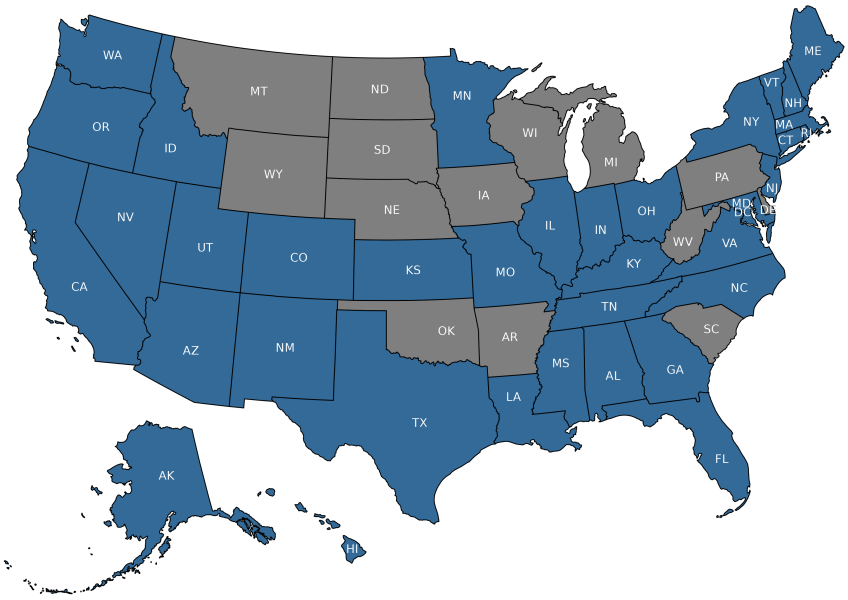
Online Appendix to Entrepreneurial Migration, Bryan and Guzman, Review of Economics and Statistics

Figure A1: Utility By Different Industries



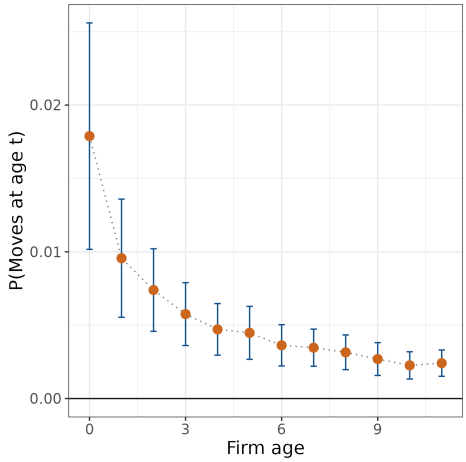
Notes: We report the relationship between the estimated utility of all migrant Delaware corporations, and the utility estimates using only Delaware corporations with a name associated to a specific sector. To extract firms associated to specific sectors, we replicate the measures used in Guzman and Stern (2020) who use a different dataset of firms with tagged industries and then look for words in the firm name that are overarchingly associated with each industry. We focus on four broad industry groups: Healthcare, High Tech, IT, and Services.

Figure A2: 36 Jurisdictions Included in Dataset (82% of US Population)



*Notes:*This map represents the states whose business registrations are included in our data. Grey states are not included in our data.

Figure A3: Migration Rate by Age



This figure reports the average unconditional probability of moving by age for startups. Most startups move early, but many also do not survive to be considered in the later periods.

Table A1: Estimated Utility for Large US Cities Based on LLCs (Population over 1 million in 2010).

Log Utility	CBSA	CBSA Name	LLC Moves In	LLC Moves Out	2010 Pop.	LLC Rank	Log Utility LLC
-2.607	27260	Jacksonville, FL	49	19	1,345,596	1	-1.76
-2.793	41740	San Diego-Chula Vista-Carlsbad, CA	217	77	3,095,313	2	-1.817
-2.896	40900	Sacramento-Roseville-Folsom, CA	38	15	2,149,127	3	-1.885
-2.793	45300	Tampa-St. Petersburg-Clearwater, FL	88	42	2,783,243	4	-1.959
-3.28	40140	Riverside-San Bernardino-Ontario, CA	23	10	4,224,851	5	-1.965
-2.639	25540	Hartford-East Hartford-Middletown, CT	29	15	1,212,381	6	-2.012
-3.014	31080	Los Angeles-Long Beach-Anaheim, CA	663	374	12,828,837	7	-2.227
-2.4	12420	Austin-Round Rock-Georgetown, TX	96	74	1,716,289	8	-2.302
-2.384	38060	Phoenix-Mesa-Chandler, AZ	47	32	4,192,887	9	-2.309
-2.612	34980	Nashville-Davidson–Murfreesboro–Franklin, TN	86	61	1,670,890	10	-2.334
-2.552	16980	Chicago-Naperville-Elgin, IL-IN-WI	341	261	9,461,105	11	-2.365
-2.926	33100	Miami-Fort Lauderdale-Pompano Beach, FL	339	239	5,564,635	12	-2.366
-3.216	41860	San Francisco-Oakland-Berkeley, CA	242	154	4,335,391	13	-2.374
-2.739	39580	Raleigh-Cary, NC	33	24	1,130,490	14	-2.383
-3.049	41940	San Jose-Sunnyvale-Santa Clara, CA	53	35	1,836,911	15	-2.392
-2.245	19100	Dallas-Fort Worth-Arlington, TX	324	241	6,426,214	16	-2.404
-2.472	26420	Houston-The Woodlands-Sugar Land, TX	282	184	5,920,416	17	-2.407
-2.587	33460	Minneapolis-St. Paul-Bloomington, MN-WI	82	65	3,348,859	18	-2.437
-3.144	41180	St. Louis, MO-IL	8	9	2,787,701	19	-2.437
-2.947	36740	Orlando-Kissimmee-Sanford, FL	73	58	2,134,411	20	-2.472
-3.275	39300	Providence-Warwick, RI-MA	23	21	1,600,852	21	-2.521
-2.867	32820	Memphis, TN-MS-AR	43	41	1,324,829	22	-2.554
-2.735	40060	Richmond, VA	22	23	1,208,101	23	-2.691
-3.137	14460	Boston-Cambridge-Newton, MA-NH	253	253	4,552,402	24	-2.696
-2.582	41700	San Antonio-New Braunfels, TX	25	20	2,142,508	25	-2.699
-2.708	12060	Atlanta-Sandy Springs-Alpharetta, GA	217	239	5,286,728	26	-2.795
-3.002	26900	Indianapolis-Carmel-Anderson, IN	31	47	1,887,877	27	-2.842
-3.359	47900	Washington-Arlington-Alexandria, DC-VA-MD-WV	140	181	5,636,232	28	-2.878
-2.436	16740	Charlotte-Concord-Gastonia, NC-SC	65	83	2,217,012	29	-2.943
-2.757	19740	Denver-Aurora-Lakewood, CO	114	177	2,543,482	30	-2.966
-3.093	17460	Cleveland-Elyria, OH	39	50	2,077,240	31	-2.972
-2.503	42660	Seattle-Tacoma-Bellevue, WA	43	76	3,439,809	32	-3.13
-2.77	13820	Birmingham-Hoover, AL	36	51	1,128,047	33	-3.131
-3.841	40380	Rochester, NY	2	4	1,079,671	34	-3.136
-2.82	47260	Virginia Beach-Norfolk-Newport News, VA-NC	9	16	1,676,822	35	-3.171
-2.987	17140	Cincinnati, OH-KY-IN	24	43	2,114,580	36	-3.281
-3.248	38900	Portland-Vancouver-Hillsboro, OR-WA	46	100	2,226,009	37	-3.324
-2.991	18140	Columbus, OH	27	42	1,901,974	38	-3.345
-2.898	29820	Las Vegas-Henderson-Paradise, NV	33	78	1,951,269	39	-3.41
-3.462	41620	Salt Lake City, UT	22	47	1,087,873	40	-3.418
-3.236	31140	Louisville/Jefferson County, KY-IN	21	45	1,235,708	41	-3.47
-3.462	35620	New York-Newark-Jersey City, NY-NJ-PA	263	731	19,567,410	42	-3.557
-3.051	28140	Kansas City, MO-KS	18	36	2,009,342	43	-3.614
-3.656	15380	Buffalo-Cheektowaga, NY	1	4	1,135,509	44	-3.755
-3.559	35380	New Orleans-Metairie, LA	14	66	1,189,866	45	-3.941

Table A2: Estimated Utility. Full List.

