Online Appendix

The Labor Market Impacts of Universal and Permanent Cash Transfers: Evidence from the Alaska Permanent Fund

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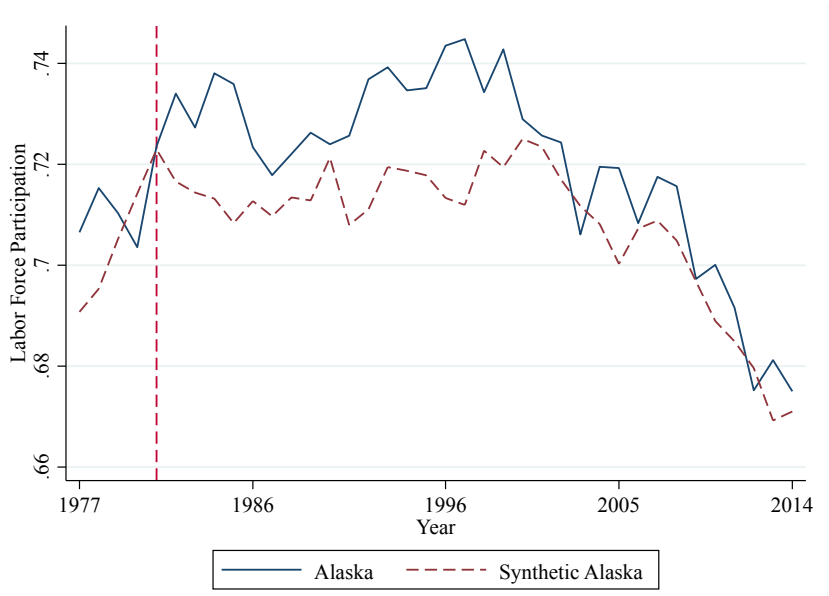
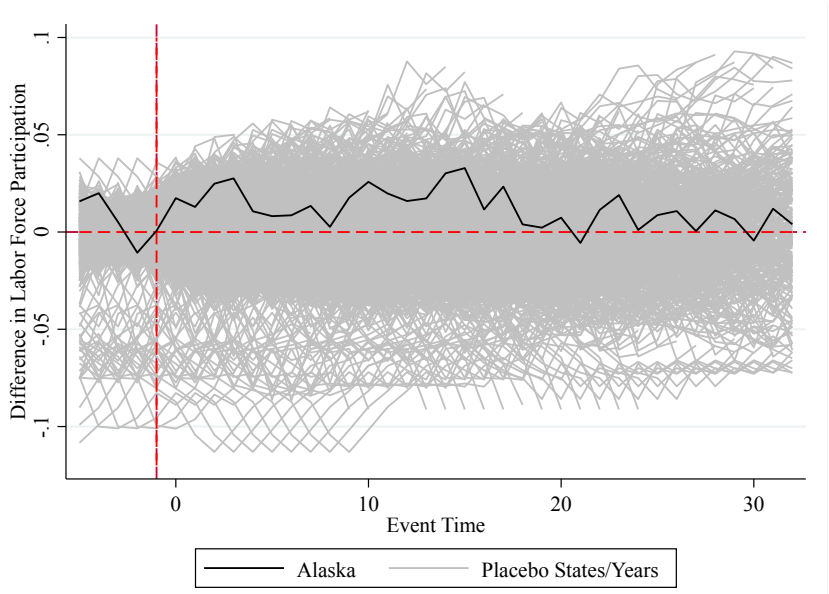
Appendix A Appendix Tables and Figures

Figure A.1: Labor Force Participation, 1977-2014



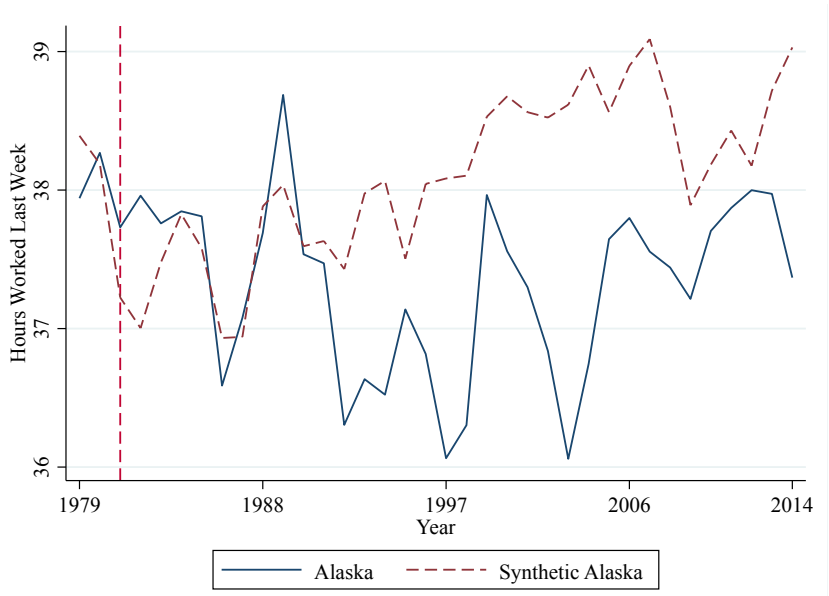
(a) Labor Force Participation: Alaska vs. Synthetic Alaska



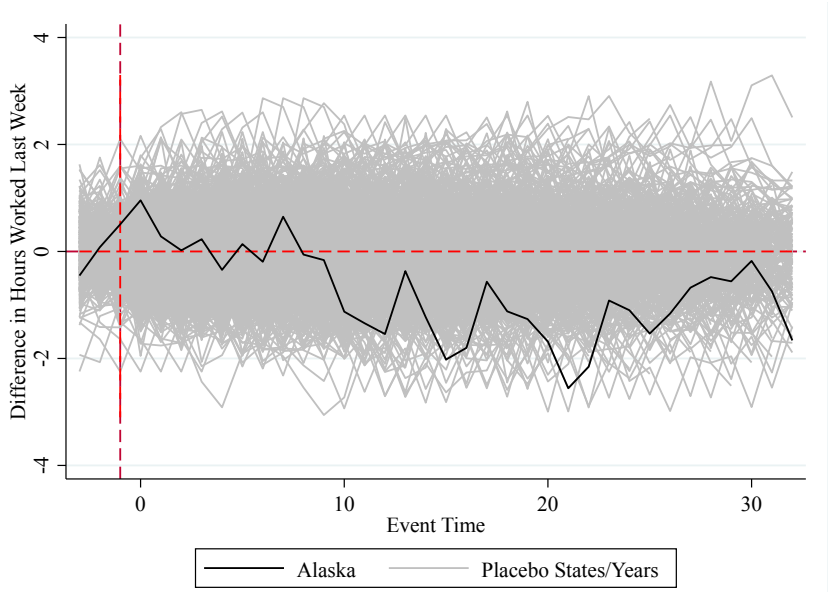
(b) Synthetic Difference in Labor Force Participation, Alaska vs. Placebo States

Notes: Panel (a) plots the synthetic control estimates of labor force participation for Alaska from 1977 to 2014. The solid line plots the actual employment rate in Alaska, while the dotted line plots the synthetic control estimate. The vertical dashed line indicates 1981, the year before the onset of the Alaska Permanent Fund Dividend. Panel (b) plots the results of a permutation test of the significance of the difference between Alaska and synthetic Alaska. The solid dark line plots the difference for Alaska using the true introduction of the treatment in 1982. The light grey lines plot the difference using other states and or other treatment years. See Appendix Table A.9 for the combination of states and weights that comprise each synthetic control.

