

AMERICAN ECONOMIC ANXIETY AND THE KNOW-NOTHING PARTY
ONLINE APPENDIX

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A Supplemental Appendix

Table A.1: Massachusetts Gubernatorial Election Outcomes, 1852-1858

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	1852	1853	1854	1855	1856	1857	1858
<i>Share of state-wide votes</i>							
Know-Nothing	.	.	0.63	0.38	0.59	0.29	0.10
Whig	0.45	0.46	0.21	0.10	0.05	.	.
Democrat	0.28	0.27	0.11	0.25	0.25	0.24	0.32
Republican	.	.	.	0.27	.	0.47	0.58
Free Soil	0.26	0.23	0.05

Notes: State-wide vote shares (including Boston). Winning party in bold. An empty cell implies no votes cast for the party in that year.

Sources: Various issues of the *Massachusetts Register* (1853-1860).

Table A.2: Summary Statistics: Voting Outcomes

	(1) Mean	(2) s.d.	(3) 25 th	(4) 50 th	(5) 75 th	(6) N
<i>Know-Nothing Vote Share</i>						
1854	0.61	0.15	0.52	0.63	0.71	307
1855	0.35	0.16	0.22	0.36	0.46	306
1856	0.61	0.16	0.51	0.63	0.73	305
1857	0.25	0.15	0.14	0.25	0.36	306
1858	0.08	0.08	0.02	0.05	0.12	307
1859	0.11	0.10	0.03	0.09	0.16	303
<i>Turnout</i>						
1852	0.63	0.13	0.56	0.64	0.71	307
1853	0.59	0.13	0.52	0.60	0.68	306
1854	0.56	0.13	0.48	0.56	0.63	307
1855	0.58	0.13	0.50	0.59	0.66	306
1856	0.66	0.14	0.59	0.67	0.73	307
1857	0.55	0.14	0.48	0.54	0.62	306
<i>Legislator "Yea" on 1857 Literacy Amendment</i>						
Mean within town	0.76	0.40	0.50	1.00	1.00	221

Notes: Unweighted summary statistics for towns in the main estimation sample (excludes Boston). Turnout is measured as the number of votes cast for governor in an election divided by ratable polls in 1854. The 1857 literacy amendment enforced literacy tests for voters whose grandfathers could not vote, (e.g. immigrants and the formerly enslaved and their descendants). Votes for the amendment were in the legislature. This variable is the proportion of legislatures for a given town that voted "Yea" for the amendment.

Sources: See Data Appendix in Section B for detailed information on the construction and data sources for all variables.

Table A.3: Summary Statistics: Controls

	(1)	(2)	(3)	(4)	(5)	(6)
	Mean	s.d.	25 th	50 th	75 th	N
Irish Labor Crowdout	-0.011	0.934	-0.761	-0.065	0.756	307
Deskilling Index	0.001	1.002	-0.534	-0.447	0.139	307
Population in 1855	3,165	4,298	1,112	1,876	3,246	307
Ln(Population) in 1855	7.615	0.869	7.014	7.537	8.085	307
Urban (=1)	0.384	0.487	0.000	0.000	1.000	307
Share population Irish in 1855	0.092	0.073	0.034	0.075	0.135	307
Any foreign-born pauper in 1850	0.505	0.501	0.000	1.000	1.000	307
Failure to assimilate	0.682	0.124	0.649	0.681	0.715	307
Share labor in manufacturing (1840)	0.316	0.191	0.160	0.274	0.446	307
Share in agriculture (1840)	0.581	0.241	0.388	0.621	0.785	307
Share in mining (1840)	0.003	0.019	0.000	0.000	0.000	307
Share in commerce (1840)	0.022	0.027	0.004	0.015	0.029	307
Share in professional (1840)	0.016	0.012	0.009	0.013	0.018	307
Share in river transport (1840)	0.002	0.009	0.000	0.000	0.000	307
Share in ocean transport (1840)	0.060	0.158	0.000	0.001	0.013	307
Change in labor demand of native-born	-0.055	0.311	-0.105	0.005	0.104	307
Cottage industry employment (1845)	203	512	8	46	203	307
Share sample with empty occupation string (1850)	0.076	0.063	0.038	0.060	0.095	307
Manufacturing estab. p. c. (1855)	0.007	0.006	0.003	0.005	0.008	307
Change in man. estab. p.c. (1855-45)	0.001	0.006	-0.001	0.001	0.003	307
\$ value of man. output p.c. (1855)	4.557	1.111	3.989	4.731	5.337	307
Change in \$ val. of man. out. p.c. (1855-45)	0.783	0.850	0.327	0.689	1.191	307
Change in p.p. of Irish emp. (1855-45)	0.037	0.077	0.006	0.029	0.063	307

Notes: Unweighted summary statistics for the 307 towns included in the main results.

Sources: See Data Appendix in Section B for detailed information on the construction and data sources for all variables.

Table A.4: Robustness to Spatial Correlation

	(1)	(2)	(3)	(4)	(5)
	Distance Cutoff				
	20km	50km	100km	150km	None
Panel (A): Moran's <i>I</i> Statistic of Global Correlation					
Chi-square	4.62	3.08	2.71	2.40	2.53
p-value	0.03	0.08	0.10	0.12	0.11
Panel (B): Standard Errors Adjusted for Spatial Correlation					
Irish Labor Crowdout	0.035*** (0.011)	0.035** (0.014)	0.035** (0.015)	0.035** (0.014)	0.035*** (0.005)
Deskilling Index	0.014** (0.006)	0.014** (0.006)	0.014*** (0.005)	0.014*** (0.004)	0.014*** (0.002)
Panel (C): Local Spillovers of Crowdout and Deskilling					
Irish Labor Crowdout	0.029** (0.012)	0.034*** (0.011)	0.032*** (0.011)	0.031*** (0.011)	0.032*** (0.011)
Deskilling Index	0.015*** (0.006)	0.014** (0.006)	0.015*** (0.006)	0.015*** (0.006)	0.015*** (0.006)
Lagged Crowdout	0.017 (0.018)	-0.003 (0.022)	0.008 (0.022)	0.015 (0.024)	0.006 (0.024)
Lagged Deskilling	0.026 (0.016)	0.022 (0.015)	0.025 (0.018)	0.032* (0.018)	0.032* (0.018)
County FE	Yes	Yes	Yes	Yes	Yes
Urbanization	Yes	Yes	Yes	Yes	Yes
Pct Irish 1855	Yes	Yes	Yes	Yes	Yes
Culture & Fiscal Burden	Yes	Yes	Yes	Yes	Yes
Share Mfg & Ag 1840	Yes	Yes	Yes	Yes	Yes

Notes: The outcome across all specifications is the Share of Know-Voting Vote for Governor in Massachusetts in 1854. Panel (A) reports results from estimating Moran's *I* using residuals from Equation (3) from Column (6) of Table 2, and an inverse distance weighting matrix. Panel (B) adjusts standard errors for spatial autocorrelation using the procedure developed by ? and a weighting matrix with a linear distance decay. Panel (C) estimates a SLX model using an inverse distance weighting matrix and includes first-order spatial lags of the two exposure variables of interest. Regressions are weighted by ratable polls in 1854. *, **, *** refer to statistical significance at the 10, 5 and 1 percent level, respectively.

Table A.5: Shift-Share Exposure: Rotemberg Weights

Panel (A): Crowdout Exposure Occupation Weights and Shifts

	$\hat{\alpha}_k$	g_k	$\hat{\beta}_k$
Factory Operatives	0.27	0.37	0.047
Laborer	0.20	0.06	0.004
Agriculturalist	0.16	-0.06	0.036
Low Skill Mechanics	0.11	-0.05	0.018
Boot and Shoe	0.11	0.03	0.051
Merchants	0.07	-0.07	0.100
Mariners	0.02	-0.07	0.083
High Skill Mechanics	0.02	-0.04	-0.016
Misc	0.02	-0.04	-0.011
Professionals	0.02	-0.07	0.077
Manufacturers	0.00	-0.07	-0.407
Share Top-5	0.84		
$\text{cor}(\hat{\alpha}_k, g_k)$	0.80		

Panel (B): Deskilling Exposure Negative and Positive Weights

	Sum	Mean	Share
Positive	1.049	0.016	0.623
Negative	-0.049	-0.001	0.377

Panel (C): Deskilling Exposure Industry Weights and Shifts

	$\hat{\alpha}_k$	g_k	$\hat{\beta}_k$
Cotton Mills	0.57	40.89	0.022
Calico	0.15	37.34	-0.001
Boots and Shoes	0.12	-8.85	0.039
Woolen	0.06	18.84	0.012
Linen	0.03	154.65	0.040
Share Top-5	0.94		
$\text{cor}(\hat{\alpha}_k, g_k)$	0.27		

Notes: This table reports summary statistics of the Rotemberg weights ($\hat{\alpha}_k$) on each initial share in the exposure indices using the procedure developed in ?. Panel (A) explores the underlying identifying information for the Irish labor market crowdout exposure index. Occupations are listed in order of the highest weight. Note that all occupations have positive weights. g_k is the demeaned occupation-specific shift and $\hat{\beta}_k$ is the coefficient from the just-identified regression using the share as the instrument. The top-5 occupation categories by weight make up 84 percent of the total weight, and the correlation coefficient between the Rotemberg weights and occupation shifts is 0.80. Panel (B) reports the sum of weights, mean weight, and share of industries with positive and negative weights. Panel (C) repeats the analysis of Panel (A) for the top-5 industries by weight in the deskilling exposure index.