Log Utility	Rank	CBSA	CBSA Name	Moves In	Moves Out	2010 Pop.	LLC Rank	Log Utility LLC
-1.065	1	37900	Peoria, IL	12	2	379,186	NA	
-1.33	2	13980	Blacksburg-Christiansburg, VA	7	1	178,237	NA	
-1.444	3	13140	Beaumont-Port Arthur, TX	5	1	403,190	NA	
-1.546	4	39460	Punta Gorda, FL	4	1	159,978	NA	
-1.605	5	47380	Waco, TX	4	1	252,772	NA	
-1.705	6	15500	Burlington, NC	13	4	151,131	NA	
-1.784	7	21780	Evansville, IN-KY	12	5	311,552	122	-5.063
-1.807	8	40220	Roanoke, VA	8	3	308,707	NA	
-2.045	9	15940	Canton-Massillon, OH	7	3	404,422	NA	
-2.14	10	44420	Staunton, VA	2	2	118,502	NA	
-2.144	11	25860	Hickory-Lenoir-Morganton, NC	7	3	365,497	NA	
-2.153	12	27740	Johnson City, TN	6	2	198,716	NA	
-2.172	13	49180	Winston-Salem, NC	12	6	640,595	108	-3.693
-2.175	14	24540	Greeley, CO	4	2	252,825	NA	
-2.2	15	15260	Brunswick, GA	4	1	112,370	29	-2.33
-2.21	16	34940	Naples-Marco Island, FL	11	5	321,520	25	-2.304
-2.221	17	46060	Tucson, AZ	13	6	980,263	NA	
-2.241	18	20020	Dothan, AL	6	3	145,639	NA	
-2.245	19	19100	Dallas-Fort Worth-Arlington, TX	453	215	6,426,214	39	-2.404
-2.322	20	48620	Wichita, KS	19	10	630,919	23	-2.299
-2.349	21	33740	Monroe, LA	5	3	176,441	96	-3.438
-2.353	22	23540	Gainesville, FL	9	4	264,275	52	-2.614
-2.384	23	38060	Phoenix-Mesa-Chandler, AZ	94	53	4,192,887	27	-2.309
-2.4	24	12420	Austin-Round Rock-Georgetown, TX	166	88	1,716,289	24	-2.302
-2.403	25	42340	Savannah, GA	10	6	347,611	86	-3.297
-2.41	26	37860	Pensacola-Ferry Pass-Brent, FL	5	6	448,991	8	-1.856
-2.411	27	19300	Daphne-Fairhope-Foley, AL	3	2	182,265	NA	
-2.436	28	16740	Charlotte-Concord-Gastonia, NC-SC	108	63	2,217,012	69	-2.943
-2.441	29	19340	Davenport-Moline-Rock Island, IA-IL	1	3	379,690	NA	
-2.46	30	45820	Topeka, KS	8	4	233,870	12	-1.981
-2.472	31	26420	Houston-The Woodlands-Sugar Land, TX	376	205	5,920,416	40	-2.407
-2.476	32	42100	Santa Cruz-Watsonville, CA	9	6	262,382	NA	
-2.483	33	15980	Cape Coral-Fort Myers, FL	21	12	618,754	17	-2.224
-2.503	34	42660	Seattle-Tacoma-Bellevue, WA	145	86	3,439,809	76	-3.13
-2.542	35	33860	Montgomery, AL	12	8	374,536	53	-2.65
-2.552	36	16980	Chicago-Naperville-Elgin, IL-IN-WI	471	311	9,461,105	34	-2.365
-2.568	37	31340	Lynchburg, VA	4	3	252,634	NA	
-2.582	38	41700	San Antonio-New Braunfels, TX	45	26	2,142,508	56	-2.699
-2.587	39	33660	Mobile, AL	7	6	412,992	114	-3.844
-2.587	40	33460	Minneapolis-St. Paul-Bloomington, MN-WI	90	59	3,348,859	41	-2.437
-2.607	41	27260	Jacksonville, FL	48	35	1,345,596	4	-1.76
-2.612	42	34980	Nashville-Davidson–Murfreesboro–Franklin, TN	96	72	1,670,890	30	-2.334
-2.62	43	12700	Barnstable Town, MA	11	9	215,888	123	-5.063
-2.639	44	35980	Norwich-New London, CT	6	4	274,055	NA	
-2.639	45	25540	Hartford-East Hartford-Middletown, CT	89	63	1,212,381	15	-2.012
-2.644	46	18880	Crestview-Fort Walton Beach-Destin, FL	5	3	235,865	26	-2.307
-2.644	47	27620	Jefferson City, MO	4	4	149,807	13	-1.983
-2.648	48	12020	Athens-Clarke County, GA	3	1	192,541	NA	
-2.676	49	36100	Ocala, FL	3	2	331,298	NA	
-2.702	50	41100	St. George, UT	3	2	138,115	NA	
-2.708	51	12060	Atlanta-Sandy Springs-Alpharetta, GA	363	286	5,286,728	62	-2.795
-2.72	52	44700	Stockton, CA	3	3	685,306	NA	
-2.735	53	40060	Richmond, VA	26	19	1,208,101	54	-2.691
-2.739	54	39580	Raleigh-Cary, NC	98	77	1,130,490	37	-2.383
-2.746	55	42200	Santa Maria-Santa Barbara, CA	11	12	423,895	20	-2.265
-2.753	56	10420	Akron, OH	22	17	703,200	61	-2.791
-2.757	57	19740	Denver-Aurora-Lakewood, CO	237	191	2,543,482	70	-2.966
-2.758	58	14860	Bridgeport-Stamford-Norwalk, CT	242	174	916,829	14	-2.01
-2.765	59	40420	Rockford, IL	4	4	349,431	NA	
-2.766	60	10740	Albuquerque, NM	51	42	887,077	110	-3.715
-2.77	61	13820	Birmingham-Hoover, AL	51	42	1,128,047	77	-3.131
-2.778	62	18580	Corpus Christi, TX	3	2	428,185	NA	
-2.793	63	45300	Tampa-St. Petersburg-Clearwater, FL	95	78	2,783,243	10	-1.959
-2.793	64	41740	San Diego-Chula Vista-Carlsbad, CA	153	134	3,095,313	6	-1.817
-2.804	65	22180	Fayetteville, NC	4	3	366,383	NA	
-2.804	66	21340	El Paso, TX	6	4	804,123	31	-2.344
-2.82	67	47260	Virginia Beach-Norfolk-Newport News, VA-NC	19	16	1,676,822	80	-3.171
-2.847	68	22660	Fort Collins, CO	8	6	299,630	63	-2.814
-2.85	69	44060	Spokane-Spokane Valley, WA	4	2	527,753	57	-2.746
-2.866	70	43780	South Bend-Mishawaka, IN-MI	5	4	319,224	58	-2.749
-2.867	71	32820	Memphis, TN-MS-AR	35	35	1,324,829	50	-2.554
-2.869	72	34900	Napa, CA	7	8	136,484	1	-1.549
-2.87	73	24660	Greensboro-High Point, NC	26	22	723,801	73	-3.07
-2.873	74	12540	Bakersfield, CA	4	3	839,631	NA	
-2.875	75	31420	Macon-Bibb County, GA	2	3	232,293	NA	
-2.891	76	21140	Elkhart-Goshen, IN	5	6	197,559	NA	
-2.896	77	40900	Sacramento-Roseville-Folsom, CA	32	28	2,149,127	9	-1.885
-2.898	78	29820	Las Vegas-Henderson-Paradise, NV	62	56	1,951,269	92	-3.41
-2.907	79	35840	North Port-Sarasota-Bradenton, FL	28	20	702,281	16	-2.145
-2.917	80	40580	Rocky Mount, NC	3	4	152,392	NA	
-2.917	81	29740	Las Cruces, NM	4	4	209,233	NA	
-2.921	82	44140	Springfield, MA	11	11	621,570	22	-2.296
-2.926	83	33100	Miami-Fort Lauderdale-Pompano Beach, FL	349	314	5,564,635	35	-2.366
-2.936	84	20500	Durham-Chapel Hill, NC	55	52	504,357	49	-2.55
-2.947	85	36740	Orlando-Kissimmee-Sanford, FL	75	68	2,134,411	43	-2.472

-2.949	86	35300	New Haven-Milford, CT	37	33	862,477	59	-2.776
-2.957	87	45780	Toledo, OH	12	9	610,001	91	-3.377
-2.96	88	14500	Boulder, CO	82	79	294,567	60	-2.785
-2.973	89	45220	Tallahassee, FL	6	6	367,413	19	-2.257
-2.987	90	17140	Cincinnati, OH-KY-IN	52	55	2,114,580	85	-3.281
-2.988	91	37460	Panama City, FL	2	2	184,715	NA	
-2.99	92	16860	Chattanooga, TN-GA	14	14	528,143	95	-3.418
-2.991	93	18140	Columbus, OH	52	49	1,901,974	88	-3.345
-3.002	94	26900	Indianapolis-Carmel-Anderson, IN	47	49	1,887,877	64	-2.842
-3.01	95	38340	Pittsfield, MA	2	3	131,219	7	-1.847
-3.014	96	31080	Los Angeles-Long Beach-Anaheim, CA	507	544	12,828,837	18	-2.227
-3.025	97	31700	Manchester-Nashua, NH	32	31	400,721	109	-3.7
-3.049	98	41940	San Jose-Sunnyvale-Santa Clara, CA	213	238	1,836,911	38	-2.392
-3.051	99	28140	Kansas City, MO-KS	74	78	2,009,342	104	-3.614
-3.074	100	14740	Bremerton-Silverdale-Port Orchard, WA	3	3	251,133	NA	
-3.074	101	28940	Knoxville, TN	17	20	837,571	33	-2.365
-3.084	102	49660	Youngstown-Warren-Boardman, OH-PA	4	4	565,773	105	-3.655
-3.086	103	28700	Kingsport-Bristol, TN-VA	3	4	309,544	NA	
-3.093	104	17460	Cleveland-Elyria, OH	45	52	2,077,240	71	-2.972
-3.12	105	30340	Lewiston-Auburn, ME	3	3	107,702	NA	
-3.125	106	38860	Portland-South Portland, ME	22	25	514,098	74	-3.084
-3.137	107	14460	Boston-Cambridge-Newton, MA-NH	487	548	4,552,402	55	-2.696
-3.141	108	29180	Lafayette, LA	10	18	466,750	107	-3.69
-3.144	109	41180	St. Louis, MO-IL	80	90	2,787,701	42	-2.437
-3.155	110	13780	Binghamton, NY	2	2	251,725	NA	
-3.173	111	44100	Springfield, IL	3	3	210,170	NA	
-3.203	112	29460	Lakeland-Winter Haven, FL	5	5	602,095	66	-2.902
-3.212	113	19430	Dayton-Kettering, OH	9	15	799,232	113	-3.769
-3.212	114	39900	Reno, NV	17	19	425,417	100	-3.504
-3.216	115	41860	San Francisco-Oakland-Berkeley, CA	336	433	4,335,391	36	-2.374
-3.228	116	41500	Salinas, CA	4	8	415,057	NA	
-3.236	117	31140	Louisville/Jefferson County, KY-IN	43	58	1,235,708	98	-3.47
-3.243	118	19660	Deltona-Daytona Beach-Ormond Beach, FL	10	10	590,289	21	-2.272
-3.248	119	38900	Portland-Vancouver-Hillsboro, OR-WA	100	134	2,226,009	87	-3.324
-3.253	120	25060	Gulfport-Biloxi, MS	7	11	370,702	84	-3.232
-3.264	121	49340	Worcester, MA-CT	23	28	916,980	32	-2.359
-3.274	122	16820	Charlottesville, VA	7	7	218,705	103	-3.61
-3.275	123	39300	Providence-Warwick, RI-MA	12	14	1,600,852	47	-2.521
-3.28	124	40140	Riverside-San Bernardino-Ontario, CA	27	38	4,224,851	11	-1.965
-3.294	125	14540	Bowling Green, KY	3	6	158,599	72	-3.007
-3.333	126	26380	Houma-Thibodaux, LA	2	3	208,178	124	-5.063
-3.338	127	37100	Oxnard-Thousand Oaks-Ventura, CA	13	19	823,318	68	-2.935
-3.357	128	11700	Asheville, NC	7	10	424,858	28	-2.313
-3.359	129	47900	Washington-Arlington-Alexandria, DC-VA-MD-WV	257	362	5,636,232	65	-2.878
-3.364	130	31740	Manhattan, KS	2	4	92,719	NA	
-3.37	131	42680	Sebastian-Vero Beach, FL	3	5	138,028	3	-1.622
-3.428	132	46520	Urban Honolulu, HI	16	26	953,207	111	-3.751
-3.431	133	17980	Columbus, GA-AL	2	3	294,865	125	-5.063
-3.462	134	35620	New York-Newark-Jersey City, NY-NJ-PA	615	1038	19,567,410	101	-3.557
-3.462	135	41620	Salt Lake City, UT	52	72	1,087,873	94	-3.418
-3.478	136	13460	Bend, OR	5	8	157,733	106	-3.668
-3.481	137	24420	Grants Pass, OR	2	3	82,713	NA	
-3.512	138	17820	Colorado Springs, CO	16	27	645,613	121	-4.644
-3.526	139	19460	Decatur, AL	2	3	153,829	NA	
-3.559	140	35380	New Orleans-Metairie, LA	35	63	1,189,866	117	-3.941
-3.623	141	21660	Eugene-Springfield, OR	7	10	351,715	81	-3.213
-3.624	142	27140	Jackson, MS	13	28	567,122	102	-3.601
-3.631	143	14020	Bloomington, IN	3	3	159,549	NA	
-3.632	144	26580	Huntington-Ashland, WV-KY-OH	2	4	364,908	NA	
-3.639	145	45060	Syracuse, NY	2	3	662,577	NA	
-3.642	146	26620	Huntsville, AL	9	19	417,593	97	-3.462
-3.652	147	14260	Boise City, ID	18	33	616,561	46	-2.51
-3.656	148	15380	Buffalo-Cheektowaga, NY	11	19	1,135,509	112	-3.755
-3.659	149	42020	San Luis Obispo-Paso Robles, CA	3	5	269,637	2	-1.556
-3.665	150	37340	Palm Bay-Melbourne-Titusville, FL	10	15	543,376	48	-2.524
-3.669	151	44180	Springfield, MO	4	5	436,712	NA	
-3.732	152	39340	Provo-Orem, UT	22	43	526,810	93	-3.416
-3.767	153	32780	Medford, OR	3	4	203,206	NA	
-3.781	154	12260	Augusta-Richmond County, GA-SC	2	4	564,873	NA	
-3.799	155	16580	Champaign-Urbana, IL	3	9	231,891	NA	
-3.841	156	40380	Rochester, NY	5	11	1,079,671	78	-3.136
-3.843	157	33260	Midland, TX	2	3	141,671	126	-5.063
-3.856	158	17660	Coeur d'Alene, ID	2	6	138,494	5	-1.816
-3.902	159	12940	Baton Rouge, LA	9	25	802,484	120	-4.34
-3.905	160	36260	Ogden-Clearfield, UT	5	11	597,159	44	-2.49
-3.938	161	26140	Homosassa Springs, FL	2	2	141,236	NA	
-3.941	162	41420	Salem, OR	2	5	390,738	82	-3.215
-3.947	163	23060	Fort Wayne, IN	2	8	416,257	83	-3.225
-4.037	164	48900	Wilmington, NC	3	7	254,884	99	-3.498
-4.12	165	10580	Albany-Schenectady-Troy, NY	8	29	870,716	115	-3.86
-4.149	166	29940	Lawrence, KS	1	4	110,826	NA	
-4.203	167	12620	Bangor, ME	1	3	153,923	NA	
-4.216	168	42220	Santa Rosa-Petaluma, CA	3	12	483,878	45	-2.501
-4.225	169	30460	Lexington-Fayette, KY	10	34	472,099	90	-3.372
-4.228	170	23580	Gainesville, GA	1	4	179,684	NA	
-4.297	171	38940	Port St. Lucie, FL	3	13	424,107	67	-2.926
-4.359	172	15540	Burlington-South Burlington, VT	12	48	211,261	79	-3.155
-4.487	173	17860	Columbia, MO	1	5	162,642	NA	
-4.522	174	29200	Lafayette-West Lafayette, IN	1	5	201,789	NA	