Figure A.2: Hours Worked Last Week, 1977-2014



(a) Hours Worked Last Week: Alaska vs. Synthetic Alaska



(b) Synthetic Difference in Hours Worked Last Week, Alaska vs. Placebo States

Notes: Panel (a) plots the synthetic control estimates of hours worked last week for Alaska from 1977 to 2014. The solid line plots the actual employment rate in Alaska, while the dotted line plots the synthetic control estimate. The vertical dashed line indicates 1981, the year before the onset of the Alaska Permanent Fund Dividend. Panel (b) plots the results of a permutation test of the significance of the difference between Alaska and synthetic Alaska. The solid dark line plots the difference for Alaska using the true introduction of the treatment in 1982. The light grey lines plot the difference using other states and or other treatment years. See Appendix Table A.9 for the combination of states and weights that comprise each synthetic control.

Table A.1: Synthetic Control Estimates, Average Difference 1982-2014, by Age

	55 and Over		Under 55	
	(1)	(2)	(3)	(4)
	Employment Rate	Part-Time Rate	Employment Rate	Part-Time Rate
$\hat{\alpha}_1$	0.046	0.015	0.009	0.013
p-value	0.020	0.053	0.494	0.105
95% CI	[0.005,0.086]	[-0.000,0.030]	[-0.020,0.039]	[-0.004,0.031]
Number of placebos	1,836	1,836	1,836	1,836
Pre-Period RMSE	0.021	0.005	0.007	0.004
RMSE Percentile	0.895	0.389	0.511	0.427

Notes: Table presents estimates of effect of Alaska Permanent Fund Dividend on several outcomes, using the synthetic control method outlined in Section 3. The treatment effect is averaged over the years 1982 to 2014. The p-value and confidence intervals are constructed using the permutation test also described in Section 3. Root mean squared error (RMSE) is calculated using up to 5 years of pre-treatment data, and percentile is based on a comparison among all placebo estimates. See Appendix Table A.14 for the combination of states and weights that comprise each synthetic control.

Table A.2: Synthetic Control Estimates, Average Difference 1982-2014, in-space placebos

	(1)	(2)	(3)	(4)
	Employment Rate	Part-Time Rate	Labor Force Participation	Hours Worked Last Week
$\hat{\alpha}_1$	0.001	0.018	0.012	-0.796
p-value	0.980	0.059	0.431	0.118
95% CI	[-0.062,0.064]	[-0.001,0.038]	[-0.041,0.065]	[-1.681,0.165]
Number of placebos	51	51	51	51
Pre-Period RMSE	0.005	0.003	0.013	0.394
RMSE Percentile	0.275	0.294	0.882	0.706

Notes: Table presents estimates of effect of Alaska Permanent Fund Dividend on several outcomes, using the synthetic control method outlined in Section 3. The treatment effect is averaged over the years 1982 to 2014. The p-value and confidence intervals are constructed using the permutation test also described in Section 3. Root mean squared error (RMSE) is calculated using up to 5 years of pre-treatment data, and percentile is based on a comparison among all placebo estimates. See Appendix Table A.9 for the combination of states and weights that comprise each synthetic control.

Table A.3: Synthetic Control Estimates, Average Difference 1982-2014, Last Year Method

	(1)	(2)	(3)	(4)
	Employment Rate	Part-Time Rate	Labor Force Participation	Hours Worked Last Week
$\hat{\alpha}_0$	-0.002	0.017	0.034	-0.703
p-value	0.880	0.034	0.038	0.151
95% CI	[-0.034,0.031]	[0.001,0.032]	[0.004,0.066]	[-1.786,0.345]
Number of placebos	1,836	1,836	1,836	1,734
Pre-Period RMSE	0.006	0.003	0.025	0.301
RMSE Percentile	0.610	0.199	0.979	0.435

Notes: Table presents estimates of effect of Alaska Permanent Fund Dividend on several outcomes, using the synthetic control method outlined in Section 3. The treatment effect is averaged over the years 1982 to 2014. The p-value and confidence intervals are constructed using the permutation test also described in Section 3. Root mean squared error (RMSE) is calculated using up to 5 years of pre-treatment data, and percentile is based on a comparison among all placebo estimates. See Appendix Table A.15 for the combination of states and weights that comprise each synthetic control.

Table A.4: Synthetic Control Estimates, Average Difference 1982-2014, longer pre-period

	(1)	(2)	(3)
	Employment Rate		
Earliest Year	1977	1970	1960
$\hat{\alpha}_1$	0.001	0.030	0.030
p-value	0.942	0.047	0.052
95% CI	[-0.030,0.033]	[0.000,0.061]	[-0.001,0.061]
Number of placebos	1,836	1,836	1,836
Pre-Period RMSE	0.005	0.011	0.011
RMSE Percentile	0.322	0.662	0.564

Notes: Table presents estimates of effect of Alaska Permanent Fund Dividend on several outcomes, using the synthetic control method outlined in Section 3. The treatment effect is averaged over the years 1982 to 2014. The p-value and confidence intervals are constructed using the permutation test also described in Section 3. Root mean squared error (RMSE) is calculated using up to 5 years of pre-treatment data, and percentile is based on a comparison among all placebo estimates. See Appendix Table A.9 for the combination of states and weights that comprise the synthetic control for column (1) and Appendix Table A.16 for columns (2) and (3).

Table A.5: Synthetic Control Estimates, Average Difference 1982-1985

	(1)	(2)	(3)	(4)
	Employment Rate	Part-Time Rate	Labor Force Participation	Hours Worked Last Week
$\hat{\alpha}_0$	0.026	0.003	0.021	0.372
p-value	0.104	0.669	0.092	0.306
95% CI	[-0.009,0.061]	[-0.012,0.016]	[-0.007,0.048]	[-0.618,1.298]
Number of placebos	357	357	357	255
Pre-Period RMSE	0.005	0.003	0.013	0.394
RMSE Percentile	0.471	0.468	0.936	0.800

Notes: Table presents estimates of effect of Alaska Permanent Fund Dividend on several outcomes, using the synthetic control method outlined in Section 3. The treatment effect is averaged over the years 1982 to 1985. The p-value and confidence intervals are constructed using the permutation test also described in Section 3. Root mean squared error (RMSE) is calculated using up to 5 years of pre-treatment data, and percentile is based on a comparison among all placebo estimates. See Appendix Table A.9 for the combination of states and weights that comprise each synthetic control.

Table A.6: Synthetic Control Estimates, Average Difference 1982-2014, controlling for oil production

	(1)	(2)	(3)	(4)
	Employment Rate	Part-Time Rate	Labor Force Participation	Hours Worked Last Week
$\hat{\alpha}_0$	0.025	0.009	0.018	-0.824
p-value	0.097	0.141	0.169	0.082
95% CI	[-0.006,0.058]	[-0.004,0.023]	[-0.013,0.048]	[-1.776,0.176]
Number of placebos	1,836	1,836	1,836	1,734
Pre-Period RMSE	0.006	0.003	0.014	0.538
RMSE Percentile	0.335	0.298	0.932	0.881

Notes: Table presents estimates of effect of Alaska Permanent Fund Dividend on several outcomes, using the synthetic control method outlined in Section 3. The treatment effect is averaged over the years 1982 to 2014. The p-value and confidence intervals are constructed using the permutation test also described in Section 3. Root mean squared error (RMSE) is calculated using up to 5 years of pre-treatment data, and percentile is based on a comparison among all placebo estimates. See Appendix Table A.17 for the combination of states and weights that comprise each synthetic control.