Table A.6: Relationship Between Occupation Shares and Observable Characteristics

	(1) Factory Operative	(2) Laborer	(3) Agriculturalist	(4) Low-Skill Mechanics	(5) Boots and Shoes	(6) Crowdout
Percent Irish (1855)	0.001 (0.038)	0.008 (0.093)	-0.528*** (0.089)	0.053 (0.108)	-0.012 (0.191)	0.662 (0.988)
Urban (=1)	-0.000 (0.003)	0.002 (0.014)	-0.046*** (0.015)	0.001 (0.014)	0.008 (0.020)	0.013 (0.123)
Man. Est. p.c. (1855)	-0.019 (0.205)	-0.560 (0.830)	-0.748 (0.850)	1.181 (1.093)	-1.293 (1.346)	-5.830 (7.422)
Native Labor Demand	-0.014* (0.008)	-0.007 (0.016)	-0.013 (0.015)	0.009 (0.015)	0.028 (0.023)	-0.267 (0.173)
Cottage Emp (1845)	-0.003 (0.003)	0.001 (0.006)	-0.003 (0.006)	-0.024*** (0.008)	0.037** (0.019)	0.114 (0.091)
Pauper	0.000 (0.003)	0.011 (0.011)	-0.011 (0.012)	0.011 (0.013)	-0.016 (0.017)	0.001 (0.101)
Assimilation	0.019 (0.018)	0.042 (0.056)	-0.013 (0.074)	0.069 (0.053)	-0.001 (0.074)	0.688 (0.563)
Share Whig (1844)	0.010 (0.008)	-0.033 (0.038)	0.088** (0.040)	0.093* (0.053)	-0.127* (0.066)	-0.671* (0.358)
Deskilling Index	0.006** (0.002)	0.008 (0.005)	0.011** (0.005)	0.001 (0.005)	-0.038*** (0.009)	-0.012 (0.051)
Share Man. (1840)	0.013 (0.016)	-0.029 (0.056)	-0.036 (0.051)	0.191*** (0.065)	0.502*** (0.097)	2.542*** (0.495)
Share Ag. (1840)	0.010 (0.016)	0.090** (0.040)	0.467*** (0.033)	0.024 (0.056)	0.234*** (0.075)	2.039*** (0.435)

Notes: Each column reports results of a single regression of town-level native-born occupation share on observable characteristics and county fixed effects. Only the top five occupation categories by weight are reported. See ? for the procedure to construct weights. The final column is the Irish labor market crowdout exposure index. Regressions are weighted by ratable polls (similar to a measure of potential voters). Robust standard errors reported in parentheses. *, **, *** refer to statistical significance at the 10, 5 and 1 percent level, respectively.

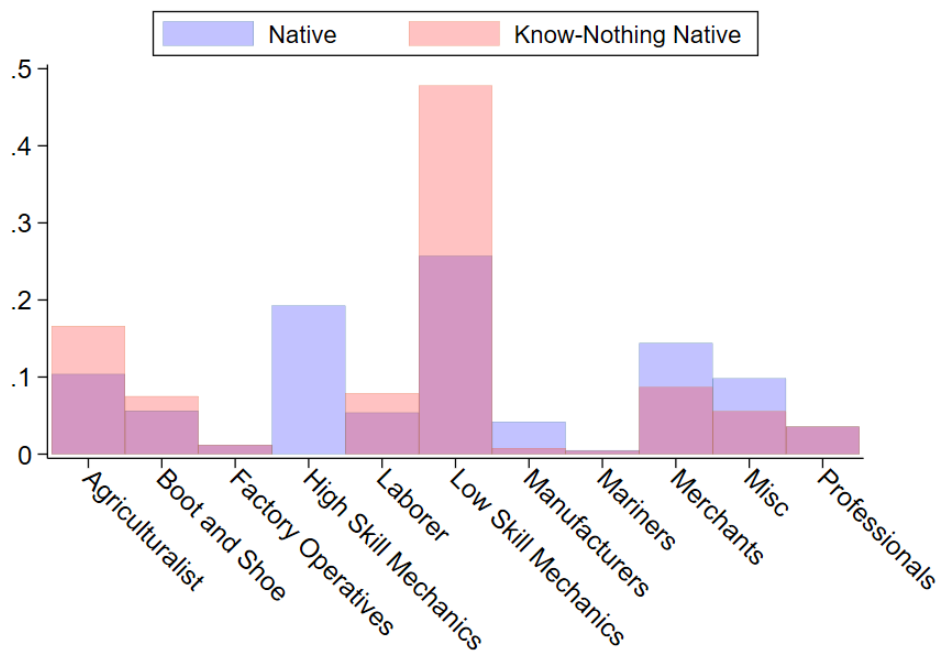
Sources: See Data Appendix in Section B for detailed information on the construction and data sources for all variables.

Table A.7: Relationship Between Manufacturing Industry Shares and Observable Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
	Cotton Mills	Calico	Boots and Shoes	Woolen	Linen	Deskilling
Percent Irish (1855)	0.460*	0.220	-0.003	0.155	0.019	5.233***
	(0.246)	(0.137)	(0.003)	(0.142)	(0.018)	(1.849)
Urban (=1)	-0.030	-0.015	0.000	0.035**	0.002	-0.134
	(0.025)	(0.012)	(0.000)	(0.016)	(0.002)	(0.171)
Man. Est. p.c. (1855)	-0.412	-1.435	0.005	1.275	-0.075	-9.225
	(2.122)	(1.204)	(0.029)	(0.833)	(0.110)	(17.128)
Native Labor Demand	-0.072	-0.013	0.000	-0.021	-0.004	-0.534
	(0.079)	(0.023)	(0.000)	(0.018)	(0.003)	(0.412)
Cottage Emp (1845)	-0.057***	-0.011	-0.000	-0.025***	-0.002*	-0.546***
	(0.015)	(0.007)	(0.000)	(0.007)	(0.001)	(0.117)
Pauper	-0.007	0.006	0.000	0.011	-0.001	0.108
	(0.021)	(0.013)	(0.000)	(0.010)	(0.002)	(0.143)
Assimilation	-0.093	0.098	0.000	0.025	-0.008	-0.052
	(0.101)	(0.068)	(0.001)	(0.048)	(0.018)	(0.800)
Share Whig (1844)	-0.003	-0.002	0.001	-0.060	0.002	0.275
	(0.092)	(0.025)	(0.001)	(0.059)	(0.003)	(0.653)
Irish Labor Crowdout	0.014	-0.006	0.000	0.002	0.001	-0.027
	(0.017)	(0.009)	(0.000)	(0.008)	(0.001)	(0.109)
Share Man. (1840)	0.544***	0.111	0.000	0.182***	0.008	5.159***
	(0.133)	(0.073)	(0.001)	(0.054)	(0.007)	(0.980)
Share Ag. (1840)	0.075	0.031	0.000	0.154***	0.014*	1.863**
	(0.110)	(0.049)	(0.001)	(0.044)	(0.008)	(0.777)