-4.696	175	25620	Hattiesburg, MS	1	4	142,842	118	-4.083
-4.796	176	11260	Anchorage, AK	2	8	380,821	75	-3.088
-4.837	177	43340	Shreveport-Bossier City, LA	2	8	439,811	119	-4.116
-4.983	178	22140	Farmington, NM	1	4	130,044	NA	
-5.017	179	12100	Atlantic City-Hammonton, NJ	1	8	274,549	51	-2.575
-5.16	180	33700	Modesto, CA	1	6	514,453	NA	
-5.373	181	10540	Albany-Lebanon, OR	0	6	116,672	NA	
-5.373	182	23420	Fresno, CA	0	5	930,450	89	-3.357
-5.373	183	27060	Ithaca, NY	0	7	101,564	NA	
-5.373	184	27980	Kahului-Wailuku-Lahaina, HI	1	6	154,924	116	-3.891
-5.373	185	46220	Tuscaloosa, AL	0	4	230,162	NA	

Table A3: Number of new Delaware corporations and LLCs (firm births) by city.

CBSA	2010 Pop.	CBSA Name	Corporations	LLCs	Corps / Pop	LLCs / Pop
41940	1,836,911	San Jose-Sunnyvale-Santa Clara, CA	8,996	4,187	4.8974	2.2794
14860	916,829	Bridgeport-Stamford-Norwalk, CT	3,854	6,428	4.2036	7.0111
41860	4,335,391	San Francisco-Oakland-Berkeley, CA	16,580	18,748	3.8243	4.3244
14500	294,567	Boulder, CO	1,103	685	3.7445	2.3254
14460	4,552,402	Boston-Cambridge-Newton, MA-NH	12,685	15,571	2.7864	3.4204
20500	504,357	Durham-Chapel Hill, NC	1,055	587	2.0918	1.1639
31080	12,828,837	Los Angeles-Long Beach-Anaheim, CA	20,842	43,382	1.6246	3.3816
33100	5,564,635	Miami-Fort Lauderdale-Pompano Beach, FL	8,678	12,503	1.5595	2.2469
41740	3,095,313	San Diego-Chula Vista-Carlsbad, CA	4,793	8,445	1.5485	2.7283
12420	1,716,289	Austin-Round Rock-Georgetown, TX	2,380	3,431	1.3867	1.9991
47900	5,636,232	Washington-Arlington-Alexandria, DC-VA-MD-WV	7,603	5,278	1.349	0.9364
34900	136,484	Napa, CA	177	400	1.2969	2.9307
39580	1,130,490	Raleigh-Cary, NC	1,420	852	1.2561	0.7537
15540	211,261	Burlington-South Burlington, VT	262	143	1.2402	0.6769
42680	138,028	Sebastian-Vero Beach, FL	158	150	1.1447	1.0867
19740	2,543,482	Denver-Aurora-Lakewood, CO	2,711	3,478	1.0659	1.3674
42200	423,895	Santa Maria-Santa Barbara, CA	440	846	1.038	1.9958
12700	215,888	Barnstable Town, MA	220	294	1.019	1.3618
25540	1,212,381	Hartford-East Hartford-Middletown, CT	1,225	845	1.0104	0.697
42100	262,382	Santa Cruz-Watsonville, CA	260	111	0.9909	0.423
31700	400,721	Manchester-Nashua, NH	395	163	0.9857	0.4068
26420	5,920,416	Houston-The Woodlands-Sugar Land, TX	5,598	8,298	0.9455	1.4016
12060	5,286,728	Atlanta-Sandy Springs-Alpharetta, GA	4,928	5,139	0.9321	0.9721
35300	862,477	New Haven-Milford, CT	768	439	0.8905	0.509
19100	6,426,214	Dallas-Fort Worth-Arlington, TX	5,712	10,878	0.8889	1.6928
36740	2,134,411	Orlando-Kissimmee-Sanford, FL	1,884	2,868	0.8827	1.3437
35840	702,281	North Port-Sarasota-Bradenton, FL	610	647	0.8686	0.9213
41620	1,087,873	Salt Lake City, UT	904	947	0.831	0.8705
38340	131,219	Pittsfield, MA	107	193	0.8154	1.4708
16980	9,461,105	Chicago-Naperville-Elgin, IL-IN-WI	7,400	14,257	0.7821	1.5069
39340	526,810	Provo-Orem, UT	402	376	0.7631	0.7137
34940	321,520	Naples-Marco Island, FL	245	406	0.762	1.2628
45300	2,783,243	Tampa-St. Petersburg-Clearwater, FL	2,044	2,603	0.7344	0.9352
35620	19,567,410	New York-Newark-Jersey City, NY-NJ-PA	13,738	14,370	0.7021	0.7344
30460	472,099	Lexington-Fayette, KY	326	300	0.6905	0.6355
49340	916,980	Worcester, MA-CT	614	533	0.6696	0.5813
27260	1,345,596	Jacksonville, FL	861	993	0.6399	0.738
15980	618,754	Cape Coral-Fort Myers, FL	395	508	0.6384	0.821
42220	483,878	Santa Rosa-Petaluma, CA	308	425	0.6365	0.8783
26620	417,593	Huntsville, AL	265	260	0.6346	0.6226
37340	543,376	Palm Bay-Melbourne-Titusville, FL	340	277	0.6257	0.5098
13820	1,128,047	Birmingham-Hoover, AL	698	1,898	0.6188	1.6826
38940	424,107	Port St. Lucie, FL	262	259	0.6178	0.6107
16740	2,217,012	Charlotte-Concord-Gastonia, NC-SC	1,368	2,430	0.617	1.0961
37100	823,318	Oxnard-Thousand Oaks-Ventura, CA	486	461	0.5903	0.5599
34980	1,670,890	Nashville-Davidson–Murfreesboro–Franklin, TN	968	1,575	0.5793	0.9426
41500	415,057	Salinas, CA	227	299	0.5469	0.7204
10740	887,077	Albuquerque, NM	485	85	0.5467	0.0958
31140	1,235,708	Louisville/Jefferson County, KY-IN	670	795	0.5422	0.6434
38900	2,226,009	Portland-Vancouver-Hillsboro, OR-WA	1,202	1,383	0.54	0.6213
23540	264,275	Gainesville, FL	142	134	0.5373	0.507
17460	2,077,240	Cleveland-Elyria, OH	1,111	1,257	0.5348	0.6051
42660	3,439,809	Seattle-Tacoma-Bellevue, WA	1,831	1,285	0.5323	0.3736
18140	1,901,974	Columbus, OH	1,012	875	0.5321	0.46
28140	2,009,342	Kansas City, MO-KS	1,069	551	0.532	0.2742
10420	703,200	Akron, OH	374	211	0.5319	0.3001
12100	274,549	Atlantic City-Hammonton, NJ	145	169	0.5281	0.6156
40900	2,149,127	Sacramento-Roseville-Folsom, CA	1,133	1,445	0.5272	0.6724
21140	197,559	Elkhart-Goshen, IN	103	57	0.5214	0.2885
17820	645,613	Colorado Springs, CO	331	208	0.5127	0.3222
24660	723,801	Greensboro-High Point, NC	366	332	0.5057	0.4587
16820	218,705	Charlottesville, VA	109	236	0.4984	1.0791
17140	2,114,580	Cincinnati, OH-KY-IN	1,036	863	0.4899	0.4081
38860	514,098	Portland-South Portland, ME	249	298	0.4843	0.5797
44140	621,570	Springfield, MA	299	300	0.481	0.4826
35980	274,055	Norwich-New London, CT	131	86	0.478	0.3138
19660	590,289	Deltona-Daytona Beach-Ormond Beach, FL	282	333	0.4777	0.5641
16580	231,891	Champaign-Urbana, IL	109	65	0.47	0.2803
15500	151,131	Burlington, NC	71	23	0.4698	0.1522
33260	141,671	Midland, TX	66	225	0.4659	1.5882
42020	269,637	San Luis Obispo-Paso Robles, CA	124	222	0.4599	0.8233
18880	235,865	Crestview-Fort Walton Beach-Destin, FL	107	159	0.4536	0.6741
14540	158,599	Bowling Green, KY	71	82	0.4477	0.517
41180	2,787,701	St. Louis, MO-IL	1,242	239	0.4455	0.0857
48900	254,884	Wilmington, NC	110	91	0.4316	0.357
14260	616,561	Boise City, ID	256	278	0.4152	0.4509
35380	1,189,866	New Orleans-Metairie, LA	493	401	0.4143	0.337
22660	299,630	Fort Collins, CO	124	110	0.4138	0.3671
11700	424,858	Asheville, NC	161	110	0.379	0.2589
39900	425,417	Reno, NV	160	177	0.3761	0.4161
40580	152,392	Rocky Mount, NC	56	42	0.3675	0.2756
26900	1,887,877	Indianapolis-Carmel-Anderson, IN	693	713	0.3671	0.3777
15260	112,370	Brunswick, GA	41	33	0.3649	0.2937
32820	1,324,829	Memphis, TN-MS-AR	477	904	0.36	0.6824
16860	528,143	Chattanooga, TN-GA	189	286	0.3579	0.5415