Table A.7: Synthetic Control Estimates, Average Difference 1982-2014 Government Spending Shares

	(1)	(2)	(3)	(4)
	Health/Hospitals	Education	Highways	Welfare/Transfers
$\hat{\alpha}_0$	-0.006	-0.074	0.030	-0.018
p-value	0.679	0.011	0.032	0.416
95% CI	[-0.034,0.024]	[-0.127,-0.020]	[0.002,0.056]	[-0.072,0.034]
Number of placebos	1,800	1,800	1,800	1,800
Pre-Period RMSE	0.012	0.019	0.022	0.007
RMSE Percentile	0.966	0.919	0.979	0.381

Notes: Table presents estimates of effect of Alaska Permanent Fund Dividend on several outcomes, using the synthetic control method outlined in Section 3. The treatment effect is averaged over the years 1982 to 2014. The p-value and confidence intervals are constructed using the permutation test also described in Section 3. Root mean squared error (RMSE) is calculated using up to 5 years of pre-treatment data, and percentile is based on a comparison among all placebo estimates. See Appendix Table A.18 for the combination of states and weights that comprise each synthetic control.

Table A.8: Synthetic Control Estimates, Average Difference 1980-1981

	(1)	(2)	(3)	(4)
	Employment Rate	Part-Time Rate	Labor Force Participation	Hours Worked Last Week
$\hat{\alpha}_0$	0.001	-0.005	-0.016	1.151
p-value	0.908	0.379	0.190	0.059
95% CI	[-0.034,0.031]	[-0.019,0.009]	[-0.046,0.009]	[-0.025,2.327]
Number of placebos	153	153	153	51
Pre-Period RMSE	0.002	0.002	0.008	0.002
RMSE Percentile	0.412	0.569	0.882	0.157

Notes: There is a policy change in year 1980 and we want to see if it has an effect on the labor market in the short run. The treatment effect is averaged over the years 1980 to 1981. The p-value and confidence intervals are constructed using the permutation test also described in Section 3. Root mean squared error (RMSE) is calculated using up to 5 years of pre-treatment data, and percentile is based on a comparison among all placebo estimates. See Appendix Table A.19 for the combination of states and weights that comprise each synthetic control.

Table A.9: State Weights for Synthetic Alaska

State	Weight
Panel A: Employment Rate	
Utah	0.428
Wyoming	0.342
Washington	0.092
Nevada	0.079
Montana	0.034
Minnesota	0.025
Panel B: Part-Time Rate	
Nevada	0.729
Wyoming	0.160
Louisiana	0.060
Maryland	0.033
District of Columbia	0.019
Panel C: Labor Force Participation	
Nevada	0.373
Minnesota	0.306
Wyoming	0.301
Wisconsin	0.020
Panel D: Hours Worked Last Week	
Wyoming	0.384
Oklahoma	0.358
District of Columbia	0.248
Nevada	0.011

Notes: Table reports the combination of states and weights chosen using the method in Section 3 to construct a synthetic control for Alaska. Panels A through D correspond to columns (1) through (4) in Table 2.

Table A.10: State Weights for Synthetic Alaska, for Men, by Marital Status

State	Weight
Panel A: Employment Rate - All Men	
Montana	0.511
Washington	0.371
District of Columbia	0.081
Florida	0.037
Panel B: Employment Rate - Married Men	
Montana	0.496
Maryland	0.150
Colorado	0.149
Utah	0.086
Washington	0.079
Nevada	0.041
Panel C: Employment Rate - Unmarried Men	
Hawaii	0.479
Montana	0.289
Pennsylvania	0.232
Panel D: Part-Time Rate - All Men	
Wyoming	0.340
Maryland	0.191
District of Columbia	0.185
Washington	0.133
Nevada	0.095
Pennsylvania	0.055
Panel E: Part-Time Rate - Married Men	
Colorado	0.725
Nevada	0.167
New Mexico	0.080
Wyoming	0.026
Maryland	0.002
Panel F: Part-Time Rate - Unmarried Men	
District of Columbia	0.396
Pennsylvania	0.264
Wyoming	0.243
Nevada	0.096

Notes: Table reports the combination of states and weights chosen using the method in Section 3 to construct a synthetic control for Alaska. Panels A through F correspond to columns (1) through (6) in Table 3.

Table A.11: State Weights for Synthetic Alaska, for Women, by Marital Status

State	Weight
Panel A: Employment Rate - All Women	
Minnesota	0.848
Wyoming	0.110
Nevada	0.041
Panel B: Employment Rate - Married Women	
Wyoming	0.362
Maryland	0.195
Hawaii	0.153
Kansas	0.137
North Carolina	0.103
District of Columbia	0.049
Panel C: Employment Rate - Unmarried Women	
Wyoming	0.511
Minnesota	0.417
Nevada	0.073
Panel D: Part-Time Rate - All Women	
Nevada	0.352
Wyoming	0.262
Texas	0.222
District of Columbia	0.075
Louisiana	0.037
Hawaii	0.029
New Mexico	0.023
Panel E: Part-Time Rate - Married Women	
Nevada	0.609
Kansas	0.272
Louisiana	0.119
Panel F: Part-Time Rate - Unmarried Women	
Wyoming	0.500
Nevada	0.240
District of Columbia	0.205
Maryland	0.033
New Jersey	0.022

Notes: Table reports the combination of states and weights chosen using the method in Section 3 to construct a synthetic control for Alaska. Panels A through F correspond to columns (7) through (12) in Table 3.

Table A.12: State Weights for Synthetic Alaska, Common Weights

State	Weight
Panel A: Employment and Part-Time Rate, Common Weights	
Nevada	0.392
Wyoming	0.324
West Virginia	0.125
Washington	0.099
District of Columbia	0.060

Notes: Table reports the combination of states and weights chosen using the method in Section 3 to construct a synthetic control for Alaska. Panel A corresponds to columns (1) and (2) in Table 4.

Table A.13: State Weights for Synthetic Alaska, by tradability

State	Weight
Panel A: Employment Rate - Tradable Sectors	
Oregon	0.987
Montana	0.013
Panel B: Part-Time Rate - Tradable Sectors	
North Dakota	0.454
Hawaii	0.448
Arkansas	0.097
Panel C: Employment Rate - Non-tradable Sectors	
West Virginia	0.899
District of Columbia	0.101
Panel D: Part-Time Rate - Non-tradable Sectors	
Louisiana	0.759
Nevada	0.123
District of Columbia	0.118

Notes: Table reports the combination of states and weights chosen using the method in Section 3 to construct a synthetic control for Alaska. Panels A through D correspond to columns (1) through (4) in Table 6.

Table A.14: State Weights for Synthetic Alaska, by Age

State	Weight
Panel A: Employment Rate - 55 and Over	
Wyoming	0.614
Nevada	0.386
Panel B: Part-Time Rate - 55 and Over	
Nevada	0.576
Hawaii	0.359
West Virginia	0.066
Panel C: Employment Rate - Under 55	
New Mexico	0.385
Montana	0.342
New York	0.187
West Virginia	0.058
Hawaii	0.028
Panel D: Part-Time Rate - Under 55	
Wyoming	0.238
Nevada	0.188
District of Columbia	0.187
West Virginia	0.166
Hawaii	0.100
Oklahoma	0.073
Pennsylvania	0.049

Notes: Table reports the combination of states and weights chosen using the method in Section 3 to construct a synthetic control for Alaska. Panels A through D correspond to columns (1) through (4) in Table A.1.