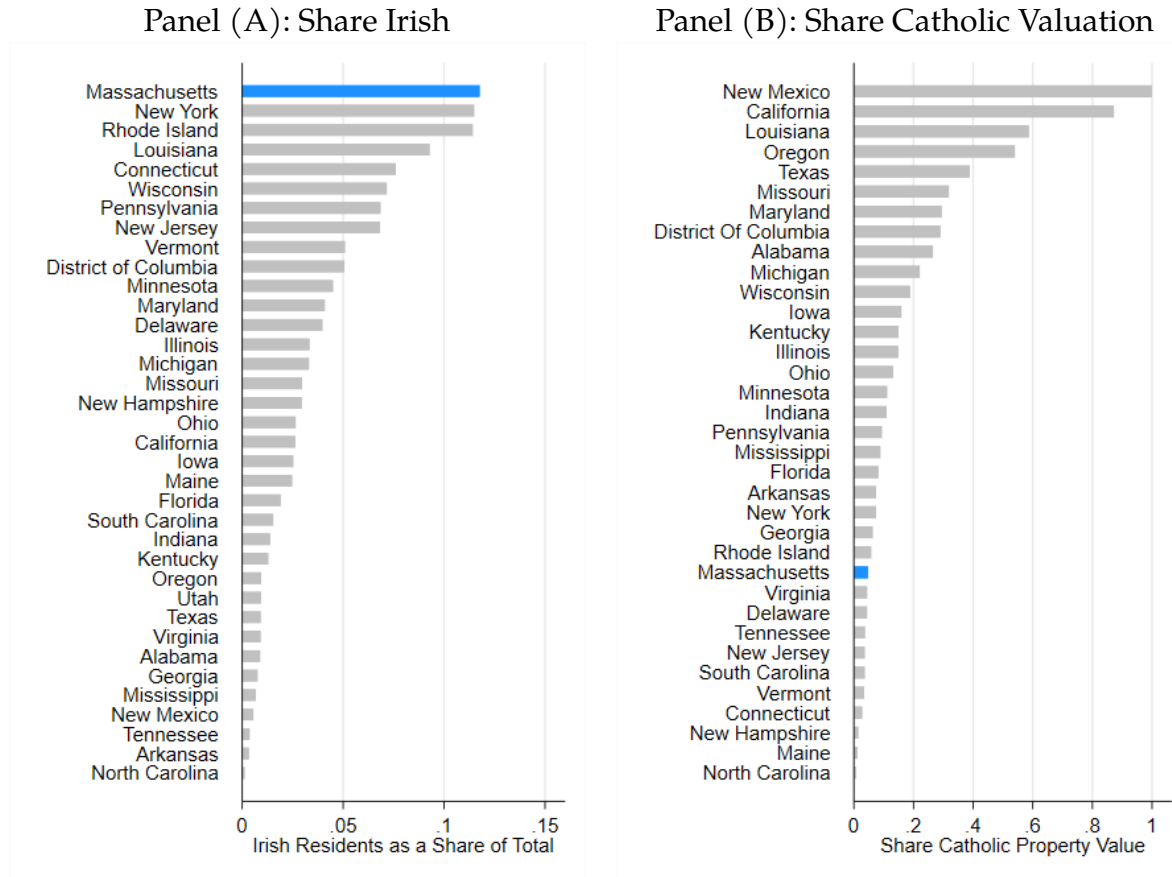
Notes: Each column reports results of a single regression of town-level industry share in 1845 on observable characteristics and county fixed effects. Only the top five industry categories by Rotemberg weight are reported. See ? for the procedure to construct weights. The final column is the deskilling exposure index. Regressions are weighted by ratable polls (similar to a measure of potential voters). Robust standard errors reported in parentheses. *, **, *** refer to statistical significance at the 10, 5 and 1 percent level, respectively. *Sources:* See Data Appendix in Section B for detailed information on the construction and data sources for all variables.

Figure A.1: Occupational Distribution for Know-Nothing Members and All Native Males in Massachusetts



Notes: Data from Archives of Massachusetts Historical Society provided by Tyler Anbinder (?). Pink bars describe the occupational distribution for Know-Nothing members using lists from Worcester and purple bars provide the same for the Commonwealth of Massachusetts.

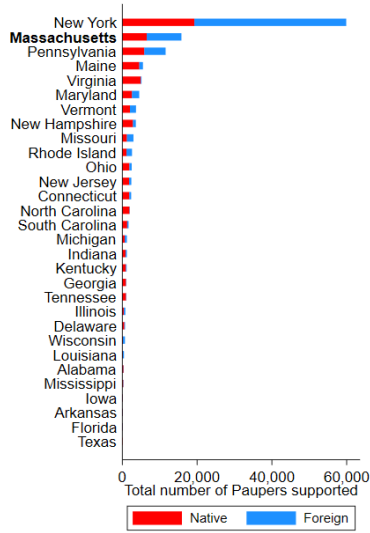
Figure A.2: State Characteristics



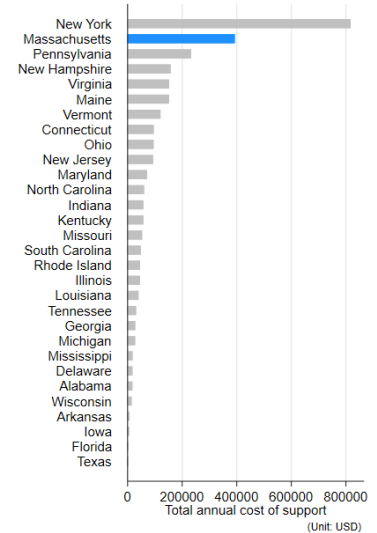
Notes: Panel (A) describes the share of population that is Irish-born (? , Table XV), Panel (B) describes the share of church property value that is owned by Roman Catholics (? , Table XXXVIII).

Figure A.3: Pauperism and Criminals

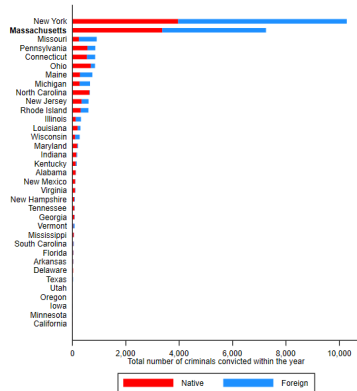
Panel (A): Total Number of Paupers Supported