27980	154,924	Kahului-Wailuku-Lahaina, HI	53	91	0.3421	0.5874
46520	953,207	Urban Honolulu, HI	326	537	0.342	0.5634
42340	347,611	Savannah, GA	116	91	0.3337	0.2618
29180	466,750	Lafayette, LA	155	90	0.3321	0.1928
20020	145,639	Dothan, AL	48	48	0.3296	0.3296
26140	141,236	Homosassa Springs, FL	46	53	0.3257	0.3753
45220	367,413	Tallahassee, FL	117	141	0.3184	0.3838
41700	2,142,508	San Antonio-New Braunfels, TX	682	750	0.3183	0.3501
40140	4,224,851	Riverside-San Bernardino-Ontario, CA	1,342	1,527	0.3176	0.3614
17860	162,642	Columbia, MO	51	6	0.3136	0.0369
39460	159,978	Punta Gorda, FL	50	35	0.3125	0.2188
17660	138,494	Coeur d'Alene, ID	43	38	0.3105	0.2744
21780	311,552	Evansville, IN-KY	96	75	0.3081	0.2407
33860	374,536	Montgomery, AL	115	314	0.307	0.8384
13460	157,733	Bend, OR	47	87	0.298	0.5516
19430	799,232	Dayton-Kettering, OH	237	164	0.2965	0.2052
29820	1,951,269	Las Vegas-Henderson-Paradise, NV	560	725	0.287	0.3716
45780	610,001	Toledo, OH	175	242	0.2869	0.3967
17980	294,865	Columbus, GA-AL	84	106	0.2849	0.3595
29460	602,095	Lakeland-Winter Haven, FL	171	175	0.284	0.2907
37860	448,991	Pensacola-Ferry Pass-Brent, FL	127	110	0.2829	0.245
33460	3,348,859	Minneapolis-St. Paul-Bloomington, MN-WI	942	3,250	0.2813	0.9705
33660	412,992	Mobile, AL	114	108	0.276	0.2615
36100	331,298	Ocala, FL	91	86	0.2747	0.2596
33700	514,453	Modesto, CA	141	118	0.2741	0.2294
19300	182,265	Daphne-Fairhope-Foley, AL	49	50	0.2688	0.2743
41100	138,115	St. George, UT	37	31	0.2679	0.2245
27620	149,807	Jefferson City, MO	40	38	0.267	0.2537
37460	184,715	Panama City, FL	49	54	0.2653	0.2923
28940	837,571	Knoxville, TN	215	261	0.2567	0.3116
49180	640,595	Winston-Salem, NC	164	125	0.256	0.1951
40060	1,208,101	Richmond, VA	308	570	0.2549	0.4718
40420	349,431	Rockford, IL	89	74	0.2547	0.2118
27140	567,122	Jackson, MS	144	142	0.2539	0.2504
43780	319,224	South Bend-Mishawaka, IN-MI	81	59	0.2537	0.1848
44100	210,170	Springfield, IL	53	47	0.2522	0.2236
48620	630,919	Wichita, KS	151	120	0.2393	0.1902
27740	198,716	Johnson City, TN	47	42	0.2365	0.2114
23580	179,684	Gainesville, GA	42	37	0.2337	0.2059
36260	597,159	Ogden-Clearfield, UT	138	145	0.2311	0.2428
45820	233,870	Topeka, KS	54	308	0.2309	1.317
12620	153,923	Bangor, ME	35	28	0.2274	0.1819
37900	379,186	Peoria, IL	86	55	0.2268	0.145
39300	1,600,852	Providence-Warwick, RI-MA	361	405	0.2255	0.253
29200	201,789	Lafayette-West Lafayette, IN	45	40	0.223	0.1982
32780	203,206	Medford, OR	45	48	0.2215	0.2362
29740	209,233	Las Cruces, NM	46	12	0.2199	0.0574
38060	4,192,887	Phoenix-Mesa-Chandler, AZ	920	882	0.2194	0.2104
12940	802,484	Baton Rouge, LA	175	163	0.2181	0.2031
29940	110,826	Lawrence, KS	24	11	0.2166	0.0993
30340	107,702	Lewiston-Auburn, ME	23	20	0.2136	0.1857
14020	159,549	Bloomington, IN	34	40	0.2131	0.2507
21660	351,715	Eugene-Springfield, OR	72	104	0.2047	0.2957
40220	308,707	Roanoke, VA	63	33	0.2041	0.1069
14740	251,133	Bremerton-Silverdale-Port Orchard, WA	51	31	0.2031	0.1234
44420	118,502	Staunton, VA	24	12	0.2025	0.1013
23060	416,257	Fort Wayne, IN	84	122	0.2018	0.2931
22180	366,383	Fayetteville, NC	73	54	0.1992	0.1474
31420	232,293	Macon-Bibb County, GA	46	42	0.198	0.1808
12020	192,541	Athens-Clarke County, GA	37	42	0.1922	0.2181
22140	130,044	Farmington, NM	25	3	0.1922	0.0231
10540	116,672	Albany-Lebanon, OR	22	27	0.1886	0.2314
10580	870,716	Albany-Schenectady-Troy, NY	160	266	0.1838	0.3055
44180	436,712	Springfield, MO	80	16	0.1832	0.0366
33740	176,441	Monroe, LA	32	20	0.1814	0.1134
15940	404,422	Canton-Massillon, OH	72	50	0.178	0.1236
19460	153,829	Decatur, AL	27	25	0.1755	0.1625
31340	252,634	Lynchburg, VA	44	23	0.1742	0.091
23420	930,450	Fresno, CA	159	274	0.1709	0.2945
13980	178,237	Blacksburg-Christiansburg, VA	30	10	0.1683	0.0561
28700	309,544	Kingsport-Bristol, TN-VA	52	53	0.168	0.1712
25860	365,497	Hickory-Lenoir-Morganton, NC	60	69	0.1642	0.1888
31740	92,719	Manhattan, KS	15	2	0.1618	0.0216
12540	839,631	Bakersfield, CA	134	140	0.1596	0.1667
44060	527,753	Spokane-Spokane Valley, WA	83	57	0.1573	0.108
47260	1,676,822	Virginia Beach-Norfolk-Newport News, VA-NC	260	349	0.1551	0.2081
44700	685,306	Stockton, CA	106	170	0.1547	0.2481
43340	439,811	Shreveport-Bossier City, LA	67	76	0.1523	0.1728
25060	370,702	Gulfport-Biloxi, MS	56	37	0.1511	0.0998
24540	252,825	Greeley, CO	38	31	0.1503	0.1226
49660	565,773	Youngstown-Warren-Boardman, OH-PA	80	47	0.1414	0.0831
25620	142,842	Hattiesburg, MS	20	30	0.14	0.21
24420	82,713	Grants Pass, OR	11	14	0.133	0.1693
12260	564,873	Augusta-Richmond County, GA-SC	75	42	0.1328	0.0744
46220	230,162	Tuscaloosa, AL	30	59	0.1303	0.2563
26380	208,178	Houma-Thibodaux, LA	27	19	0.1297	0.0913
26580	364,908	Huntington-Ashland, WV-KY-OH	45	30	0.1233	0.0822
47380	252,772	Waco, TX	31	39	0.1226	0.1543
15380	1,135,509	Buffalo-Cheektowaga, NY	130	46	0.1145	0.0405

18580	428,185	Corpus Christi, TX	49	49	0.1144	0.1144
21340	804,123	El Paso, TX	92	226	0.1144	0.2811
46060	980,263	Tucson, AZ	112	92	0.1143	0.0939
19340	379,690	Davenport-Moline-Rock Island, IA-IL	43	42	0.1133	0.1106
41420	390,738	Salem, OR	38	56	0.0973	0.1433
13780	251,725	Binghamton, NY	21	3	0.0834	0.0119
13140	403,190	Beaumont-Port Arthur, TX	29	25	0.0719	0.062
11260	380,821	Anchorage, AK	23	79	0.0604	0.2074
40380	1,079,671	Rochester, NY	59	42	0.0546	0.0389
45060	662,577	Syracuse, NY	26	26	0.0392	0.0392
27060	101,564	Ithaca, NY	3	6	0.0295	0.0591

Table A4: Estimated Utility Before and After 2001

CBSA	CBSA Name	Rank 1988-2001	Log Utility 1988-2001	Rank 2002-2015	Log Utility 2002-2015	2010 Pop.
33460	Minneapolis-St. Paul-Bloomington, MN-WI	1	-1.9262	36	-3.0842	3,348,859
38060	Phoenix-Mesa-Chandler, AZ	2	-2.2819	10	-2.4936	4,192,887
19100	Dallas-Fort Worth-Arlington, TX	3	-2.3107	2	-2.269	6,426,214
26420	Houston-The Woodlands-Sugar Land, TX	4	-2.4337	17	-2.697	5,920,416
13820	Birmingham-Hoover, AL	5	-2.437	42	-3.3728	1,128,047
16740	Charlotte-Concord-Gastonia, NC-SC	6	-2.4726	5	-2.3897	2,217,012
27260	Jacksonville, FL	7	-2.5551	20	-2.7311	1,345,596
42660	Seattle-Tacoma-Bellevue, WA	8	-2.5588	7	-2.443	3,439,809
12420	Austin-Round Rock-Georgetown, TX	9	-2.5902	3	-2.2703	1,716,289
40060	Richmond, VA	10	-2.6473	23	-2.7795	1,208,101
16980	Chicago-Naperville-Elgin, IL-IN-WI	11	-2.6939	8	-2.4478	9,461,105
25540	Hartford-East Hartford-Middletown, CT	12	-2.7258	12	-2.5434	1,212,381
39580	Raleigh-Cary, NC	13	-2.741	25	-2.8148	1,130,490
19740	Denver-Aurora-Lakewood, CO	14	-2.7469	26	-2.8554	2,543,482
12060	Atlanta-Sandy Springs-Alpharetta, GA	15	-2.7548	19	-2.7289	5,286,728
34980	Nashville-Davidson–Murfreesboro–Franklin, TN	16	-2.7946	6	-2.4395	1,670,890
40900	Sacramento-Roseville-Folsom, CA	17	-2.8319	24	-2.8087	2,149,127
41700	San Antonio-New Braunfels, TX	18	-2.8731	1	-2.2407	2,142,508
45300	Tampa-St. Petersburg-Clearwater, FL	19	-2.8799	21	-2.7554	2,783,243
33100	Miami-Fort Lauderdale-Pompano Beach, FL	20	-2.8864	34	-3.0475	5,564,635
39300	Providence-Warwick, RI-MA	21	-2.9569	45	-3.5449	1,600,852
41940	San Jose-Sunnyvale-Santa Clara, CA	22	-3.0083	32	-3.0196	1,836,911
37980	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	23	-3.0425	29	-2.9675	5,965,343
41740	San Diego-Chula Vista-Carlsbad, CA	24	-3.0455	13	-2.5813	3,095,313
26900	Indianapolis-Carmel-Anderson, IN	25	-3.0854	39	-3.1449	1,887,877
36740	Orlando-Kissimmee-Sanford, FL	26	-3.1364	18	-2.7127	2,134,411
17460	Cleveland-Elyria, OH	27	-3.1628	40	-3.1828	2,077,240
14460	Boston-Cambridge-Newton, MA-NH	28	-3.1989	38	-3.1268	4,552,402
31080	Los Angeles-Long Beach-Anaheim, CA	29	-3.2004	28	-2.9034	12,828,837
28140	Kansas City, MO-KS	30	-3.2846	15	-2.6864	2,009,342
17140	Cincinnati, OH-KY-IN	31	-3.3161	16	-2.6879	2,114,580
47260	Virginia Beach-Norfolk-Newport News, VA-NC	32	-3.3195	9	-2.4791	1,676,822
32820	Memphis, TN-MS-AR	33	-3.3248	4	-2.3439	1,324,829
41180	St. Louis, MO-IL	34	-3.3349	27	-2.8741	2,787,701
47900	Washington-Arlington-Alexandria, DC-VA-MD-WV	35	-3.3666	43	-3.3733	5,636,232
18140	Columbus, OH	36	-3.3711	14	-2.6254	1,901,974
29820	Las Vegas-Henderson-Paradise, NV	37	-3.3853	11	-2.5171	1,951,269
41860	San Francisco-Oakland-Berkeley, CA	38	-3.4039	35	-3.0725	4,335,391
31140	Louisville/Jefferson County, KY-IN	39	-3.4439	33	-3.0238	1,235,708
38900	Portland-Vancouver-Hillsboro, OR-WA	40	-3.508	31	-2.9896	2,226,009
35620	New York-Newark-Jersey City, NY-NJ-PA	41	-3.5265	44	-3.4603	19,567,410
15380	Buffalo-Cheektowaga, NY	42	-3.5812	46	-4.6435	1,135,509
35380	New Orleans-Metairie, LA	43	-3.6426	41	-3.3637	1,189,866
41620	Salt Lake City, UT	44	-3.9013	30	-2.9786	1,087,873
40140	Riverside-San Bernardino-Ontario, CA	45	-3.9093	22	-2.7746	4,224,851
40380	Rochester, NY	46	-4.6001	37	-3.1016	1,079,671