Table A.15: State Weights for Synthetic Alaska, Last Year Method

State	Weight
Panel A: Employment Rate, Last Year Method	
Utah	0.420
Wyoming	0.288
Colorado	0.204
Oklahoma	0.070
Nevada	0.019
Panel B: Part-Time Rate, Last Year Method	
Nevada	0.697
Wyoming	0.119
Louisiana	0.099
Washington	0.063
Colorado	0.022
Panel C: Labor Force Participation, Last Year Method	
Nevada	0.473
Montana	0.252
Delaware	0.144
Colorado	0.132
Panel D: Hours Worked Last Week, Last Year Method	
Oklahoma	0.544
District of Columbia	0.275
North Dakota	0.182

Notes: Table reports the combination of states and weights chosen using the method in Section 3 to construct a synthetic control for Alaska. Panels A through D correspond to columns (1) through (4) in Table A.3.

Table A.16: State Weights for Synthetic Alaska, longer pre-period

State	Weight
Panel A: Employment Rate - Additional pre-period from 1970	
Hawaii	0.737
Nevada	0.256
Wyoming	0.006
Panel B: Employment Rate - Additional pre-period from 1960	
Hawaii	0.752
Nevada	0.248

Notes: Table reports the combination of states and weights chosen using the method in Section 3 to construct a synthetic control for Alaska. Panels A and B correspond to columns (2) and (3) in Table A.4.

Table A.17: State Weights for Synthetic Alaska, controlling for oil production

State	Weight
Panel A: Employment Rate, controlling for oil production	
Wyoming	0.653
New Mexico	0.234
Louisiana	0.114
Panel B: Part-Time Rate, controlling for oil production	
Wyoming	0.620
District of Columbia	0.294
West Virginia	0.086
Panel C: Labor Force Participation, controlling for oil production	
Wyoming	0.830
Nevada	0.137
Michigan	0.033
Panel D: Hours Worked Last Week, controlling for oil production	
Wyoming	0.543
District of Columbia	0.308
Oklahoma	0.149

Notes: Table reports the combination of states and weights chosen using the method in Section 3 to construct a synthetic control for Alaska. Panels A through D correspond to columns (1) through (4) in Table A.6.

Table A.18: State Weights for Synthetic Alaska Government Spending Shares

State	Weight
Panel A: Health/Hospitals	
Nevada	1.000
Panel B: Education	
Wyoming	0.456
Maryland	0.230
Nevada	0.185
New Jersey	0.130
Panel C: Highways	
Utah	0.518
California	0.329
Wyoming	0.136
Hawaii	0.017
Panel D: Welfare/Transfers	
Wyoming	0.386
Nevada	0.347
Arizona	0.267

Notes: Table reports the combination of states and weights chosen using the method in Section 3 to construct a synthetic control for Alaska. Panels A through D correspond to columns (1) through (4) in Table A.7.

Table A.19: State Weights for Synthetic Alaska

State	Weight
Panel A: Employment Rate	
Oregon	0.441
Wyoming	0.219
Colorado	0.182
Minnesota	0.155
Nevada	0.003
Panel B: Part-Time Rate	
Nevada	0.343
Wyoming	0.270
Maryland	0.255
District of Columbia	0.094
West Virginia	0.038
Panel C: Labor Force Participation	
Nevada	0.775
Wyoming	0.225

Panel D: Hours Worked Last Week

State	Weight	State	Weight	State	Weight
South Dakota	0.188	Arizona	0.014	Wisconsin	0.011
Wyoming	0.171	Colorado	0.014	Kentucky	0.011
North Dakota	0.024	Arkansas	0.014	Minnesota	0.011
Oklahoma	0.023	Louisiana	0.014	West Virginia	0.010
Kansas	0.023	Missouri	0.014	Pennsylvania	0.010
Nevada	0.022	New Hampshire	0.014	Hawaii	0.010
Montana	0.021	Ohio	0.013	Alabama	0.010
Texas	0.021	Indiana	0.013	District of Columbia	0.010
Nebraska	0.020	California	0.012	Washington	0.009
Iowa	0.018	Tennessee	0.012	Illinois	0.009
Georgia	0.017	Mississippi	0.012	Massachusetts	0.009
Florida	0.017	Kentucky	0.011	Oregon	0.009
Vermont	0.016	Wisconsin	0.011	Connecticut	0.009
New Mexico	0.015	Minnesota	0.01	New York	0.008
South Carolina	0.015	Maine	0.011	Michigan	0.008
North Carolina	0.015	Virginia	0.011	Delaware	0.007
Utah	0.015	Maryland	0.011	New Jersey	0.008
Idaho	0.015	Maine	0.011	Rhode Island	0.006

Notes: Table reports the combination of states and weights chosen using the method in Section 3 to construct a synthetic control for Alaska. Panels A through D correspond to columns (1) through (4) in Table A.8.

Appendix B Migration

In this section, we address the potential for differential migration to confound our results. In Figure B.1 we plot annual net migration, using intercensal estimates on state population growth form the Census Bureau, combined with natality and mortality records from the CDC. As can be seen Alaska has greater variation net migration, especially in the early period, and in particular, near the timing of the Alaska PFD in 1981. This is most likely a result of growth in the oil industry during the mid- to late 1970s. To assess how our sensitive our results are to this in-migration, we present three sets of results that account for migration: (1) we control for average net imigration in the pre-period, (2) we control for annual net migration in each pre-period year, and (3) we also use CPS data to reassign recent in-migrants to their home states.

First, In Table B.1 we replicate our main analysis, while introducing average net migration in between 1977 to 1981 as an additional matching variable. Compared to Table 2, we find that our conclusions are largely the same.

Second, in Table B.2, we take a further step and control for net migration in each year between 1977 and 1981, to not only match overall net migration, but also year to year changes in the pre-period. Again, we find very similar results to our main analysis in Table 2.

Third, we propose an adjustment using the Annual Social and Economic Supplement (ASEC) conducted in March that asks one's residence in the previous year. Figure B.2 shows in-migration as share of population over time for Alaska and the rest of the US. Similar to Figure B.1, Alaska experienced a relative influx of new residents during the time just before the introduction of the Alaska Permanent Fund dividend. Because the CPS is not a long panel, we cannot completely drop new migrants from the sample. To partially net out new migrants, we assign each respondent to their state of residence in the prior year. Our data from the ASEC begin in March of 1980.

Column (1) of Table B.3 is reproduced from column (2) of Table A.5. To benchmark our adjustment, we first do not adjust for migration but simply restrict analysis to just the months of March (column 2), and we see a more positive effect on the employment rate, owing to seasonal heterogeneity in our estimates. In column (3), the estimates are very similar to column 2 with a positive employment effect when we adjust for migration by reassigning respondents to their state of residence in the previous year. In columns (4) through (6), we implement the same adjustment for the part-time rate. In that case, we see even less movement in the point estimates, and again draw similar qualitative conclusions after the adjustment.