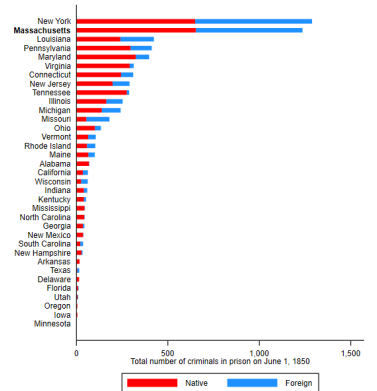
Panel (B): Total Annual Cost of Support



Panel (C): Total Number of Criminals Convicted

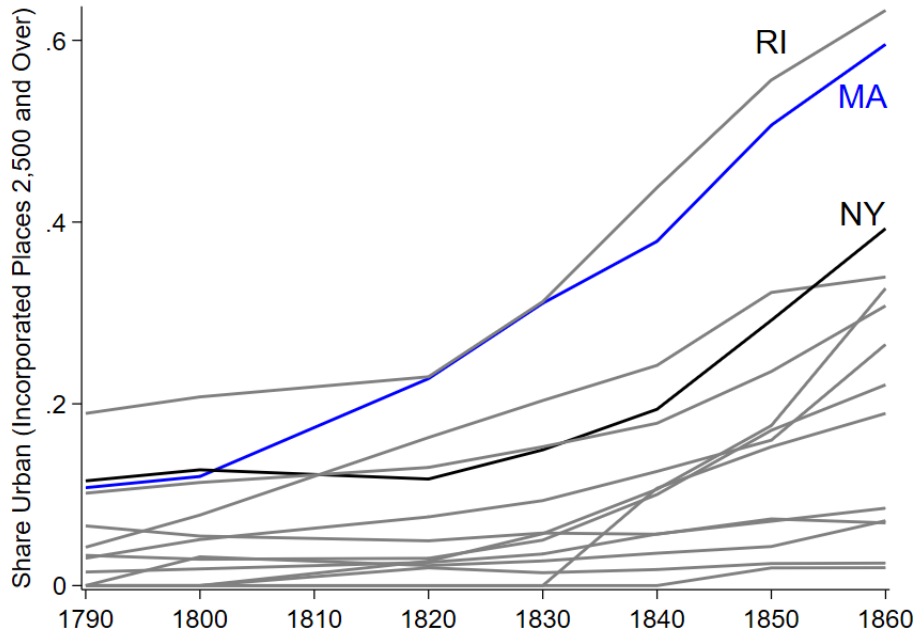


Panel (D): Total Number of Criminals In Prison



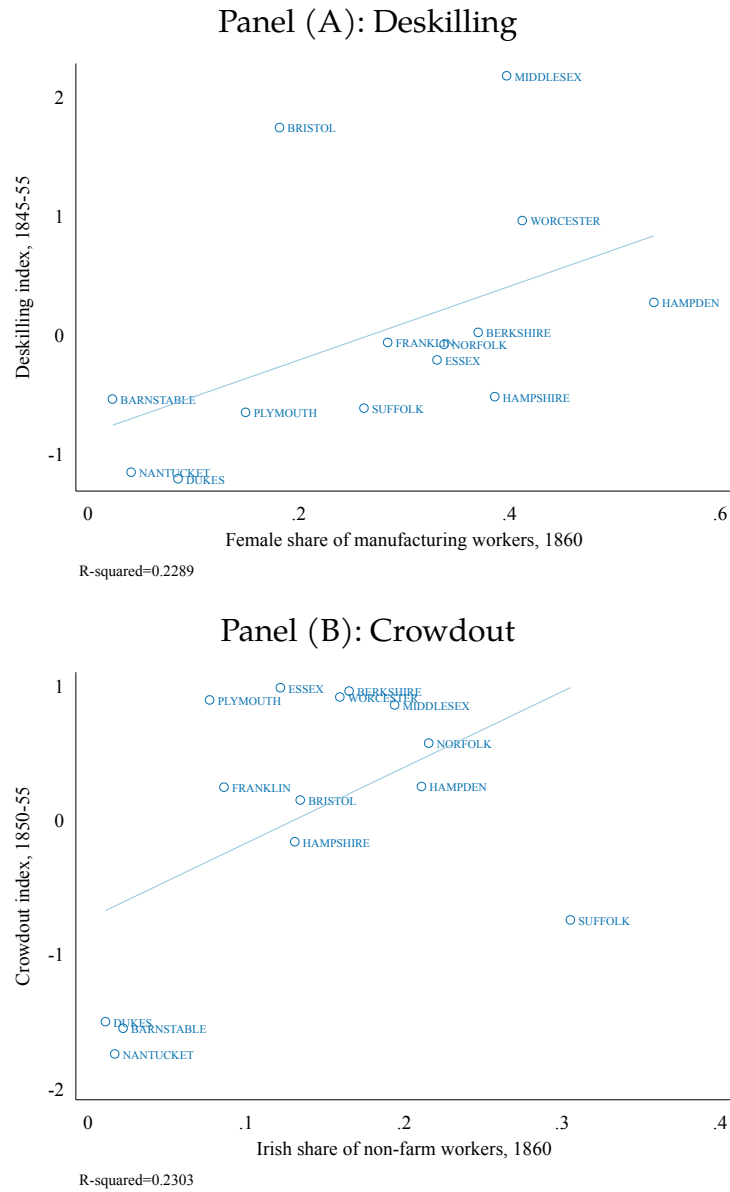
Notes: Data from Table CLXXIII in (?). Pauperism in the United States, 1850. Panel (A) describes the total number of native and foreign Paupers supported in whole or part within the year ending June 1, 1850. Panel (B) describes an annual cost of support. Data from Table CLXXVI in (?). Statistics of Criminals. Panel (C) describes the total number of criminals convicted within the year of 1850, Panel (D) describes the total number of criminals in prison on June 1, 1850.

Figure A.4: Urbanization Rates by State (1790-1860)



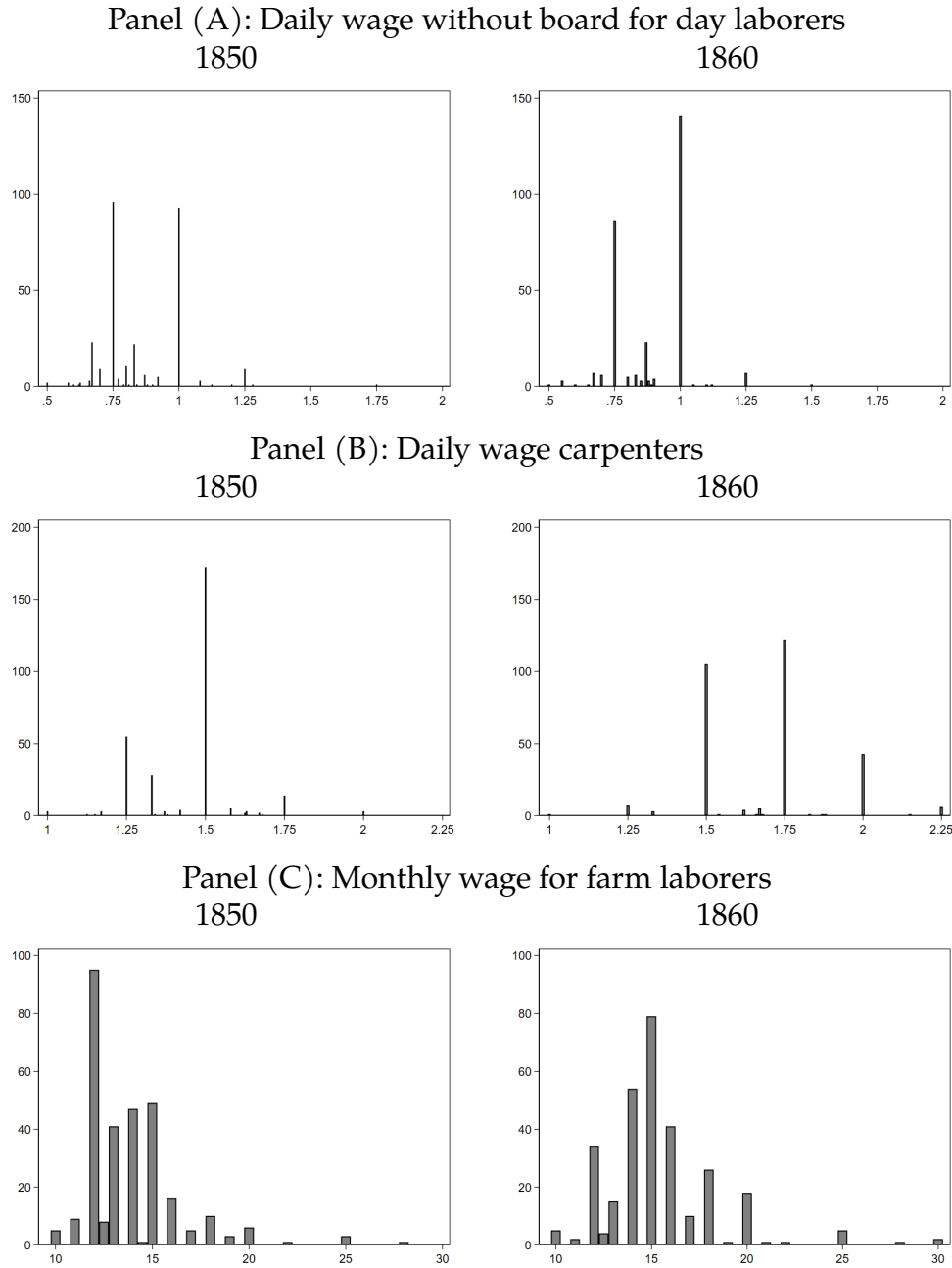
Notes: Blue line is Massachusetts. Black line is New York. Top gray line is Rhode Island. Source: Author calculation from 1790 - 1860 Censuses: US Population Data provided by NHGIS

Figure A.5: Massachusetts Counties: Proxies vs. Exposure Measures



Notes: Panel (A) correlates our deskilling index with the 1860 female share of manufacturing workers for Massachusetts counties. Panel (B) correlates our crowdout index with the 1860 Irish share of non-farm workers for Massachusetts counties.

Figure A.6: Wage Observations from Census of Social Statistics (1850 & 1860)



Notes: Histograms provide the frequency of exact reported wages in contemporary dollars. The sample size varies between 299 and 302 towns. Directions to Census marshalls as to how to collect and report local wage information consisted entirely of the following statement: *“The information called for in the six columns relating to wages is so simple, and so plainly set forth in the headings thereof, that it is deemed unnecessary to add thereto.”* (? , xxv). Figures for domestic servants look similar.

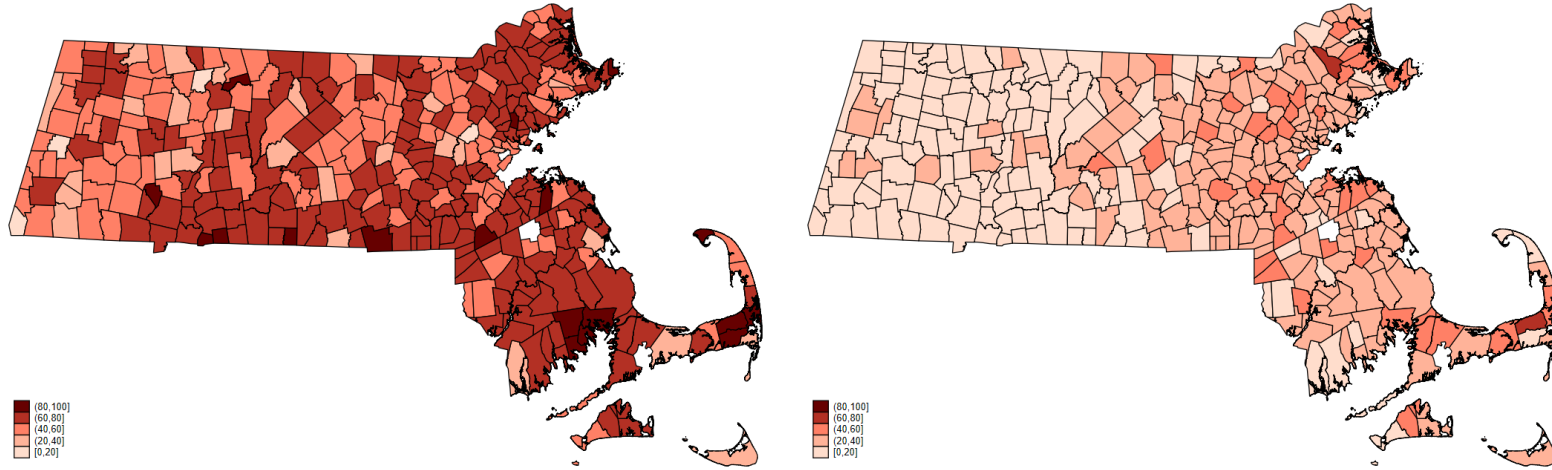
Source: Manuscripts of the Census of Social Statistics of 1850 and 1860. Data hand entered by authors from manuscript images published on Ancestry.com.