Table A5: Summary Statistics of Firms Across Mover Age

Year of Migration	*Count*	*Corporation*	*Patent Application at Founding*	*Patent Assignment at Founding*	*Trademark at Founding*	*High Tech*	*Short Name*	*Eponymous*	*Patent Application in 6 Years*	*Patent Assignment in 6 Years*	*Trademark in 6 Years*	*Acquired*	*IPO*
Did not move	400645	0.427	0.029	0.022	0.016	0.066	0.469	0.074	0.47	0.617	0.068	0.013	0.002
1	6256	0.574	0.018	0.015	0.013	0.078	0.477	0.03	1.221	1.328	0.14	0.03	0.005
2	4296	0.609	0.026	0.02	0.018	0.085	0.528	0.035	1.328	1.554	0.161	0.038	0.009
3	2981	0.628	0.033	0.024	0.019	0.087	0.543	0.027	2.539	2.946	0.162	0.033	0.011
4	2124	0.636	0.039	0.028	0.018	0.099	0.532	0.027	1.541	2.014	0.198	0.041	0.011
5	1606	0.65	0.033	0.026	0.014	0.098	0.554	0.025	1.62	1.607	0.162	0.039	0.015
T-Tests													
Years 3-5 vs 1-2		-6.236***	-5.161***	-3.719***	-1.163	-2.915***	-5.69***	2.054**	-1.85*	-2.192**	-3.373***	-1.194	-3.427***
Years 1-5 vs Did not move		-47.343***	1.693*	1.009	0.112	-8.947***	-11.76***	32.447***	-6.092***	-6.484***	-25.38***	-15.764***	-9.699***

Table A6: Summary Statistics of Firms Hubs vs Non Hubs

category	*Count*	*Corporation*	*Patent Application at Founding*	*Patent Assignment at Founding*	*Trademark at Founding*	*High Tech*	*Short Name*	*Eponymous*
Born in Startup Hub	106073.00	0.48	0.05	0.03	0.02	0.08	0.53	0.08
Born outside Startup Hub	294572.00	0.41	0.02	0.02	0.01	0.06	0.45	0.07
Moved to Hub: 0-2	2060.00	0.66	0.04	0.03	0.02	0.09	0.57	0.03
Moved to Hub: 3-5	1248.00	0.69	0.05	0.04	0.02	0.12	0.60	0.02
Moved to Non Hub: 0-2	8492.00	0.57	0.02	0.01	0.01	0.08	0.48	0.03
Moved to Non Hub: 3-5	5463.00	0.62	0.03	0.02	0.02	0.09	0.53	0.03

Notes: Startup hubs are defined as the top 5 MSAs in the data in terms of venture capital: San Francisco-Oakland-Berkley, CA MSA; San Jose-Sunnyvale-Santa Clara, CA MSA; Boston-Cambridge-Newton, MA-NH MSA; Austin-Round Rock-Georgetown, TX MSA; and New York-Newark-Jersey City, NY-NJ-PA MSA.

Table A7: Corporate Taxes and Estimated City Utility

	Dependent variable:				
	Baseline		*Corporate Taxes*		
	City Entrepreneurship	City Utility	City Utility	City Utility	City Utility
	(1)	(2)	(3)	(4)	(5)
Corporate Income Taxes	20.543***	−5.606*	0.857	−1.570	4.892
	(4.734)	(2.987)	(3.496)	(4.029)	(3.269)
Corporate Income Taxes × Later Movers (Years 3-5)			−12.925**		−12.925***
			(4.440)		(3.801)
Personal Income Tax at 95th Percentile				−6.567**	−6.567**
				(3.202)	(2.193)
Observations	138	138	138	138	138
R^2	0.230	0.053	0.243	0.115	0.305

City utility is our estimated measure from the underlying graph of moves across cities in the United States. Corporate tax estimates are taken from Moretti and Wilson (2017), who estimate state-level taxes for all U.S. at different points of the income distribution. Robust standard errors in parenthesis. Significance denoted as *p<0.1; **p<0.05; ***p<0.01

Table A8: Predictors of City Utility : LLC data

	Dependent variable:							
	Baseline	**Nursery Cities**				**Income Taxes**		
	Migrant City Utility	City Entrepreneurship	*Migrant* City Utility	*Migrant* City Utility	City Entrepreneurship	City Entrepreneurship	*Migrant* City Utility	*Migrant* City Utility
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Growth Startups per Capita	0.359***							
	(0.079)							
Growth Startups per Capita × Later Movers (Years 3-5)	0.010							
	(0.128)							
Industry Concentration (HHI)		−0.087	−0.056					
		(0.054)	(0.051)					
Industry Concentration (HHI) × Later Movers (Years 3-5)			0.017					
			(0.076)					
Patenting per Capita		0.493***		0.094				
		(0.064)		(0.066)				
Patenting per Capita × Later Movers (Years 3-5)				0.198				
				(0.126)				
Personal Income Tax (95th)					5.136		−5.012*	
					(3.527)		(2.867)	
Personal Income Tax (95th) × Later Movers (Years 3-5)							−4.846	
							(6.466)	
Personal Income Tax (50th)						−9.569		−14.905***
						(5.893)		(4.230)
Personal Income Tax (50th) × Later Movers (Years 3-5)								−6.103
								(8.466)
Observations	118	118	118	118	118	118	118	118
R^2	0.289	0.399	0.140	0.207	0.019	0.030	0.181	0.258

OLS regression with city utility as the dependent variable. City utility is our estimated measure from the underlying graph of moves across cities in the United States. Columns 1-3 use the utility estimated through the moves of corporations registered under Delaware jurisdiction (but domiciled anywhere in the U.S.). Columns 4-6 use the utility estimated through the moves of LLCs registered under Delaware jurisdiction. Personal income tax estimates are taken from Moretti and Wilson (2017), who estimate state-level taxes for all U.S. at different points of the income distribution. Robust standard errors in parenthesis. Significance denoted as *p<0.1; **p<0.05; ***p<0.01

Table A9: Distance and migration rates. Dep. Var. log(migrants+1).

Model:	(1)	(2)	(3)
Variables			
Constant	-0.0333		
	(0.0348)		
Log10(Distance)	0.0087	-0.0003	-0.0115**
	(0.0060)	(0.0050)	(0.0057)
Fixed-effects			
Source CBSA FE		Yes	Yes
Dest CBSA FE			Yes
Fit statistics			
Observations	424,452	424,452	424,452
R^2	3.49×10^{-5}	0.03527	0.06494
Within R^2		2.91×10^{-8}	4.35×10^{-5}

Clustered (Source CBSA FE & Dest CBSA FE) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

The impact of distance on the migration counts across locations conditional on region fixed-effects is statistcally positive but not economically meaningful. The range of the Log10(Distance) variable is from 4.5 to 7. Going from the closest to the furthest pair only increases mgiration rates by 0.03%.

Table A10: Amenities: Do Local Amenties Correlate to Estimated City Utility?

	Corporations				LLCs			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Cooling Degree Days /1000	0.0203				-0.0352			
	(0.0958)				(0.0978)			
Heating Degree Days /1000	0.0350				-0.1502*			
	(0.0860)				(0.0811)			
Sunshine Percentage	0.5300				1.6837**			
	(0.8106)				(0.6494)			
Inverse Dist. from Water	0.0131				0.1701**			
	(0.0682)				(0.0781)			
Latitude	-0.0295				0.0531			
	(0.0373)				(0.0326)			
Average Home Value		-0.0714				0.2274**		
		(0.0690)				(0.0892)		
Quality of Life Index			-1.4970				3.0219*	
			(1.0807)				(1.5449)	
Bohemia				-0.4037				0.8907*
				(0.4042)				(0.5090)
Num.Obs.	185	185	185	185	126	126	126	126
Log.Lik.	-215.899	-218.685	-218.194	-218.567	-139.059	-142.924	-143.765	-144.640
F	0.838	1.070	1.919	0.998	4.260	6.499	3.826	3.062

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A11: Summary Statistics for Metropolitan Areas

Statistic	Mean	St. Dev.	N
Population	978,560.467	1,935,880.581	185
Log(HHI)	−24.272	2.353	184
Patents per Thousand Pop	0.006	0.009	185
Income Tax			
Income Tax at 50th Perc.	0.107	0.016	185
Income Tax at 95th Perc.	0.236	0.023	185
Startup Cartography Project			
Delaware Corporations	952.568	2,699.156	185
Delaware LLCs	1,238.449	4,181.380	185

Table A12: How Does the Estimated Quality of Movers that Leave and Arrive to a City Correlate?

	log(Avg. In Mover Quality)		
	log(move_in_quality)		
	(1)	(2)	(3)
log(Avg. Out Mover Quality)	0.412***	0.102	0.114
	(0.102)	(0.076)	(0.081)
Log(Delaware Startups Per Capita)		0.808***	0.840***
		(0.078)	(0.077)
Observations	182	182	182
R^2	0.103	0.468	0.489

OLS regression. Average quality estimated by replicating the measure of Guzman and Stern (2020) in the data. Specifically, for all non-movers born before 2012, we run a logit model with a binary measure of equity events as the dependent variable, and observables for whether a firm, close to founding and in its birth location, is a corporation, has a short name, is eponymous, has a patent, has a trademark, has both a patent and a trademark, and five industry characteristics based on firm name. Predictions from this model report an out of sample ROC score or 0.80. Estimated quality is the predicted out of sample probability of this model.We average this value for all movers in and out of a city, and firms born in a city that do not move. Robust standard errors in parenthesis. Column (3) is weighted by the total movers in or out of each city. Significance denoted as *p<0.1; **p<0.05; ***p<0.01

Appendix B
Data Appendix To: Entrepreneurial Migration

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1 Introduction

This appendix overviews the construction and development of the data in our paper *Entrepreneurial Migration*. The appendix is divided into four sections. First, we cover the conceptual goal and need for measuring entrepreneurial migration. Then, we outline the key challenges in doing so, particularly around firm heterogeneity, defining migration, and observability. Then, we explain the data — business registration records for Delaware registered companies — and the overall approach to constructing our dataset. We also review the key summary statistics of the full set of firms. Finally, we compare our data to other potential datasets. Abridged fragments of this appendix are also included in the main text.