Figure B.1: Annual Net Migration: 1970 - 2014

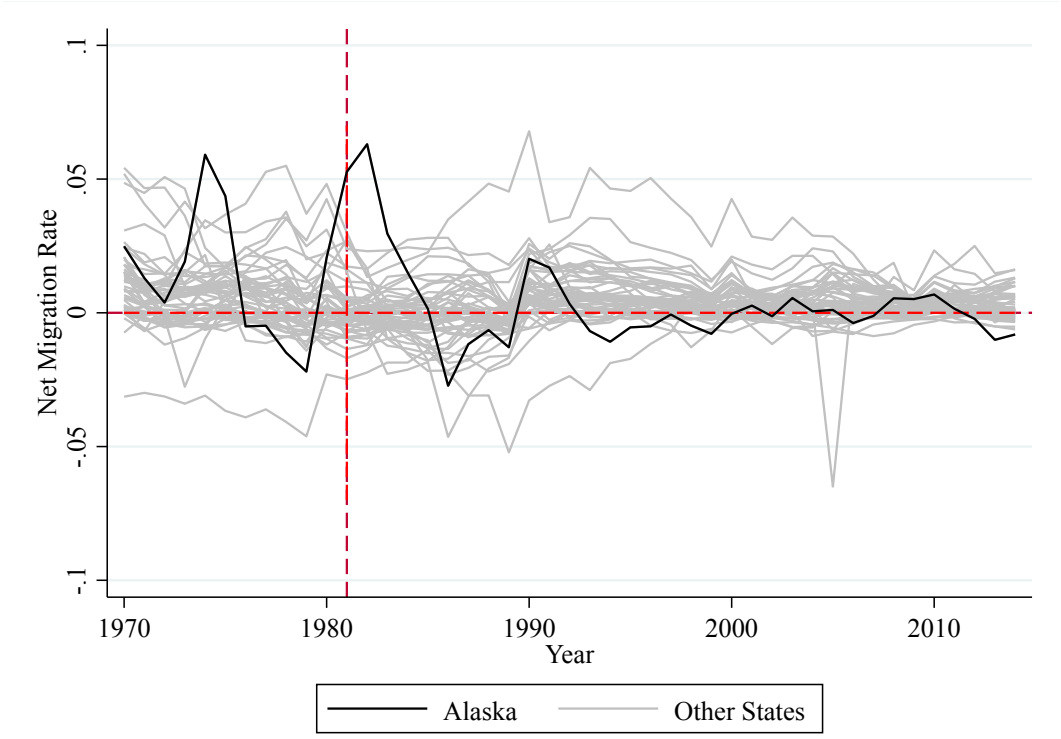


Table B.1: Synthetic Control Estimates, Average Difference 1982-2014, controlling for average net migration

	(1)	(2)	(3)	(4)
	Employment Rate	Part-Time Rate	Labor Force Participation	Hours Worked Last Week
$\hat{\alpha}_0$	0.008	0.015	0.014	-0.772
p-value	0.548	0.038	0.278	0.092
95% CI	[-0.022,0.039]	[0.002,0.029]	[-0.018,0.043]	[-1.723,0.227]
Number of placebos	1,836	1,836	1,836	1,734
Pre-Period RMSE	0.004	0.003	0.012	0.421
RMSE Percentile	0.216	0.224	0.867	0.783

Notes: Table presents estimates of effect of Alaska Permanent Fund Dividend on several outcomes, using the synthetic control method outlined in Section 3. The treatment effect is averaged over the years 1982 to 2014. The p-value and confidence intervals are constructed using the permutation test also described in Section 3. Root mean squared error (RMSE) is calculated using up to 5 years of pre-treatment data, and percentile is based on a comparison among all placebo estimates. See Appendix Table B.4 for the combination of states and weights that comprise each synthetic control.

Table B.2: Synthetic Control Estimates, Average Difference 1982-2014, controlling for annual net migration

	(1)	(2)	(3)	(4)
	Employment Rate	Part-Time Rate	Labor Force Participation	Hours Worked Last Week
$\hat{\alpha}_0$	-0.006	0.011	-0.007	-0.792
p-value	0.658	0.068	0.581	0.085
95% CI	[-0.040,0.027]	[-0.001,0.024]	[-0.040,0.025]	[-1.733,0.164]
Number of placebos	1,836	1,836	1,836	1,734
Pre-Period RMSE	0.009	0.002	0.021	0.477
RMSE Percentile	0.695	0.161	0.975	0.842

Notes: Table presents estimates of effect of Alaska Permanent Fund Dividend on several outcomes, using the synthetic control method outlined in Section 3. The treatment effect is averaged over the years 1982 to 2014. The p-value and confidence intervals are constructed using the permutation test also described in Section 3. Root mean squared error (RMSE) is calculated using up to 5 years of pre-treatment data, and percentile is based on a comparison among all placebo estimates. See Appendix Table B.5 for the combination of states and weights that comprise each synthetic control.

Figure B.2: Share of Residents Living in a Different State Last Year

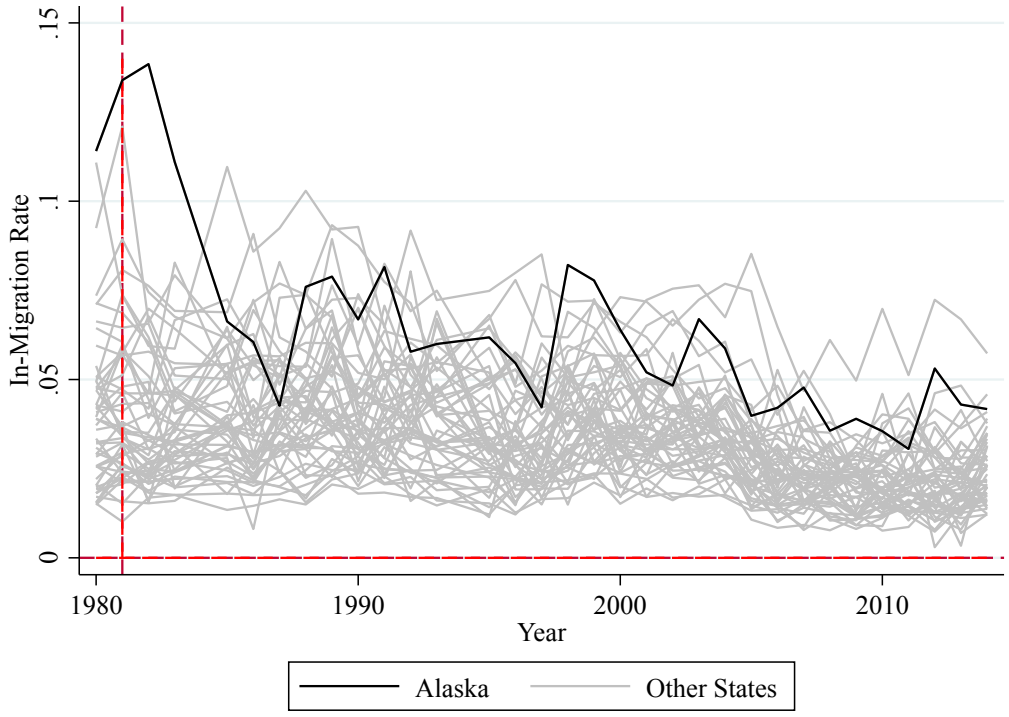


Table B.3: Synthetic Control Estimates, Average Difference 1982-2014, adjusting for in-migration

	(1)	(2)	(3)	(4)	(5)	(6)
	Employment Rate			Part-Time Rate		
	12 Months	March	March Adjusted	12 Months	March	March Adjusted
$\hat{\alpha}_0$	0.026	0.067	0.050	0.003	-0.008	0.004
p-value	0.104	0.029	0.029	0.669	0.436	0.662
95% CI	[-0.009,0.061]	[0.027,0.110]	[0.005,0.095]	[-0.012,0.016]	[-0.032,0.013]	[-0.019,0.025]
Number of placebos	357	204	204	357	204	204
Pre-Period RMSE	0.005	0.003	0.019	0.003	0.003	0.011
RMSE Percentile	0.471	0.471	0.931	0.468	0.475	0.887

Notes: Table presents estimates of effect of Alaska Permanent Fund Dividend on several outcomes, using the synthetic control method outlined in Section 3. The treatment effect is averaged over the years 1982 to 2014. The p-value and confidence intervals are constructed using the permutation test also described in Section 3. Root mean squared error (RMSE) is calculated using up to 5 years of pre-treatment data, and percentile is based on a comparison among all placebo estimates. See Appendix Table B.6 for the combination of states and weights that comprise each synthetic control.