Figure A.7: Map of Gubernatorial Votes Over Time (Percent)

Panel (A): Know-Nothing Votes in 1854 and 1857

(a) 1854

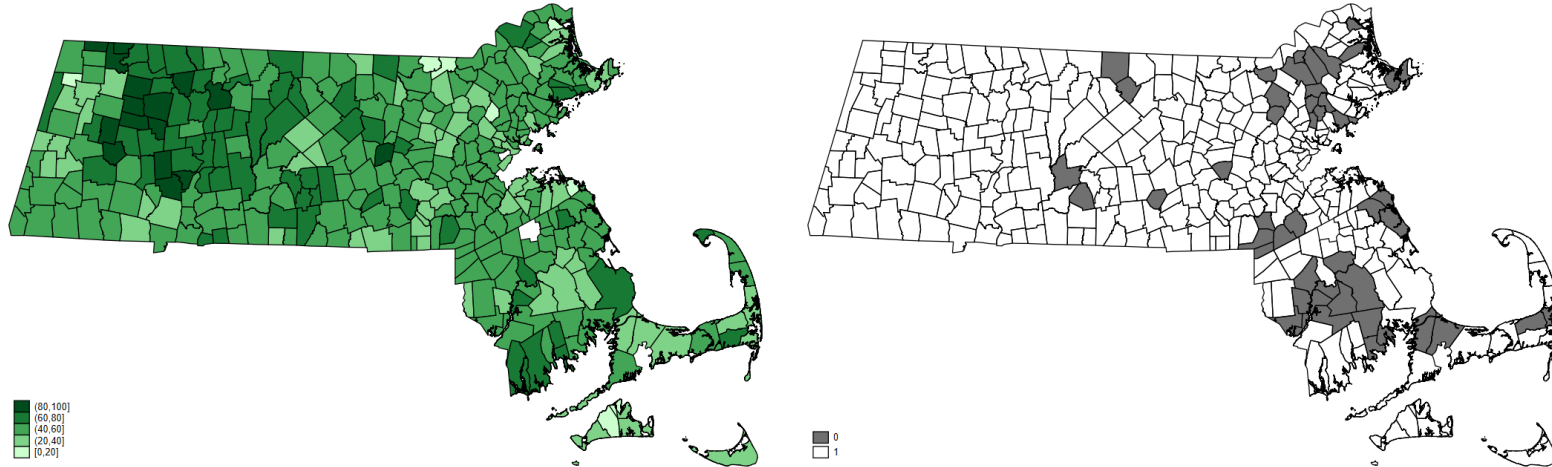
(b) 1857



Panel (B): Republicans in 1857 and Know-Nothing Strongholds

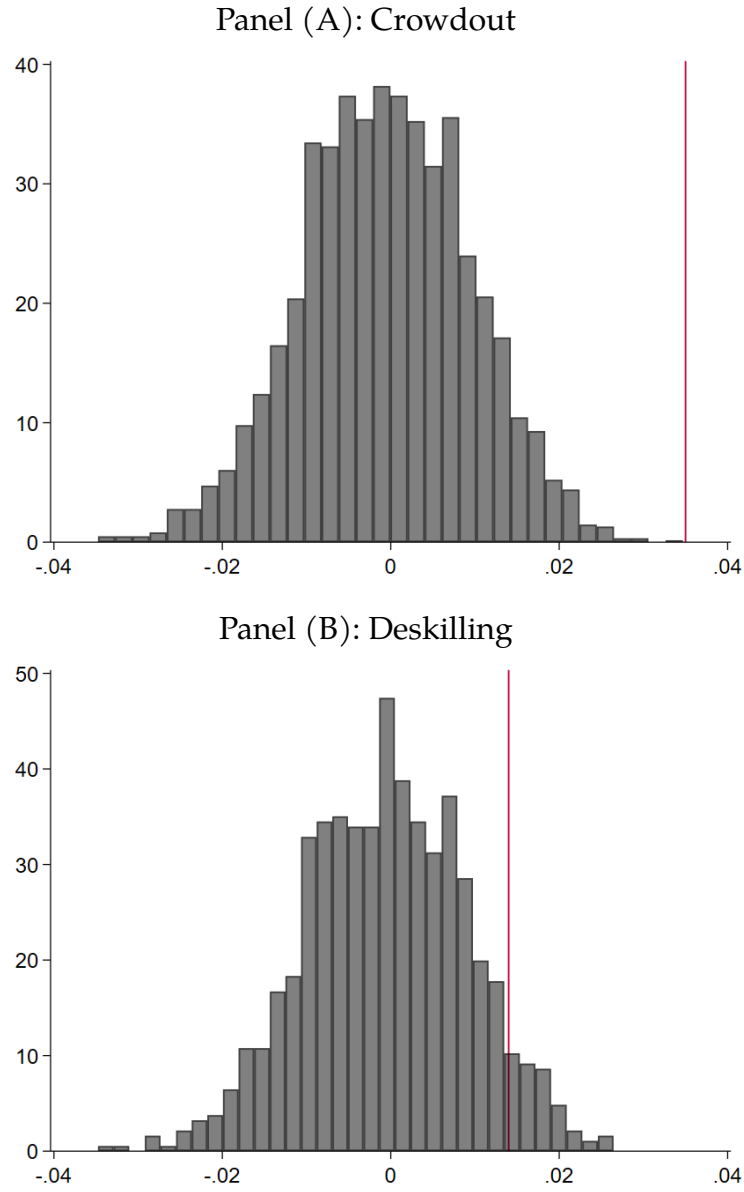
(c) Republicans 1857

(d) Know-Nothing Strongholds



Notes: Color scheme held constant across exhibits (a)-(c) with breakpoints at 0, 20, 40, 60, 80 and 100. Stronghold defined as municipalities where the Know-Nothing vote is greater than 50 pctile in every year from 1854 to 1858. Sources: Various years of the *Massachusetts Register*.

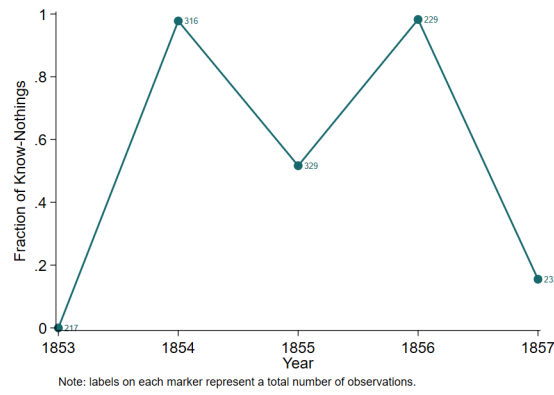
Figure A.8: Permutation Tests



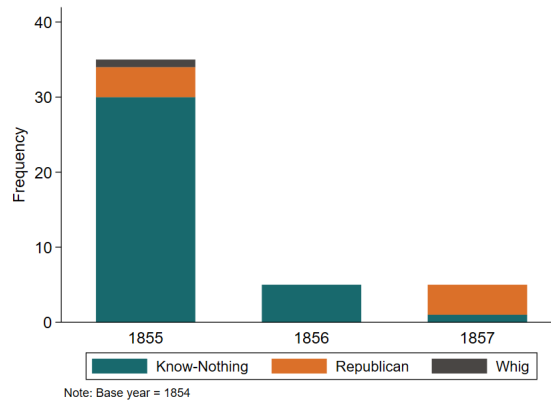
Notes: Distribution of permutation coefficients for crowdout and deskilling indices, respectively. Vertical lines represent actual estimates.