2 Why Measure Migration of High Growth Startups?

The importance of understanding the role of location on startup performance has been of interest at least since Marshall (Marshall, 1890; Jacobs, 1970; Saxenian, 1994; Glaeser, Kerr, & Kerr, 2015). A growing literature documents a number of localized economic benefits for regions that have more startups,, the most important one being economic growth (Glaeser, Kerr, & Ponzetto, 2010). Over the last decade, an important formalization of

this relationship has emphasized that it is one group of startups in particular — high growth startups — that account for the bulk of this economic impact (Schoar, 2010; Guzman & Stern, 2020). High growth startups are firms that have a disproportionate likelihood of growth. In particular, a number of studies have documented that this growth intent is reflected in founding choices entrepreneurs take in the early stages of their business activities (Guzman & Stern, 2020).

In direct contrast to the importance of the location where firms locate is the possibility of migration. While most startups are born and develop in the city where their founders lived prior to founding (Michelacci & Silva, 2007), this pattern is not universal. Anecdotes abound of good entrepreneurs who chose to start a company in one location only to see it grow in a different one. For example, while Marc Andreesen had all the initial ideas and training for what would become Netscape at the University of Illinois Urbana-Champaign, he moved to California to build the company itself. Similarly, Bill Gates and Paul Allen wrote the original Microsoft programs while Gates was a student at Harvard, but they eventually grew the company in the Seattle area after an interlude in New Mexico. The impact of these entrepreneurial migrations on their destination regions has been substantial. A series of policies has emerged to motivate high talent entrepreneurs to move to a region with the goal of replicating some version of this story, the most notable of these being Startup Chile. Other policies, most notably in Israel, instead encourage entrepreneurs to 'move out' of their home region to a richer destination with the goal that the spillovers from future growth benefit back into the region (Conti & Guzman, 2023).

Yet, whether migration of high growth startups actually happens, and what are the characteristics that drive it, appear so far unexplored.

Understanding the economic phenomenon of entrepreneurial migration poses a number of both conceptual and measurement challenges. Migration has been studied substantially in economic theory (e.g. Roback) as a choice problem over some maximization function for either people or firms. Absent principal-agent issues, this maximization should be over the weighted utility of the equity-holders of the firm. Yet, because entrepreneurs also tend to be the managers, the maximization cannot simply be done on the role of location on in-

creasing firm value, but also on the utility costs for managers to relocate to one of these regions, independent of the startup. For example, relocating might require being away from loved ones, losing an additional personal income source (e.g. the income of a spouse), or simply living in a location that is not personally desirable. Furthermore, these same personal connections also constitute valuable local relationships, that in and of themselves are likely to impact firm performance.

To date, a series of studies has emerged understand the differences between personal connections and locational benefits as drivers to startup firm performance (Dahl & Sorenson, 2012; Michelacci & Silva, 2007; Guzman, 2023), as well as how changes in the 'appeal' of a city influence would-be migrants on their choice of hiring a manager or moving themselves (Kulchina, 2014). However, a systematic measurement of entrepreneurial migration for high growth startups does not yet exist, leaving many critical questions unanswered.

3 The Difficulty in Measuring Startup Migration

Measuring entrepreneurial migration itself represents a few unique challenges, including accounting for firm quality, observing firms in their original location, and observing the migration of the firms in a timely fashion. We review each in turn.

Accounting for firm quality in migration is particularly important. One reason is the growing sense of importance assessed in the literature to the significant heterogeneity in firm potential (Schoar, 2010; Guzman & Stern, 2020) – with a few 'high growth' firms accounting for the majority of the economic impact of entrepreneurship. Understanding the migration patterns of all firms might explain little about economic growth, while finding the few firms that do have the potential to grow might be much more informative. A second, equally important, reason is that the motivations for migration, or the behaviors that lead to them, might be different across the entrepreneurship of high growth and non high growth startups. Recent evidence finds ample variation on the personality of high growth entrepreneurs versus other types of actors (Kerr, Kerr, & Xu, 2017), and studies on the motivations of these shows that it is not only profit or productivity that defines

their choices (Guzman, Oh, & Sen, 2020). In short, a clear focus on measurement of high growth startups is critical to understand the phenomenon of entrepreneurial migration and its performance.

The remaining concerns reflect challenges in the observability of entrepreneurial migrations. Because some founders move before starting a company, while other migrants might become entrepreneurs only years after arriving in an entrepreneurial region (Saxenian, 2007), there is no obvious breakpoint on which to define a migration as 'entrepreneurial'. A different, narrower approach, and the one we focus on in this paper, focuses on simply studying the migration of newly born startups. The unique advantage of using this definition is that it circumvents vexing questions about how location influences the choice of entrepreneurial entry. That is, if individuals migrate before becoming entrepreneurs, would they have been entrepreneurs before migrating?

Finally, there remains a question of how to observe the changes in the location of firms. That is, restricting 'entrepreneurial migration' to mean a firm that moves its headquarters to a new location, the problem involves defining "firm", "headquarters", and tracking these moves in a consistent way. We take advantage of institutional details in the United States that allow this tracking.

4 Data

Our analysis is focused on the founding and geographic reallocation of companies registered under Delaware jurisdiction. These are not companies headquartered in Delaware — they are headquartered across the United States. Instead, being under Delaware jurisdiction reflects the fact that when a firm is founded it has the freedom to choose where to register.[1] This choice of jurisdiction is consequential to a large number of corporate legal aspects of the firm, including labor disputes, shareholder disputes, and the legality and enforceability of certain contracts. Since the early twentieth century, two broad choices of jurisdiction have emerged for new U.S. firms.

[1]This feature of multiple jurisdictions appears to be an unusual feature of the United States. In most other countries, corporate law is overarchingly similar across all regions of the country.

Most startups (about 96%) initially register under only the local jurisdiction of their own state. There are several benefits to registering in the local jurisdiction, including a simplicity in translating between corporate law and the local law, and the need to pay for only one registration. In general, being in the local jurisdiction is simply cheaper.

A few companies (most of the remaining 4%), however, choose instead to register under Delaware jurisdiction and then operate as a foreign (out of state) company in the state in which they are headquartered. This process is more expensive, as it requires more legal work to maintain both registrations, and the firms need to pay fees to both states. However, it also creates certain benefits that accrue particularly well to entrepreneurs that intend to scale the company. First, corporate law is mostly case-based in the United States, and Delaware is the state with the largest canon of corporate law. This means that precedent on the enforceability of different clauses and contracts has been tested and developed in detail. Venture capitalists, for example, are usually reluctant to extend contracts to firms in other jurisdictions due to the uncertainty of knowing whether and how a contract would hold. Second, Delaware Corporate Law is commonly taught in law schools nationwide. Finally, Delaware has a reputation for fairness in dealing with corporate disputes, through its specialized Court of the Chancery. Together, these benefits have become significant for many firms in the United States, and are particularly valuable for those firms that intend to be large. The additional costs of Delaware registration create a separating equilibrium of sorts: firms with high growth intention choose Delaware, while the rest choose the local law (Catalini, Guzman, & Stern, 2019). Accordingly, while Delaware represents less than 0.5% of the U.S. population, over half of all U.S. publicly listed firms are registered here. In empirical estimates, firms registered in Delaware at founding are over 45 times more likely to achieve an equity growth outcome (such as an IPO or acquisition) (Guzman & Stern, 2020).

We obtained data on all the Delaware jurisdiction firms registered between 1988 and 2014 in each of these states through the Startup Cartography Project (Fazio, Guzman, Liu, & Stern, 2022). The Startup Cartography Project (SCP) is a project focused on the measurement of firm formation through business registration across time and location.

The data included the name of each company, the registered address of the principal office, and the date in which it registered in each state. We also obtained all observables used in the SCP to measure entrepreneurial quality – an estimate of the founding potential of companies based on the predicted probability of growth based on founding characteristics.

To track the migration of Delaware firms in their location choices, we take advantage of unique institutional rules in state-level corporate laws, requiring firms to register in every state in which they engage in meaningful business activity.[2] These registrations are required to use exactly the same official firm name, down to the comma, in each state where they do business. Because firms register in a state only at the time of entering the state, we can use the registration date to assess when a firm expands location to another state. In most cases, this is a subsidiary expansion while the headquarters of the company remain in the home location. Yet, sometimes, it will represent (or will eventually become) an entrepreneurial migration — i.e. the relocation of the company headquarters.

Differentiating between these two modes of expansion is difficult as it would require a firm to state separately the location of the principal office and the location of the state-based office. Through a manual check of the information in each state, we identified 35 U.S. states, and the District of Columbia, in which the process of registration distinctly requires firms to separately document the local state office and the principal office through one of two modes: either requiring the primary corporate address explicitly in the registration form, or by requesting the address of the president, CEO, or main manager of the firm. In the latter case, we assume that if the majority of officers live in the same MSA, then the corporate headquarters is located in that MSA. These 36 jurisdictions form the basis of our analysis.[3]

Specifically, we use primary corporate addresses in most states. In AL, AZ, RI, MN, FL, GA, NM, firms often list their Delaware registration address or the address of a local

[2]Broadly, this occurs when a firm has hired employees in a state, opened a bank account, or is renting an office.

[3]Our states are Alaska, Alabama, Arizona, California, Colorado, Connecticut, DC, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Kansas, Kentucky, Louisiana, Massachusetts, Maine, Minnesota, Missouri, Mississippi, North Carolina, New Hampshire, New Jersey, Nevada, New York, Ohio, Oregon, Rhode Island, Tennessee, Texas, Utah, Virginia, Vermont, Washington, and West Virginia.

corporate agent as their "headquarters address". If a corporation is registered in Delaware, is in one of those states, and has Delaware as their headquarters or an agent address as their mailing address, we consider it headquartered in an MSA only if at least one director address is local. In Texas, many corporations use a lawyer address as their headquarters location. We therefore use the majority of director addresses to identify the MSA of the firm. In Maine, hand-checking shows that the "Additional Addresses" is most likely to include the actual firm address, hence we use that field rather than the business address field.

In all states, if the registered headquarters address has the name of a registering agent in the address field ("National Registered Agents", "CT Corporation", "Corporate Service Corporation", "The Corporation Trust", "Corporation Service Company", "c/o" or "Prentice Hall") or has a commonly-repeated address (generally a lawyer address), we only consider it local to that MSA if at least one director is in the state. Note that we still only consider the firm local if the agent or lawyer address is in the state in question, and the firm to have registered in that state.