Table B.4: State Weights for Synthetic Alaska, controlling for average net migration

State	Weight
Panel A: Employment Rate, controlling for average net migration	
Colorado	0.496
Montana	0.393
Nevada	0.064
Minnesota	0.033
Wyoming	0.014
Panel B: Part-Time Rate, controlling for average net migration	
Wyoming	0.354
Nevada	0.309
District of Columbia	0.214
Maryland	0.107
West Virginia	0.017
Panel C: Labor Force Participation, controlling for average net migration	
Nevada	0.591
Minnesota	0.395
Michigan	0.015
Panel D: Hours Worked Last Week, controlling for average net migration	
Wyoming	0.413
Oklahoma	0.325
District of Columbia	0.262

Notes: Table reports the combination of states and weights chosen using the method in Section 3 to construct a synthetic control for Alaska. Panels A through D correspond to columns (1) through (4) in Table B.1.

Table B.5: State Weights for Synthetic Alaska, controlling for annual net migration

State	Weight
Panel A: Employment Rate, controlling for annual net migration	
Colorado	0.337
North Dakota	0.235
Minnesota	0.223
District of Columbia	0.205
Panel B: Part-Time Rate, controlling for annual net migration	
District of Columbia	0.449
Montana	0.307
Wyoming	0.235
Nevada	0.009
Panel C: Labor Force Participation, controlling for annual net migration	
Minnesota	0.952
Nevada	0.048
Panel D: Hours Worked Last Week, controlling for annual net migration	
Wyoming	0.425
District of Columbia	0.311
Oklahoma	0.261
New Mexico	0.003

Notes: Table reports the combination of states and weights chosen using the method in Section 3 to construct a synthetic control for Alaska. Panels A through D correspond to columns (1) through (4) in Table B.2.

Table B.6: State Weights for Synthetic Alaska, adjusting for in-migration

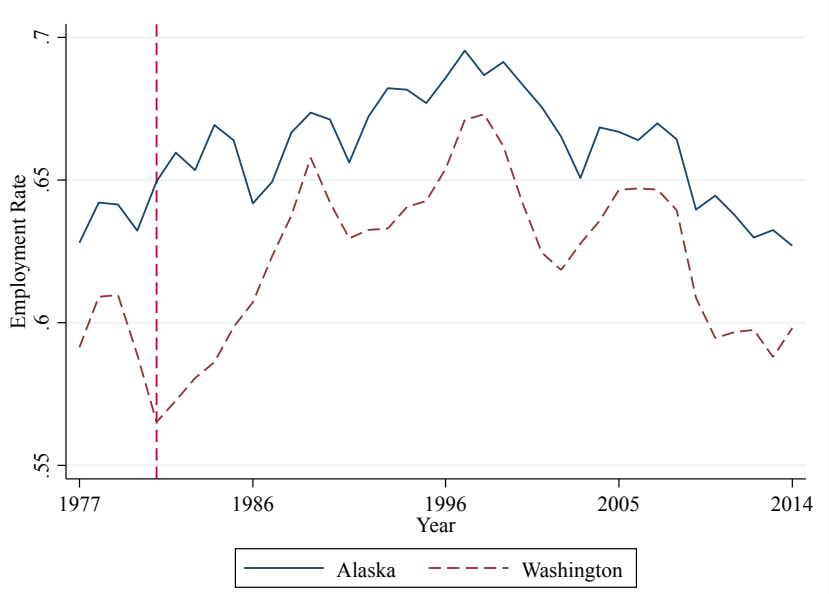
State	Weight
Panel A: Employment Rate, restricted to march	
Alabama	0.494
Wyoming	0.471
North Dakota	0.035
Panel B: Employment Rate, adjusting for in-migration	
New Mexico	0.618
Washington	0.259
Nevada	0.057
Montana	0.039
Hawaii	0.027
Panel C: Part-Time Rate, restricted to march	
Montana	0.420
District of Columbia	0.271
Wyoming	0.184
Nevada	0.125
Panel D: Part-Time Rate, adjusting for in-migration	
Hawaii	0.820
West Virginia	0.122
Nevada	0.058

Notes: Table reports the combination of states and weights chosen using the method in Section 3 to construct a synthetic control for Alaska. Panels A through D correspond to columns (2), (3), (5), and (6) in Table B.3.

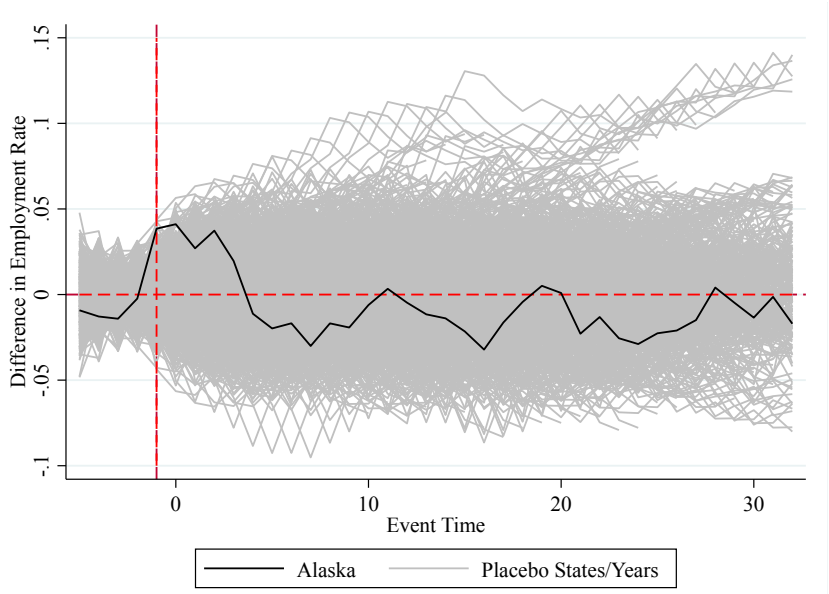
Appendix C Simple Difference-in-Differences Estimates

In this section, we present results using only Washington State as a control for Alaska. We use a difference-in-differences (DD) estimator. Inference is performed using a permutation method, as discussed in Bertrand et al. (2002), where we estimate placebo DD regressions in each of the other 50 states, using only the neighboring state that shares longest boundary with the primary state. Data on length of state boundaries are obtained from the data set accompanying Holmes (1998a). Washington State is used as the neighbor for Alaska, and California is used as the neighbor for Hawaii. Figures C.1 and C.2 present visual analogs to the DD estimators. In the figures with placebo plots, each DD series is shifted by the average level in the pre-period. In that case, the patterns in the pre-period can be used to asses parallel pre-trends, and the patterns in the post period preview the DD estimate.