Figure A.9: Know-Nothing Legislators

Panel (A): Know-Nothing Town Representatives

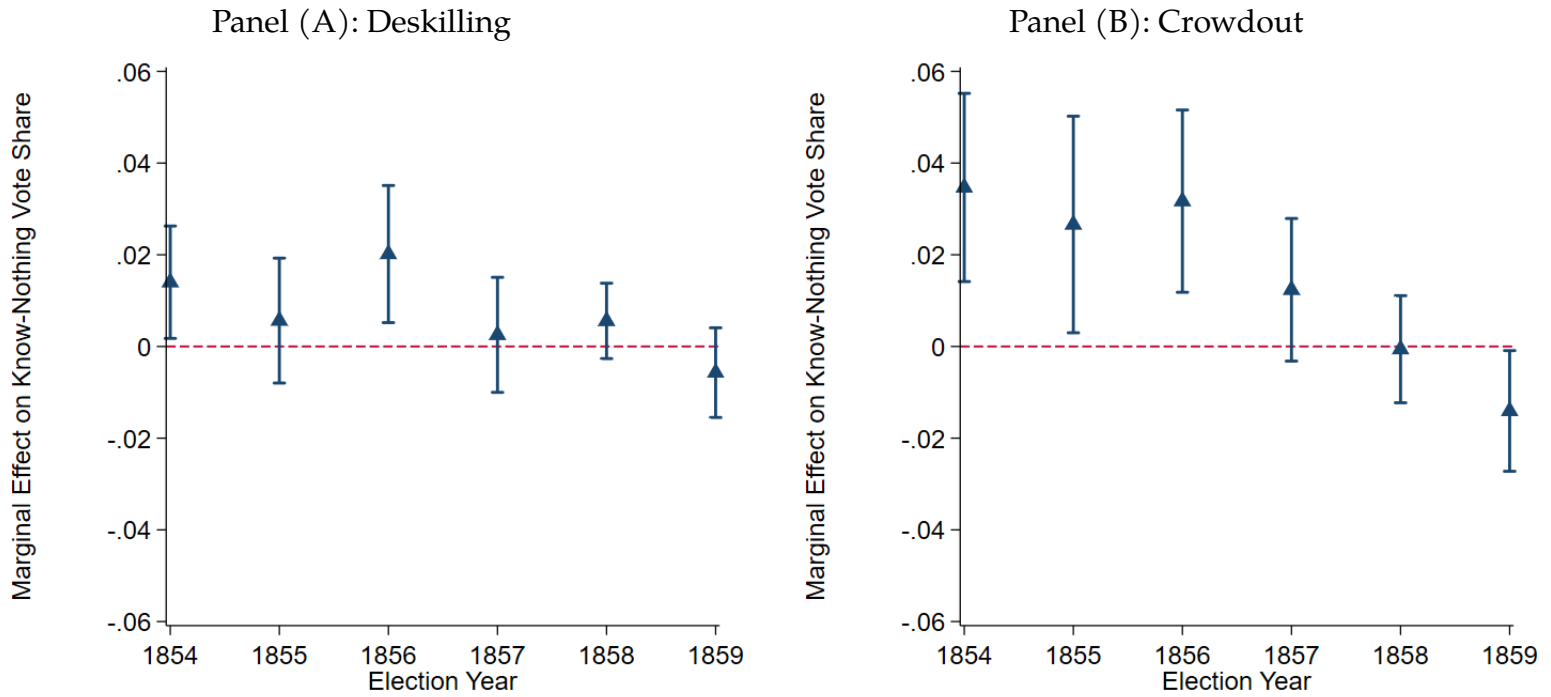


Panel (B): Know-Nothing Legislators Shifting Parties



Notes: Data from the *Boston Daily Advertiser* entered for the election cycles 1853 to 1857 and demonstrates the number of legislators of a given party and, for those Know-Nothing legislators that could be linked, their party affiliation over time. Source: ?????

Figure A.10: Regression Results: Hypothesized Factors



Notes: Figure plots estimates from Equation (3). The outcome across all specifications is the Share of vote for the respective party in each year. See Section IV.B for the definitions of crowdout and deskillling. We include the same controls as in Table 2 Column (6). The Panel heading provides the coefficient plotted.

B Data Appendix

B.A Town Harmonization

Over the period from which we draw data sources, 1840-1860, Massachusetts newly incorporated 26 towns and cities. We begin with towns listed in the 1840 U.S. Decennial Census to create a base list used to construct a panel of consistent towns across data sources. We aggregate data from the post-1840 incorporated towns into the original town from which they were split, leaving us with 309 towns in the base list (dropping Boston in the main regressions leaves a sample size of 308). Appendix Table B.8 provides a crosswalk of newly incorporated towns to original towns in the 1840 town base list.

Table B.8: Town Crosswalk

Town	Year of Incorporation	Original/Aggregate Town
Achushnet	1860	Dartmouth
Agawam	1855	West Springfield
Ashland	1846	Framingham
Belmont	1859	Cambridge
Blackstone	1845	Mendon
Chicopee	1848	Springfield
Clinton	1850	Lancaster
Holyoke	1850	West Springfield
Lakeville	1853	Middleborough
Lawrence	1847	Andover
Marion	1852	Rochester
Mattapoisett	1857	Rochester
Melrose	1850	Malden
Monterey	1847	Tyringham
Nahant	1853	Lynn
North Andover	1855	Andover
North Reading	1853	Reading
Norwell	1849	Scituate
Peabody	1855	Danvers
Revere	1852	Chelsea
Swampscott	1852	Lynn
West Brookfield	1848	Brookfield
Winchester	1850	Woburn
Winthrop	1852	Chelsea

Two towns additional towns - Boston Corner and Mashpee - are dropped from the analysis that infrequently appear in reported sources. Boston Corner was ceded from Massachusetts to New York in 1853. Mashpee was a reservation for the Wampanoag tribe of indigenous peoples.

B.B Voting Data

The primary outcome variables are town-level annual election returns for governor of the Commonwealth of Massachusetts from various years of the *Massachusetts Register* (?), and

various newspapers. Election returns for governor for 1852-1859 were hand-entered from the *Massachusetts Register*, an annually published state almanac during the period. We corroborate the reported vote totals for 1854 and 1857 in the *Massachusetts Registers* with the original hand-written tallies from the Secretary of Commonwealth's office kept in the Massachusetts State Archives. Returns for the 1853 State Constitution vote also come from the *Massachusetts Register*. Election returns for the 1844 gubernatorial election and were entered from the hand-written records of the Secretary of the Commonwealth held at the Massachusetts State Archives.

We convert the candidate votes in the share of votes received by each political party by dividing by the total votes cast in the town. Turnout in a given year is calculated from the total votes cast in the town divided by the ratable polls in 1854. Ratable polls were the concept used at the time to measure the number of potential voters, and were reported in the *Massachusetts Register* (?).

Infrequently, a few towns did not send returns to the State. These towns are dropped from regressions in years in which vote totals are not reported, but are included in the sample in years for which totals were reported. This is the reason why the sample size varies across years in the election outcomes regressions. These anomalies in the reporting are listed below and any adjustments that we make:

1. 1852 - Governor votes not reported in Sharon. Used presidential votes for turnout.
2. 1853 - Governor votes not reported in Tisbury. Missing turnout.
3. 1855 - Governor votes not reported in Chilmark. Missing turnout.
4. 1854 - All towns reported.
5. 1856 - Governor votes not reported in Holland and Tolland. Used presidential votes for turnout.
6. 1857 - Governor votes not reported in New Ashford. Missing turnout.
7. 1858 - Used unofficial results reported in footnotes for Oxford and Wellfleet.

In addition, ratable polls in 1854 were not reported for Sherbourn and Weymouth. For these two towns, we predicted ratable polls as a function of 1855 town population, using the regression coefficient of ratable polls on population.

B.C Exposure to Labor Market Crowdout

Labor market crowdout measures a town's *exposure* to the state-wide labor supply shock from Irish immigration. It interacts the initial town-level occupation distribution of native-born workers with the state-wide growth in Irish employment in those same occupational categories:

$$(1) \quad crowdout_i = \sum_j \frac{L_{Native,j}^{1850,i}}{L_{TotNative}^{1850,i}} \cdot \frac{(L_{Irish,j}^{1855,Mass} - L_{Irish,j}^{1850,Mass})}{L_{Total,j}^{1850,Mass}},$$

where i indexes local labor markets, j represents skill groups, and the time step is between the 1850 Federal Census and the 1855 Massachusetts Census. State-wide shifts in skill cell-specific labor market competition from Irish immigrants - the second term in Equation (4) - is measured as the change in the number of each skill cell that is Irish-born between 1850

and 1855 normalized by total labor in that occupation in 1850. These shifts are weighted by the skill cell's share in each local labor market's initial native-born employment.