Using this information, we matched the Delaware-registered companies across each state in our sample. To do this, we tracked the initial state registration date of each firm in each state, as well as the registered zip code (either of the "primary" company address, or the broader MSA in the case of states where director addresses were used). Using this data, we operationalize a measure of migration through the following algorithm:

1. The first state in which the firm is registered is the founding state.
2. If a firm name is registered in Delaware in year X, and that same name had been registered in another state in a prior year, we treat the firm's year of birth as the earliest registration date. This pattern often occurs prior to mergers or other legal changes involving firms that were not actually Delaware-registered-at-birth.
3. If a firm changes its principal office to another state, and the destination MSA does not include the source state, we consider this a migration.
4. The date in which it first registers in the destination state is the migration date.

This allows us to track well the relocation of startup companies across state-lines. In our main analysis, a startup migration is a firm that moves within five years of the first time they appear in our data. We drop all moves within 3 months of the initial founding date as these tend to conflate moves with firms who register in many states on founding. For instance, a restaurant chain that spins out one of its brands as an independent firm will be registered in many states nearly simultaneously. The fact that one state processes the registration a few days before another does not mean that the firm was "founded" in the earlier state.

4.1 Examples of Movers

Figures B1 and B2 provide tangible examples of migrations and the associated business registration records.

Figure B1 presents the *California* business registration records for two MIT startups founded in 2010, Ginger.io and Sociometric Solutions (later Humanyze). Both startups were founded at the MIT Media Lab by Ph.D. students of Professor Alex (Sandy) Pentland based on work done during their dissertations. Both startups focused on the application of analytics to handheld devices to understand social dynamics. However, Ginger.io decided to move early on to Silicon Valley, while Sociometric did not. Accordingly, Ginger.io shows a business registration with a Principal Executive Office in Silicon Valley. We also see the address of the Chief Executive Office (which is often used as validation in the measurement) is also in Silicon Valley. In contrast, Sociometric Solutions shows a Principal Executive Office in Boston, and a CEO office in Boston. The only address in California is the Address of Principal Office in California, indicating that Sociometric Solutions's role in California is only a satellite office. In this case, Ginger.io would be considered a migration, but Sociometric Solutions would not.

We use the time of initial registration at the destination as the migration date. To guarantee the firm was established in the origin region first, I require that the time elapsed between registration in the origin state and destination is at least three months. Furthermore, I exclude all migrations where the origin state is also part of the destination MSA

to avoid cross-state migrations within the same metro area. Finally, I focus only on migrations within the first two years of founding, the early stages of the firm, to allow time to experience outcomes after founding.

In Figure B2 we instead show the information of the *Washington* registration for a California based company, Tableau Software. Three elements are appreciable in this setup. First, the address of the principal office for Tableau is now 2517 East Helen Street, Seattle, WA, which suggests the company has moved into the state. Interestingly, this address is a residential address, and the CEO, Christian Chabot, initially ran the business from his home. Second, in the list of offices, two of the officers have addresses in Washington state. However, not all officers do: Pat Hanrahan, the Chief Technology Officer (and also a Stanford faculty member), is still located in California. In this case, we would consider this a migration given that both the majority of directors is in the destination state, and the address of the firm is in the destination state.

5 Drawbacks and Risks of Measurement Approach

Our approach does come with several drawbacks and potential risks. We review each of the main ones in turn.

The timing of migration. In the process of migration, timing is important. Our data does not allow us to know precisely the date a company changes the official main location for a company. Indeed, this "precise date" is not particularly well-defined. A Seattle-based startup may open an office in Phoenix in 2007, slowly move various corporate tasks to that office in 2008, then begin referring to Phoenix as its "headquarters" publicly in 2009. However, for the analyst it is not conceptually obvious when the headquarters "move" began. We therefore define the date of a move as the first date a firm registers business in any state where it eventually refers to that state as housing its "principal address".

We believe this is a relatively minor concern because it does not affect *who* we code as migrants, nor *where* do they move to, but only *when* they move. The timing of migration itself is not a main area of analysis in our paper.

Relocation within states. The strength of our data is in identifying migration across state lines to different MSAs. Our data, however, does not allow us to track migrations within the same state such as moving from San Diego, CA to San Francisco, CA or from Rochester, NY to New York City. Although restricting to cross-state migrations limits the total number of HQ moves, it does not bias the results of our utility-based approach. Recall that the utility-based approach depends on the relative number of moves between cities, and omitting within-state moves means the omitted moves are bi-directional for any city pair. Note also that when tracking MSA moves, we also drop moves if the firm moves from one MSA to a different state which also makes up the origin MSA. For instance, the New York City MSA includes zip codes in New Jersey, so a New York City firm that moved to New Jersey will not be counted as a cross-state move in our data. This is due to issues with interpolating origin MSAs when only the state of origin can be observed, as noted below. Again, this omission does not bias our results.

What (and who) moves? Another limitation of our data is that it does not allow us to go into the organizational structure of each migration beyond the relocation of headquarters. Naturally, some firms will not move fully and might leave someone in the original location, or might choose other work arrangements. Future datasets would do well to improve upon this margin.

Definition of a startup. We define startup, as discussed, to mean a new business entity. Spinouts and subsidiaries of existing firms, which may be quite large at "founding", therefore count as startups. Hand-investigation of the data suggests that the vast majority of data points are "true startups", meaning small, de novo firms. That said, utility estimates for some cities are affected by this distinction. For example, Peoria, Illinois is the highest utility small city, based largely on having 12 startups move in while only 2 move out. Many of these 12 moves are the result of agricultural acquisitions, whereby a novel corporate entity was created to help facilitate the sale, and the headquarters was then integrated into Peoria the next year. Moves of this type are, however, quite rare in the data at large.

6 Industry Classification

While the bulk of our analysis does not depend on firm industry, we do incorporate heterogeneity on industry in some robustness tests (such as Appendix Figure A1). The business registration data does not have industry codes. We use a name-based algorithm to incorporate industry in our data. Building on the same implementation in (Andrews, Fazio, Guzman, Liu, & Stern, 2022) and (Guzman & Stern, 2020), our broader approach (including the industry categorization used here and elsewhere) proceeds as follows.

We create four measures based on how the firm name reflects the industry or sector that the firm within which the firm is operating. To do so, we take advantage of two features of the US Cluster Mapping Project (Delgado, Porter, and Stern, 2016), which categorizes industries into (a) whether that industry is primarily local (demand is primarily within the region) versus traded (demand is across regions) and (b) among traded industries, a set of 51 traded clusters of industries that share complementarities and linkages. We augment the classification scheme from the US Cluster Mapping Project with the complete list of firm names and industry classifications contained in Reference USA, a business directory containing more than 10 million firm names and industry codes for companies across the United States. Using a random sample of 1.5 million Reference USA records, we create two indices for every word ever used in a firm name. The first of these indices measures the degree of localness, and is defined as the relative incidence of that word in firm names that are in local versus non-local industries. We then define a list of Top Local Words, defined as those words that are (a) within the top quartile of this distribution and (b) have an overall rate of incidence greater than 0.01% within the population of firms in local industries (see Guzman and Stern, (2015, Table S10) for the complete list). Finally, we define local to be equal to one for firms that have at least one of the Top Local Words in their name, and zero otherwise. We then undertake a similar exercise for the degree to which a firm name is associated with a traded name. It is important to note that there are firms which we cannot associate either with traded or local and thus leave out as a third category. Just more than 19% of firms have local names, though only 5% of firms for whom growth equals one, and while 54% of firms are associated with the traded sector,

59% of firms for whom growth equals one do.

We additionally examine the type of traded cluster a firm is associated with, focusing in particular on whether the firm is in a high-technology cluster or a cluster associated with resource intensive industries. For our high technology cluster group (Traded High Technology), we draw on firm names from industries include in ten USCMP clusters: Aerospace Vehicles, Analytical Instruments, Biopharmaceuticals, Downstream Chemical, Information Technology, Medical Devices, Metalworking Technology, Plastics, Production Technology and Heavy Machinery, and Upstream Chemical. From 1988 to 2008, while only 5% firms are associated with high technology, this rate increases to 16% within firms that achieve our growth outcome. For our resource intensive cluster group, we draw on firms names from fourteen USCMP clusters: Agricultural Inputs and Services, Coal Mining, Downstream Metal Products, Electric Power Generation and Transmission, Fishing and Fishing Products, Food Processing and Manufacturing, Jewelry and Precious Metals, Lighting and Electrical Equipment, Livestock Processing, Metal Mining, Nonmetal Mining, Oil and Gas Production and Transportation, Tobacco, Upstream Metal Manufacturing. While 14% of firms are associated with resource intensive industries, and 13% amongst growth firms.

Finally, we also repeat the same procedure to find firms associated with more narrow sets of clusters that have a closer linkage to growth entrepreneurship in the United States. We specifically focus on firms associated with Biotechnology, E-Commerce, Information Technology, Medical Devices and Semiconductors. It is important to note that these definitions are not exclusive and our algorithm could associate firms with more than one industry group. For Biotechnology (Biotechnology Sector), we use firm names associated with the US CMP Biopharmaceuticals cluster. While only 0.19% of firms are associated with Biotechnology, this number increases to 2.2% amongst growth firms. For E-commerce (E-Commerce Sector) we focus on firms associated with the Electronic and Catalog Shopping sub-cluster within the Distribution and Electronic Commerce cluster. And while 5% of all firms are associated with e-commerce, the rate is 9.3% for growth firms. For Information Technology (IT Sector), we focus on firms related to the USCMP cluster Informa-

tion Technology and Analytical Instruments. 2.4% of all firms in our sample are associated with IT, and 12% of all growth firms are identified as IT-related. For Medical Devices (Medical Dev. Sector), we focus on firms associated with the Medical Devices cluster. We find that while 3% of all firms are in medical devices, this number increases to 9.6% within growth firms. Finally, for Semiconductors (Semiconductor Sector), we focus on the sub-cluster of Semiconductors within the Information Technology and Analytical Instruments cluster. Though only 0.04% of all firms are associated with semiconductors, 0.5% of growth firms are.