Figure C.1: Employment Rate, 1977-2014



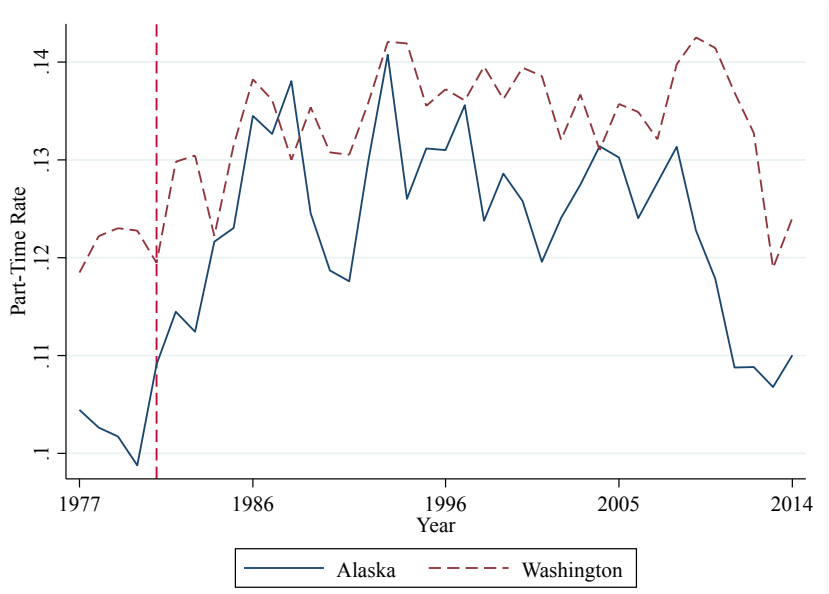
(a) Employment Rate: Alaska vs. Washington State



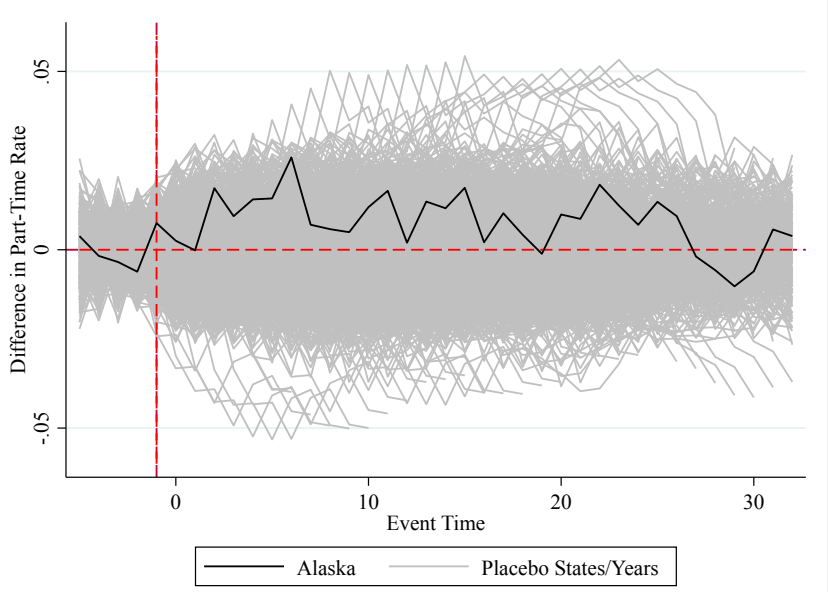
(b) Difference in Employment Rate, Alaska vs. Washington State

Notes: Panel (a) plots the employment rate for Alaska and Washington State, from 1977 to 2014. The vertical dashed line indicates 1981, the year before the onset of the Alaska Permanent Fund Dividend. Panel (b) plots the results of a permutation test of the significance of the difference between Alaska and Washington State. The solid dark line plots the difference for Alaska using the true introduction of the treatment in 1982. The light grey lines plot the difference using other states and or other treatment years. Each series is shifted by the average level in the pre-period, as described in Section Appendix C.

Figure C.2: Part-Time Rate, 1977-2014



(a) Part-Time Rate: Alaska vs. Washington State



(b) Difference in Part-Time Rate, Alaska vs. Washington State

Notes: Panel (a) plots the part-time rate for Alaska and Washington State, from 1977 to 2014. The vertical dashed line indicates 1981, the year before the onset of the Alaska Permanent Fund Dividend. Panel (b) plots the results of a permutation test of the significance of the difference between Alaska and Washington State. The solid dark line plots the difference for Alaska using the true introduction of the treatment in 1982. The light grey lines plot the difference using other states and or other treatment years. Each series is shifted by the average level in the pre-period, as described in Section Appendix C.

Table C.1: Difference-in-Differences Estimates, 1982-2014, Washington Control

	(1)	(2)
	Employment Rate	Part-Time Rate
$\hat{\alpha}_0$	-0.008	0.008
p-value	0.617	0.276
95% CI	[-0.042,0.026]	[-0.007,0.022]
Number of placebos	1,836	1,836

Notes: Table presents estimates of effect of Alaska Permanent Fund Dividend on several outcomes, using a difference-in-differences estimator outlined in Section 3. The pre-perid is defined from 1977 to 1981, and the post period is defined from 1982 to 2014. The p-value and confidence intervals are constructed using a permutation test similar to the one described in Section 6.2.

Appendix D Full List of Datasets Used in Analysis

All data used in this analysis is publicly available. Below are details on each source. All data sets are provided with the data replication package that accompanies this paper.

IPUMS CPS: The paper uses Current Population Survey data from IPUMS-CPS (Flood et al., 2015). IPUMS-CPS does not currently provide the ability to store or reference custom extracts, but allows for redistribution for the purpose of replication. The data citation in the main article has the full URL. There are three extracts. The list of variables downloaded for each extract are listed in the do files `data_IPUMS_main.do`, `data_IPUMS_married.do`, and `data_IPUMS_migration.do`, which can be found in the `code/_data_setup` folder. The definition of all variables can be found at https://cps.ipums.org/cps-action/variables/group. A copy of these data files are provided as a part of this archive in the `data/raw` folder.

Datafiles: `IPUMS_cps_main.dat`, `IPUMS_cps_married.dat`, `IPUMS_cps_migration.dat`

IPUMS Census: The paper uses Decennial US Census data from IPUMS US (Ruggles et al., 2015). IPUMS USA does not currently provide the ability to store or reference custom extracts, but allows for redistribution for the purpose of replication. The data citation in the main article has the full URL. The labels of the variables are included in the `.dta` file, and the definition of all variables can be found at https://usa.ipums.org/usa-action/variables/group. A copy of this data file is provided as a part of this archive in the `data/raw` folder.

Datafiles: `usa_00002.dta`

NBER CPS MORG: The paper uses Current Population Survey, Merged Outgoing Rotation Groups (MORG) data, curated by the National Bureau of Economic Research (National Bureau of Economic Research, 2007). The data can be downloaded at https://data.nber.org/morg/annual/. The data dictionary for these files can be found at https://data.nber.org/morg/docs/cpsx.pdf. A copy of these data files are provided as a part of this archive in the `data/raw` folder.

Datafiles: `morgXX.dta`, `XX`$\in [79, ..., 99, 00, ..., 15]$

Natality data from 1970 to 1994: This paper uses data from the Centers for Disease Control and Prevention (Centers for Disease Control and Prevention, 2016) to construct part of the `net_migration.dta` file. From 1970 to 1994 the births per state are available only in the scanned PDF of the "Vital Statistics of the United States, YYYY" yearly publications of the CDC and can be downloaded at the following links 1970-1979: https://www.cdc.gov/nchs/products/vsus/vsus_1965_1979.htm and for 1980-1994: https://www.cdc.gov/nchs/products/vsus/vsus_1980_2003.htm. For each year there is a table "Live births by State of occurrence distributed according to resident status: United States and each State". The specified pages of the PDFs were converted to Excel using ABBYY FINE READER 11. Then the variable names in the excel files were manually harmonized

(state, births, births_res). A copy of these data files are provided as a part of this archive in the `data/raw` folder.