Skill-groups are defined by broad occupational categories, comparable across datasets: agriculturalists, boot and shoe makers, factory operatives, laborers, manufacturers, mariners, low-skill mechanics, high-skill mechanics, merchants, professionals, and miscellaneous. The eleven broad categories correspond to those used in the published aggregate statistics of the 1855 Massachusetts census (?). We use these to verify that our data digitization of the 1855 microdata aligns closely with the published aggregates.

The initial occupation distributions are constructed from the 1850 Decennial Census microdata provided by (?). State-level changes in foreign-born penetration for each skill group are constructed from a combination of the 1850 complete count census, and the 1855 Massachusetts Population Census microdata provided by FamilySearch.org (?). The latter required digitizing the 1855 Massachusetts microdata, hand-entering occupations for 300,000 working age men. First, occupation strings were coded into the 1880 specific IPUMS occupation codes (OCC). The 1850 IPUMS complete count census microdata contains OCC codes. For both the 1850 and 1855 data, we then constructed the state-level foreign-born (or Irish) proportion in each of the eight broad occupation categories. The sample is limited to men, at least 15 years old, with a reported occupation and reported country of birth for both the 1850 and 1855 data. A reported occupation corresponds to an 1880 IPUMS OCC code of less than 300.

The primary labor market crowdout variable includes only the increase in Irish workers in each broad occupational category between 1850 and 1855. However, we also construct a number of other shocks based on immigrant ethnicity to use in robustness checks: British, German, and a combined British and German category.

B.D Exposure to Deskilling

Exposure to deskilling follows the general setup of a shift-share variable equation – state-wide industry-specific changes in average establishment size are interacted with lagged local industry employment shares:

$$(2) \quad deskilling_i = \sum_k \frac{L_k^{1845,i}}{L_{Tot}^{1840,i}} \cdot \left(\frac{L_k^{1855,Mass}}{N_k^{1855,Mass}} - \frac{L_k^{1845,Mass}}{N_k^{1845,Mass}} \right) ,$$

where i denotes town, k denotes industry, L denotes employment and N represents the number of establishments. The initial industry employment levels $L_k^{1845,i}$ by town are constructed from town-level reports in the 1845 Massachusetts Manufacturing Census, which we hand-entered (?). The census reported town by industry aggregates, not firm-level microdata. An example of the type of information provided can be seen in Appendix Figure B.11. A total of 106 industry categories were reported in the 1845 Manufacturing Census, which are listed in Appendix Table B.9. Note that the denominator for the share of employed is taken from the 1840 U.S. Decennial Population Census provided by IPUMS (?). This is so we could normalize by all employment in both manufacturing and agriculture, since the latter is not reported in the manufacturing census. Transportation workers, merchants, and professionals are also included in the total labor force.

? demonstrate that average establishment wage declines with establishment size consistent with deskilling. See also ?, ? and ? for additional motivation for the use of establishment

size as related to deskilling. Thus, the shifts in the deskilling exposure variable comes from the industry-specific state-wide changes in average establishment size. We use the 1845 and 1855 Massachusetts Manufacturing Censuses to construct this shift (??). State-wide totals of establishments and employment by industry were hand-entered to construct the shift. Per the instructions to assessors, information on the number of establishments was not requested for all industries. We are left with 62 industries in 1845 and 83 in 1855 where we can estimate average establishment size. The industries that did not report number of establishments fit into one of two categories: cottage industries using the putting-out system where the idea of an establishment lacks much meaning in our measure, or in industries with relatively small employment that resembled small shops.

By construction, our deskilling index gives a shift of zero in the industries where we cannot estimate average establishment size in both years. However, cottage industries had already experienced the deskilling process. These industries that formerly relied on itinerant artisans for all aspects of production now moved to using the putting out system. Production was divided into a series of low- and high-skill tasks, with low-skill tasks given to private households to complete during free time, say when not working in fields. For example, according to ? the boot and shoe industry in Massachusetts had already switched from skilled artisan cobblers to the low-skilled putting out system by the late 1830s. Thus, the fact that cottage industries experience no deskilling in the construction of our exposure variable is not an issue.

B.E Other variables

1. **Population, urbanization, and share Irish population in 1855:** Controls for log population, an indicator for urban (town population $\geq 2,500$), and the share of town population that was Irish immigrants are constructed using the 1855 Massachusetts Census microdata provided by ?.
2. **Culture:** We proxy for culture using an index of how Irish are first names that Irish born parents give to their children once in the United States. We take all native-born children born to native or Irish parents and under age 10 in the 1855 State Census. We calculate the Irish name index following ?. Specifically for each given name i , $IrishIndex_i = \frac{\frac{\#Irish_i}{Total_i}}{\frac{\#Irish_i}{Total_i} + \frac{\#Native_i}{Total_i}}$. This variable ranges from 0 to 1, with 0 being a completely American name and 1 being a solely Irish name.
3. **Fiscal Burden of Immigration:** We measure the fiscal burden of immigration using the number of foreign-born paupers in the 1855 Massachusetts Census microdata. The primary variable to measure fiscal burden is an indicator equal to 1 if there are any foreign-born paupers in a town. As a robustness check, we use the share of paupers that are foreign-born. The distribution of the share is highly skewed with a majority of zeros, and thus suggests our use of the indicator.
4. **Pre-existing industry composition:** In regressions, we control for some or all town-level industry shares of employment from the 1840 U.S. Population Census provided by IPUMS (?). The industry categories include: agriculture, manufacturing, commerce, professional, mining, river transportation, and ocean transportation. There were nine towns that existed in 1840 and should have been included in the census microdata, but were not. We use the county average industry shares for these towns: Boxford, Brook-

Figure B.11: Example of 1845 Massachusetts Manufacturing Census Town-level Tabulation

LYNNFIELD.

Woollen Mills, 1 ; sets of machinery, 1 ; wool consumed, 11,000 lbs. ; flannel or blanketing, m'd, 30,350 yds. ; V. \$8,269 ; C. \$5,000 ; M. E. 7 ; F. E. 2. •

Establishments for m. of Rail-road Cars, Coaches, Chaises and other vehicles, 2 ; V. of vehicles m'd, \$1,000 ; C. \$500 ; E. 4.

Shoes m'd, 36,661 pairs ; V. \$23,717 ; M. E. 62 ; F. E. 43.

Lumber prepared, 90,000 feet ; V. \$1,038 ; E. 7.

Fire Wood prepared, 1,418 cords ; V. \$4,098 ; E. 25.

Sheep, 6 ; V. \$12 ; wool produced, 30 lbs ; V. \$15.

Horses, 58 ; V. \$2,505 ; neat cattle, 311 ; V. \$6,814 ; swine, 103 ; V. \$997.

Indian Corn or Maize raised, 2,341 bush. ; V. \$1,404 ; rye, 354 bush. ; V. \$283 ; barley, 37 bush. ; V. \$29 ; oats, 321 bush. ; V. \$128 ; potatoes, 7,095 bush. ; V. \$2,128 ; other esculent vegetables, 750 bush. ; V. \$112 ; hay, 714 tons ; V. \$7,464.

Fruit raised, 3,755 bush. ; V. \$750.

Butter, 11,026 lbs. ; V. \$1,874.

Source: ?

- line, Easthampton, Essex, Georgetown, Hanover, Rowley, Somerville, Westhampton.
5. **Mill Town Indicator:** A mill town is defined as a settlement that developed around one or more textile mills. The mill town indicator is equal to one if the town had a high proportion of town employment in textile mills in the 1845 Massachusetts Manufacturing Census (?).
 6. **Native Labor Demand Shift:** Meant to control for potential changes in demand for native labor, the native demand shift is measured as: $D_{i,native} = \frac{L_{i,native}^{1855} - L_{i,native}^{1850}}{L_{i,native}^{1850}}$, using data from the 1850 U.S. and 1855 Massachusetts population censuses (??).
 7. **Industrialization variables:** Our results on the short-run industrial response to Irish immigration use the level and change in establishments per capita and log output dollar value per capita at the town level. Establishments per capita is calculated as the total number of manufacturing establishments in a town in 1855 (or 1850) divided by the population in the town in 1855 (1850). The log dollar value of manufacturing output per capita is calculated similarly. Change in establishments per capita is the difference in levels. Change in output value is the difference in log dollars per capita. Establishments and output value was digitized from the 1845 and 1855 Massachusetts Manufacturing Censuses (??). Population is calculated from the 1850 U.S. census and 1855 Massachusetts census microdata (??).
 8. **Cottage industry exposure:** Town cottage industry employment is measured using the employment counts in the 1845 Massachusetts Manufacturing Census (?). We code an industry as "cottage" if it has a high percentage of female workers and a high percentage of hand power in 1850, or there is narrative evidence that production was primarily done by the putting out system. Cottage industries include: boots and shoes (71% of all cottage employment); straw bonnets and hats (27%); snuff, tobacco, and cigars (< 1%); whips; port-monnaies, pocket-books, etc. (< 1%); clothing (< 1%); bookbinding (< 1%). The boot and shoe, and straw bonnet and hat industries make up 45 percent of total manufacturing employment in the state.
 9. **Share of natives without a listed occupation:** Measured in 1850 at the town-level using the 1850 U.S. census microdata (?), this variable captures the share of native-born males of working age (>15) with an empty occupation string or non-occupational response. We include this variable to capture potential measurement error in the initial 1850 occupation shares used in the crowdout exposure index and the fact that some men did not have occupations and may have been unemployed. Errors by census takers, in the digitization process, and when categorizing occupation strings into codes may lead to empty occupation strings that cluster within towns and lead to mismeasured occupation shares.
 10. **Town latitude and longitude:** Robustness to forms of spatial correlation requires the use of location information for each historical town. We calculate the latitude and longitude of the centroid of each modern town using the shapefile produced by the Massachusetts Bureau of Geographic Information.¹ The shapefile uses the state plane coordinate system (Massachusetts - 2001), which we convert to latitude and longitude and calculate town centroids using ArcMap. The modern shapefile includes towns incorpo-