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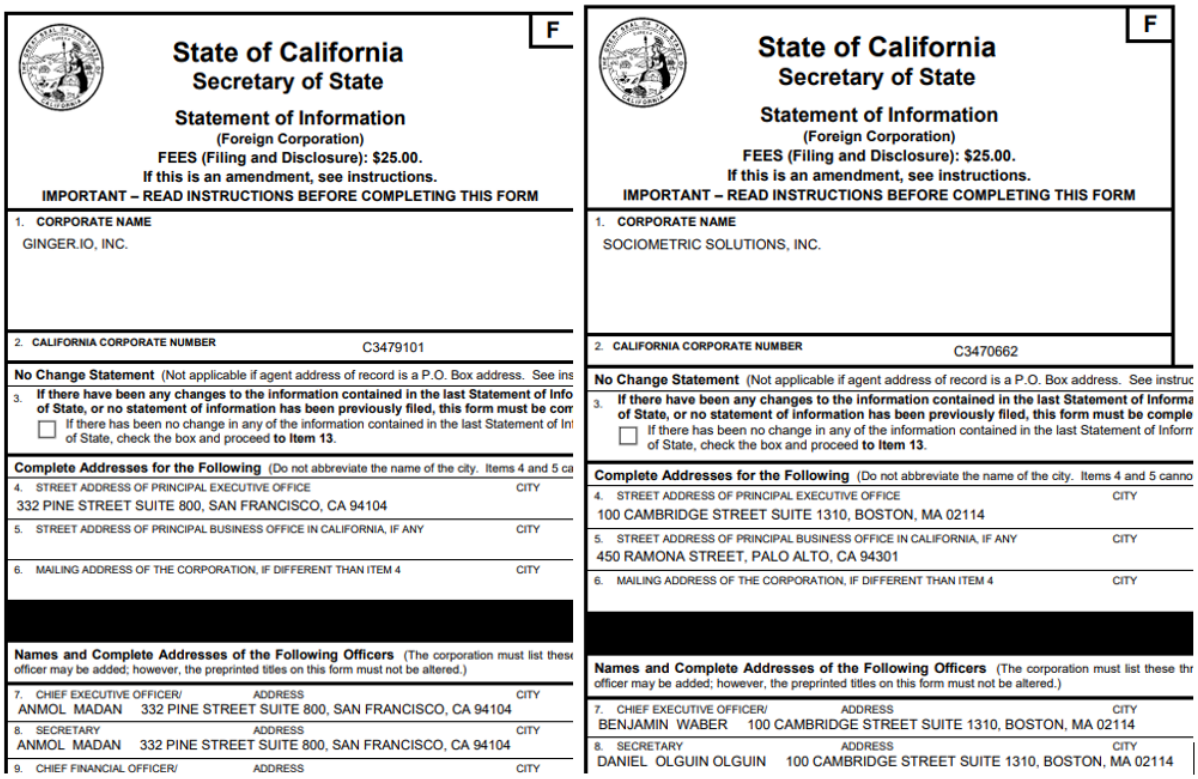
Figure B1: Comparison of Business Registration Records for two Massachusetts Firms. Ginger.io (a migrant to Silicon Valley) and Sociometric Solutions (a non-migrant).



State of California
Secretary of State
Statement of Information
(Foreign Corporation)
FEES (Filing and Disclosure): $25.00.
If this is an amendment, see instructions.
IMPORTANT – READ INSTRUCTIONS BEFORE COMPLETING THIS FORM

F

1. CORPORATE NAME
GINGER.IO, INC.

2. CALIFORNIA CORPORATE NUMBER
C3479101

No Change Statement (Not applicable if agent address of record is a P.O. Box address. See ins

3. If there have been any changes to the information contained in the last Statement of Info of State, or no statement of information has been previously filed, this form must be corr
☐ If there has been no change in any of the information contained in the last Statement of In of State, check the box and proceed to Item 13.

Complete Addresses for the Following (Do not abbreviate the name of the city. Items 4 and 5 ca

4. STREET ADDRESS OF PRINCIPAL EXECUTIVE OFFICE — CITY
332 PINE STREET SUITE 800, SAN FRANCISCO, CA 94104

5. STREET ADDRESS OF PRINCIPAL BUSINESS OFFICE IN CALIFORNIA, IF ANY — CITY

6. MAILING ADDRESS OF THE CORPORATION, IF DIFFERENT THAN ITEM 4 — CITY

Names and Complete Addresses of the Following Officers (The corporation must list these officer may be added; however, the preprinted titles on this form must not be altered.)

7. CHIEF EXECUTIVE OFFICER/ — ADDRESS — CITY
ANMOL MADAN — 332 PINE STREET SUITE 800, SAN FRANCISCO, CA 94104

8. SECRETARY — ADDRESS — CITY
ANMOL MADAN — 332 PINE STREET SUITE 800, SAN FRANCISCO, CA 94104

9. CHIEF FINANCIAL OFFICER/ — ADDRESS — CITY

State of California
Secretary of State
Statement of Information
(Foreign Corporation)
FEES (Filing and Disclosure): $25.00.
If this is an amendment, see instructions.
IMPORTANT – READ INSTRUCTIONS BEFORE COMPLETING THIS FORM

F

1. CORPORATE NAME
SOCIOMETRIC SOLUTIONS, INC.

2. CALIFORNIA CORPORATE NUMBER
C3470662

No Change Statement (Not applicable if agent address of record is a P.O. Box address. See instruc

3. If there have been any changes to the information contained in the last Statement of Informa of State, or no statement of information has been previously filed, this form must be comple
☐ If there has been no change in any of the information contained in the last Statement of Inform of State, check the box and proceed to Item 13.

Complete Addresses for the Following (Do not abbreviate the name of the city. Items 4 and 5 canno

4. STREET ADDRESS OF PRINCIPAL EXECUTIVE OFFICE — CITY
100 CAMBRIDGE STREET SUITE 1310, BOSTON, MA 02114

5. STREET ADDRESS OF PRINCIPAL BUSINESS OFFICE IN CALIFORNIA, IF ANY — CITY
450 RAMONA STREET, PALO ALTO, CA 94301

6. MAILING ADDRESS OF THE CORPORATION, IF DIFFERENT THAN ITEM 4 — CITY

Names and Complete Addresses of the Following Officers (The corporation must list these thr officer may be added; however, the preprinted titles on this form must not be altered.)

7. CHIEF EXECUTIVE OFFICER/ — ADDRESS — CITY
BENJAMIN WABER — 100 CAMBRIDGE STREET SUITE 1310, BOSTON, MA 02114

8. SECRETARY — ADDRESS — CITY
DANIEL OLGUIN OLGUIN — 100 CAMBRIDGE STREET SUITE 1310, BOSTON, MA 02114

Notes: An example of the business registration record of two Massachusetts companies founded in 2010 by PhD students at MIT. Ginger.io moved to California, and shows both the address of the principal executive and the address of the chief executive in California. Sociometric Solutions did not move to California, but did open a branch. Correspondingly, the principal office and chief executive are still in Massachusetts, and only the address of the office in California has a California address.

Figure B2

10/19/2004 497169
$216.00 Check #241
Tracking ID: 795909
Doc No: 497169-0001

STATE OF WASHINGTON
SECRETARY OF STATE

CERTIFICATE OF AUTHORITY
FOREIGN PROFIT CORPORATION

(Per Chapter 23B.15 RCW)

FEE: $175

EXPEDITED (24-HOUR) SERVICE AVAILABLE – $20 PER ENTITY
INCLUDE FEE AND WRITE "EXPEDITE" IN BOLD LETTERS ON OUTSIDE OF ENVELOPE

- Please PRINT or TYPE in black ink
- Sign, date and return original AND ONE COPY

FILED
SECRETARY OF STATE
OCT 19 2004
STATE OF WASHINGTON

CORPORATIONS DIVISION
801 CAPITOL WAY SOUTH • PO BOX 40234
OLYMPIA, WA 98504-0234

- BE SURE TO INCLUDE FILING FEE. Checks should be made payable to "Secretary of State"

FOR OFFICE USE ONLY

FILED: / /

UBI: 602-438-440

CORPORATION NUMBER:

IMPORTANT! Person to contact about this filing: THOMAS E. WALKER JR

Daytime Phone Number (with area code): (650) 678 9698

NAME OF CORPORATION *(As Recorded in the State/Country of Incorporation)*: TABLEAU SOFTWARE, INC

ORIGINALLY INCORPORATED IN: *State/Country* DE ON: *Date* 7/19/04

NOTE: If the name listed above is unavailable in Washington state or does not meet the requirements of 23B.15 RCW, please provide the name the corporation adopts for use in Washington State. You must also attach a Board of Directors Resolution approving the use of an alternate name.

NAME THE CORPORATION ADOPTS FOR USE IN WASHINGTON STATE:

APPROVED BY DIRECTORS
☐ Resolution Attached

PRINCIPAL OFFICE ADDRESS OF CORPORATION *(Street Address Required - Please Do Not Use PO Box)*

Address: 2517 EAST Helen STREET

City: SEATTLE State or Country: WA ZIP or Postal Code: 98112

EFFECTIVE DATE OF CERTIFICATE OF AUTHORITY *(Specified effective date may be up to 90 days AFTER receipt of the document by the Secretary of State)*
☐ Specific Date: _____ ☒ Upon filing by the Secretary of State

PERIOD OF DURATION *(Check one only)*
☒ Perpetual
☐ _____ Years *(indicate number of years)*

DATE CORPORATION BEGAN DOING BUSINESS IN WASHINGTON STATE
Date: 07/19/2004

CERTIFICATE OF EXISTENCE
☒ Attached is an original Certificate of Existence, issued no more than 60 days prior to this application, duly authenticated by the Secretary of State or other official having custody of corporate records in the state or country of incorporation.

NAME AND ADDRESS OF WASHINGTON STATE REGISTERED AGENT

Name: CHRISTIAN CHABOT

Street Address *(Required)*: 2517 EAST Helen STREET City: SEATTLE State: WA ZIP: 98112

PO Box *(Optional – Must be in same city as street address)*: _____ ZIP *(If different than street ZIP)*: _____

I consent to serve as Registered Agent in the State of Washington for the above named corporation. I understand it will be my responsibility to accept Service of Process on behalf of the corporation; to forward mail to the corporation; and to immediately notify the Office of the Secretary of State if I resign or change the Registered Office Address.

Signature of Agent | CHRISTIAN CHABOT *Printed Name* | 10/18/2004 *Date*

NAMES AND ADDRESSES OF ALL CURRENT OFFICERS AND DIRECTORS *(If necessary, attach additional names and addresses)*

Name: SEE ATTACHED

Address: _____ City: _____ State: _____ ZIP: _____

SIGNATURE OF OFFICER OR CHAIRPERSON

This document is hereby executed under penalties of perjury, and is, to the best of my knowledge, true and correct.

Signature of Officer/Chairperson | CHRISTIAN CHABOT *Printed Name* | CEO *Title* | 10/18/2004 *Date*

FOR OFFICE USE ONLY

FOR OFFICE USE ONLY

FOR OFFICE USE ONLY

010-001 (9/00)

CORPORATIONS INFORMATION AND ASSISTANCE – 360/753-7115 (TDD – 360/753-1485)

List of Officers

Christian Chabot
Chief Executive Officer
2517 E Helen Street
Seattle, WA 98112

Pat Hanrahan
Chief Technology Officer
40 Minoca Road
Portola Valley, CA 94028

Chris Stolte
Vice President
4035 49th Avenue SW
Seattle, WA 98116

NO DIRECTORS AT THIS TIME

Delaware

The First State

I, HARRIET SMITH WINDSOR, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY "TABLEAU SOFTWARE, INC." IS DULY INCORPORATED UNDER THE LAWS OF THE STATE OF DELAWARE AND IS IN GOOD STANDING AND HAS A LEGAL CORPORATE EXISTENCE SO FAR AS THE RECORDS OF THIS OFFICE SHOW, AS OF THE FOURTEENTH DAY OF OCTOBER, A.D. 2004.

AND I DO HEREBY FURTHER CERTIFY THAT THE FRANCHISE TAXES HAVE NOT BEEN ASSESSED TO DATE.

Harriet Smith Windsor

Harriet Smith Windsor, Secretary of State

3830687 8300

AUTHENTICATION: 3412603

040744503

DATE: 10-14-04