Datafiles: `natXX_1.xlsx, XX`$\in [70, ..., 94]$

Natality data from 1995 to 2016: This paper uses data from the Centers for Disease Control and Prevention (Centers for Disease Control and Prevention, 2016) to construct part of the `net_migration.dta` file. For Natality, 1995-2002: Data can be downloaded at https://wonder.cdc.gov/natality-v2002.html. Click "I agree" at the end of the page to proceed. Select the Natality, 1995-2002 Request then organize table layout and group results by state, by year, and then Click "send". Finally, select Natality, 1995-2002 Results and export to create the file `Natality, 1995-2002.txt`. For Natality, 2003-2006 : Data can be downloaded at https://wonder.cdc.gov/natality-v2006.html. Click "I agree" at the end of the page to proceed. Select the Natality, 2003-2006 Request then organize table layout and group results by state, by year, and then Click "send". Finally, select Natality, 2003-2006 Results and export to create the file `Natality, 2003-2006.txt`. For Natality, 2007-2016: Data can be downloaded at https://wonder.cdc.gov/natality-current.html. Click "I agree" at the end of the page to proceed. Select the Natality, 2007-2016 Request then organize table layout and group results by state, by year, and then Click "send". Finally, select Natality, 2007-2016 Results and export to create the file `Natality, 2007-2016.txt`. A copy of these data files are provided as a part of this archive in the `data/raw` folder.

Datafiles: `Natality, 1995-2002.txt`, `Natality, 2003-2006.txt`, `Natality, 2007-2016.txt`

Mortality data from 1968 to 2016: This paper uses data from the Centers for Disease Control and Prevention (Centers for Disease Control and Prevention, 2016) to construct the `net_migration.dta` file. This dataset includes a population count, along with mortality data. For Compressed Mortality, 1968-1978, data can be downloaded at https://wonder.cdc.gov/cmf-icd8.html. Click "I agree" at the end of the page to proceed. Select Compressed Mortality, 1968-1978 Request then organize table layout and Group results by State, by year, and then click "send". Finally, select Compressed Mortality, 1968-1978 Results and export to creates the file `Compressed Mortality, 1968-1978`. For Compressed Mortality, 1979-1998, data can be downloaded at https://wonder.cdc.gov/cmf-icd9.html. Click "I agree" at the end of the page to proceed. Select Compressed Mortality, 1979-1998 Request then organize table layout and Group results by State, by year, and then click "send". Finally, select Compressed Mortality, 1979-1998 Results and export to creates the file `Compressed Mortality, 1979-1998`. For Compressed Mortality, 1999-2016, data can be downloaded at https://wonder.cdc.gov/cmf-icd10.html. Click "I agree" at the end of the page to proceed. Select Compressed Mortality, 1999-2016 Request then organize table layout and Group results by State, by year, and then click "send". Finally, select Compressed Mortality, 1999-2016 Results and export to creates the file `Compressed Mortality, 1999-2016`. A copy of these data files are provided as a part of this archive in the `data/raw` folder.

Datafiles: `Compressed Mortality, 1968-1978.txt`, `Compressed Mortality, 1979-1998.txt`, `Compressed Mortality, 1999-2016.txt`

Oil Production: The paper uses data form the U.S. Energy Information Administration to construct the production part of the oil_production.dta file. The data can be downloaded at https://www.eia.gov/state/seds/seds-data-complete.php?sid=US#Production (U.S. Energy Information Administration, 2015). The labels for the variables in the dataset can be found in the second and third sheets of the excel file and the data dictionary can be found at https://www.eia.gov/state/seds/sep_prod/Prod_technotes.pdf. A copy of this data file is provided as a part of this archive in the `data/raw` folder.

Datafiles: `Prod_dataset.xlsx`

Energy Prices: This paper uses data from BP (British Petroleum) website to construct the price part of the oil_production.dta file. The data can be downloaded at https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html (BP, 2017). Click on "Statistical Review of World Energy - all data, 1965-2017". The labels for the variables used are included in the Content sheet within the excel file. More details about the data can be found at https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy/using-the-review/definitions-and-ex
html. A copy of this data file is provided as a part of this archive in the `data/raw` folder.

Datafiles: `bp-statistical-review-of-world-energy-2017-underpinning-data.xlsx`

BEA State GDP: This paper uses data from the U.S. Bureau of Economic Analysis, U.S. Department of Commerce to construct the Gross Domestic Product part of the oil_production.dta file. The data can be downloaded at https://apps.bea.gov/itable/iTable.cfm?ReqID=70&step=1 (Bureau of Economic Analysis, 2017). First click on Annual GPD by State, then select GDP in current dollars and choose the option 1997-forward or 1963-1997.Select next step and choose all areas, all industry total, levels, either 1963-1997 or 1997-2017.Description of the data is provided as pre-download of the data. A copy of these data files are provided as a part of this archive in the `data/raw` folder.

Datafiles: `gdp_1963_1997.csv`, `gdp_1997_2017.csv`

Alaska Dividend Payout: This paper uses data from the Alaska Department of Revenue (Permanent Fund Dividend Division) that can be downloaded at https://pfd.alaska.gov/Division-Info/Summary-of-Applications-and-Payments (Alaska Department of Revenue, 2017). It also uses data from the Bureau of Labor Statistic (BLS) to deflate nominal values using the Historical Consumer Price Index for All Urban Consumers (CPI-U) that can be downloaded at https://www.bls.gov/cpi/tables/historical-cpi-u-201709.pdf (Bureau of Labor Statistics, 2017). A copy of this data file is provided as a part of this archive in the `data/raw` folder.

Datafiles: `RealAlaskaFundPayout.xlsx`

Quarterly Census of Employment and Wages: This paper uses data from the Bureau of Labor Statistics (Bureau of Labor Statistics, 2017). The data can be downloaded at https://www.bls.gov/cew/downloadable-data-files.htm. For 1982 to 2000, first click on SIC-Based Files, then CSVs by Area and Annual Averages by year. For 2001 to 2014,

first click on NAICS-Based Files, then CSVs by Area and Annual Averages by year. A copy of these data files are provided as a part of this archive in the `data/raw` folder.

Datafiles: `sic.YYYY.annual 0200 (Alaska - Statewide).csv`, `YYYY`$\in [1982, 2000]$

Alaska Annual Population: This paper uses population data from the Federal Reserve Bank of St. Louis (Federal Reserve Bank of St. Louis, 2018).The data can be downloaded at https://fred.stlouisfed.org/series/AKPOP. Set the years from 1950 to 2018 and click "Download". A copy of this data file is provided as a part of this archive in the `data/raw` folder.

Datafiles: `AKPOP.csv`

State FIPS Crosswalk: This paper uses data from the United States Census Bureau that can be downloaded at https://www.census.gov/library/reference/code-lists/ansi.html#par_textimage_3 (U.S. Census Bureau, 2010). A crosswalk is made between state fips codes, state abbreviations, and Current Population Survey (CPS) state codes found in the NBER documentation at https://data.nber.org/morg/docs/cpsx.pdf (National Bureau of Economic Research, 2007) to create a dta file. A copy of this data file is provided as a part of this archive in the `data/raw` folder.

Datafiles: `cps_state_statefip.dta`

Government Finance Dataset: This paper uses data from the Government Finance Database on Willamette University website at https://willamette.edu/mba/research-impact/public-datasets/index.html (Pierson et al., 2018). The version used for this paper is from February 2018 which differs significantly from the current version available on the website. Descriptions about the variables is available on the same page. A copy of this data file is provided as a part of this archive in the `data/raw` folder.

Datafiles: `StateGovFinData.csv`

State Borders Data: This paper uses the State Border Dataset that provides length of the borders between each state which can be downloaded at http://users.econ.umn.edu/~holmes/data/BORDLIST.html. An explanation of the dataset can be found at http://users.econ.umn.edu/~holmes/data/BorderData.html (Holmes, 1998b). A copy of this data file is provided as a part of this archive in the `data/raw` folder.

Datafiles: `state_borders.xlsx`