¹Source: <http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/townsurvey.html> (Accessed on June 17, 2020)

rated after our 1840 town base list, and does not include historical towns that no longer exist. To handle towns incorporated after 1840, we use two methods. First, we apply the modern geographic centroid of the original town from which the newly incorporated town seceded. Second, we average the latitude and longitude of all modern town centroids that were part of the 1840 town. Results are not affected by this choice. Nine historical towns no longer exist: four were annexed by Boston, four were flooded by the construction of the Quabbin Reservoir in 1938, and one town was ceded to Rhode Island.²

- (a) Brighton - annexed by Boston in 1874, dropped pin by eyeballing centroid in google maps, 42.34; -71.15
- (b) Charlestown - annexed by Boston in 1874. See https://tools.wmflabs.org/geohack/geohack.php?pagename=Charlestown,_Boston¶ms=42_22_31_N_71_03_52_W_region:US-MA_type:city
- (c) Dorchester - annexed by Boston in 1870, dropped pin by eyeballing centroid in google maps, 42.29; -71.06
- (d) West Roxbury - annexed by Boston in 1868, dropped pin by eyeballing centroid in google maps, 42.28; -71.16
- (e) Dana - disincorporated as part of Quabbin Reservoir. See https://tools.wmflabs.org/geohack/geohack.php?pagename=Dana,_Massachusetts¶ms=42_25_19_N_72_13_39_W_type:city_region:US-MA
- (f) Enfield - disincorporated as part of Quabbin Reservoir. See https://tools.wmflabs.org/geohack/geohack.php?pagename=Enfield,_Massachusetts¶ms=42_19_0_N_72_19_58_W_type:city_region:US-MA
- (g) Greenwich - disincorporated as part of Quabbin Reservoir. See https://tools.wmflabs.org/geohack/geohack.php?pagename=Greenwich,_Massachusetts¶ms=42_21_33_N_72_17_47_W_type:city_region:US-MA
- (h) Prescott - disincorporated as part of Quabbin Reservoir. See https://tools.wmflabs.org/geohack/geohack.php/pagename=Prescott,_Massachusetts¶ms=42_23_30_N_72_20_41_W_type:city_region:US-MA
- (i) Pawtucket - ceded to Rhode island in 1862. See https://tools.wmflabs.org/geohack/geohack.php?pagename=Pawtucket,_Rhode_Island¶ms=41_52_32_N_71_22_34_W_type:city

²All websites accessed on June 17, 2020.

Table B.9: Industries Used in Exposure to Factories Variable

No.	MA Census Code	1845 Listed Industries	No.	MA Census Code	1845 Listed Industries
1	1	Cotton Mills	54	58	Fire Arms
2	2	Calico Manufactories	55	59	Cannon
3	3	Bleaching and Coloring	56	60	Chocolate Mills
4	4	Woollen	57	61	Chair and Cabinet Manufacturers
5	5	Carpeting	58	62	Tin ware
6	6	Worsted	59	63	Comb Manufactories
7	7	Hosiery	60	64	White Lead and Other Paints
8	8	Linen	61	65	Linseed Oil
9	9	Silk	62	66	Camphene or Burning Fluid
10	10	Rolling, Slitting, and Nail Machines	63	67	Glue and Gum Manufactories
11	11	Forges	64	68	Cotton Gins
12	12	Pig-iron	65	69	Flour Mills
13	13	Hollow Ware and Castings	66	70	Tanneries
14	14	Machinery	67	71	Currying Establishments
15	15	Steam Engines and Boilers	68	72	Patent and Enameled Leather
16	16	Fire Engines	69	73	Boots and Shoes
17	17	Scythes	70	74	Straw Bonnets and hats
18	18	Axes, Hatchets, and Edge Tools	71	75	Bricks
19	19	Cutlery, Door Handles and Latches	72	76	Mathematical Instruments
20	20	Screws	73	77	Snuff, Tobacco, and Cigars
21	21	Butts or Hinges	74	78	Building Stone
22	23	Locks	75	79	Marble
23	24	Tacks and Brads	76	80	Lime
24	25	Shovels, Spades, Forks, and Hoes	77	81	Mineral Coal and Iron Ore
25	26	Ploughs and Other Agricultural Implements	78	82	Charcoal
26	27	Iron Railings, Fences, and Safes	79	83	Whips
27	28	Copper	80	84	Blacking
28	29	Brass Foundries	81	85	Blocks and Pumps
29	30	Brittania Ware	82	86	Mechanics Tools
30	31	Buttons	83	87	Wooden Ware
31	32	Glass	84	88	Corn and Other Brooms
32	33	Starch	85	90	Lasts and Shoe Pegs
33	34	Chemical Preparations	86	91	Lumber
34	35	Paper	87	92	Firewood
35	36	Piano-Fortes and Other Musical Instruments	88	117	Casks
36	37	Clocks	89	118	Fringe and Tassels
37	38	Sewing Machines Chronometers, Watches, Gold and Silver	90	119	Stone and Earthen Ware
38	40	Ware and Jewelry, Gold Pens	91	120	Sashes, Doors, and Blinds
39	41	Brushes	92	121	Gas
40	42	Saddles, Harness, and Trunks	93	122	Pickles and Preserves
41	43	Upholstery	94	123	Alcohol and other Distilled Liquors
42	44	Hats and Caps	95	124	Beer
43	45	Cordage	96	125	Friction Matches
44	46	Boats	97	126	India Rubber Goods
45	48	Masts and Spars	98	127	Bread
46	50	Cards	99	128	Types and Stereotype Plates
47	51	Salt Railroad Cars, Coaches, Chaises, Wagons,	100	129	Boxes of all kinds
48	52	Sleighs, and Other Vehicles	101	130	Confectionery
49	53	Lead	102	132	Porte-monnaies, Pocket-books, etc.
50	54	Sugar Refined	103	133	Clothing
51	55	Oil and Sperm Candles	104	138	Printing
52	56	Soap and Tallow Candles	105	139	Bookbinding Gravestones, Wheelwright Stock, Baskets, Umbrellas and a variety of other articles not elsewhere enumerated
53	57	Powder Mills	106	140	

Table B.10: Matched Sample vs Unmatched Population

	(1) Population Mean	(2) Difference: Matched-Population
=1 if urban	0.248	-0.056*** (0.002)
=1 if owns property	0.336	0.111*** (0.002)
Ln(Real Estate Property + 1)	2.462	0.822*** (0.018)
=1 if literate	0.996	0.002*** (0.000)
=1 if Agriculturalist	0.250	0.053*** (0.002)
=1 if Boots and Shoes	0.119	0.015*** (0.002)
=1 if Factory Operative	0.005	-0.001*** (0.000)
=1 if High Skill Mechanic	0.095	0.002*** (0.001)
=1 if Laborer	0.110	-0.031*** (0.001)
=1 if Low Skill Mechanic	0.146	-0.013*** (0.002)
=1 if Manufacturer	0.026	0.002*** (0.001)
=1 if Mariner	0.072	-0.003*** (0.001)
=1 if Merchant	0.094	-0.013*** (0.001)
=1 if Miscellaneous	0.056	-0.007*** (0.001)
=1 if Professional	0.025	-0.003*** (0.001)
Age	35.803	0.824*** (0.076)

Notes: N=176,634 (118,908 unmatched; 60,726 matched). Table reports Population means and differences in variables between population and matched sample. We regress the variable of interest on a dummy for being in the matched sample. *, **, *** refer to statistical significance at the 10, 5 and 1 percent level, respectively.