Appendix

<u>Appendix Exhibit 1</u> Number and characteristics of health improvement programs

Name	Organization and Role	Number of Sites	States
Blue Zones	HealthWays (Coordinating)	4	CA, IA, IN, MN
Clinton Health Matters Initiative	Clinton Foundation (Coordinating)	1	CA
Aligning Forces for Quality	Robert Wood Johnson Foundation (Funding, Coordinating)	14	CA, ME, MA, MI, MO, MN, NM, NY, OH, OR, PA, TN, WA, WI
Communities Putting Prevention to Work	Centers for Disease Control and Prevention (Funding)	33	AL, AR, AZ, CA, CO, DC, FL, GA, HI, IA, IL, IN, KY, MA, ME, MN, MO, NC, NE, NV, NM, NY, OH, OK, OR, PA, RI, SC, TN, TX, WA, WV, WI

Notes: Authors' analyses of programs identified through informal networking, expert interviews, and systematic Internet searches. There may be more than one county (unit of observation) included in each site.

Technical Appendix

Inverse Propensity Score Re-weighting:

Inverse propensity score re-weighting was conducted using a probit model to determine the association between changes in demographic and economic characteristics for all counties and then predict the probability of a non-PHIP county being treated based on these pre-implementation changes in economic and demographic characteristics (Equations 1, 2). Using these predicted probabilities, inverse weights were constructed and applied to control counties in subsequent regressions.

Equation 1:

 $\hat{y}_{it} =$

 $\frac{1}{1 + (\hat{\beta}_0 + X_{1it}\hat{\beta}_1 + X_{2it}\hat{\beta}_2 + X_{3it}\hat{\beta}_3 + X_{4it}\hat{\beta}_4 + X_{5it}\hat{\beta}_5 + X_{6it}\hat{\beta}_6 + (X_{1it})^2\hat{\beta}_7 + (X_{2it})^2\hat{\beta}_8 + (X_{3it})^2\hat{\beta}_7 + (X_{4it})^2\hat{\beta}_8 + (X_{5it})^2\hat{\beta}_9 + (X_{6it})^2\hat{\beta}_{10} + (X_{1it} * X_{2it})\hat{\beta}_{11} + \epsilon_{it})}$

for counties that never implemented a P-HIP during the study period

Equation 2:

$$\hat{y}_{it} =$$

 $\frac{1}{(\hat{\beta}_{0}+X_{1it}\hat{\beta}_{1}+X_{2it}\hat{\beta}_{2}+X_{3it}\hat{\beta}_{3}+X_{4it}\hat{\beta}_{4}+X_{5it}\hat{\beta}_{5}+X_{6it}\hat{\beta}_{6}+(X_{1it})^{2}\hat{\beta}_{7}+(X_{2it})^{2}\hat{\beta}_{8}+(X_{3it})^{2}\hat{\beta}_{7}+(X_{4it})^{2}\hat{\beta}_{9}+(X_{5it})^{2}\hat{\beta}_{9}+(X_{6it})^{2}\hat{\beta}_{10}+(X_{1it}*X_{2it})\hat{\beta}_{11}+\epsilon_{it})}$

for counties that implemented a P-HIP during the study period, where:

i = a given county t = a given year X_1 = change in the percent of the population living in poverty from (min, max in 2002-2006) X_2 = change in the unemployment rate from (min, max in 2002-2006) X_3 = change in the percent of population ages 5-19 years (min, max in 2002-2006) X_4 = change in the percent of population ages 20-39 years (min, max in 2002-2006) X_5 = change in the percent of population ages 40-64 years (min, max in 2002-2006)

 X_6 = change in the percent of population ages 65+ years (min, max in 2002-2006)

<u>Appendix Exhibit 3</u> Balance of pre-implementation covariates based on inverse propensity score treatment weighting

Covariate	Unweighted Standardized Difference	Weighted Standardized Difference
chng_2039	1.352181601	-0.07656569
chng_4064	-2.440963703	-0.021191994
chng_519	0.949003842	0.021506901
chng_65	-0.411497748	0.117204505
chng_pov	-0.143574581	-0.067178955
chng_uer	0.545792396	0.062905454

Notes: Standardized differences are from probability of treatment estimated by inverse propensity score treatment weighting probit regressions conducted in Equations 1. Covariates with standardized differences less than 0.25 are considered to be well-balanced across the treatment and control samples.

Difference-in-Differences:

This technical appendix contains the full specification of each regression model conducted. All variables were entered into the regression model without transformation. For each regression analysis performed below, county and year fixed effects were employed, and standard errors were clustered at the county level.

	Poor or Fair Health	Any Smoking	Obese or Overweight
	(Robust Std. Error)	(Robust Std. Error)	(Robust Std. Error)
P-HIP Implementation	-0.00054	0.0004	-0.001
	(0.002)	(0.001)	(0.002)
% Living in Poverty	0.0011**	0.0003	0.0005
	(0.005)	(0.0002)	(0.0005)
Un amplation ant Data	-0.0001	0.0006***	-0.00090
Unemployment Rate	(0.005)	(0.0002)	(0.0006)
9/ 5 10 Vaara Old	-0.007	-0.331***	-0.489
% 3-19 Teals Old	(0.333)	(0.154)	0.315
% 20 39 Vears Old	0.410	-0.556***	-0.550
78 20-39 Tears Old	(0.367)	(0.179)	(0.392)
% 40.64 Vears Old	0.058	-0.426***	-0.496
/8 40-04 Tears Old	(0.288)	(0.141)	(0.315)
% 65+ Voors Old	0.062	-0.584***	-0.467
78 05 + 1 ears Old	(0.328)	(0.160)	(0.340)
2003	0.002	0.0008	0.008***
2003	(0.002)	(0.001)	(0.002)
2004	0.013***	0.004***	0.016***
2004	(0.002)	(0.001)	(0.003)
2005	0.020***	0.0005	0.028***
2003	(0.003)	0.002	(0.003)
2006	0.025***	-0.003	0.034***
2000	(0.003)	(0.002)	(0.004)
2007	0.029***	-0.003*	(0.045)***
2007	(0.003)	(0.002)	(0.004)
2008	0.031***	-0.004**	0.049***
2008	(0.003)	(0.002)	(0.004)
2000	0.029***	-0.007***	0.058***
2009	(0.004)	(0.002)	(0.004)
2010	0.034***	-0.008***	0.062***
2010	(0.004)	0.002	(0.005)
2011	0.032***	-0.003	0.058***
2011	(0.004)	(0.002)	(0.005)
2012	0.033***	-0.0004	0.064***
2012	(0.004)	(0.002)	(0.005)
Constant	-0.006	0.473***	0.0664**
Constant	(0.29)	(0.143)	(0.304)
Ν	2542	2542	2542
R ²	0.11	0.01	0.09
Number of Counties	437	437	437

Appendix Exhibit 4. County-Level Changes in Selected Health Outcomes after P-HIP Implementation, 2002-2012 (Difference-in-Differences: Ordinary Least Squares Analysis)

Notes: Authors' analyses of author's categorization of P-HIPs and BRFSS SMART data from 2002-2012. Number of counties in sample varies from year-to-year based on BRFSS SMART data inclusion criteria. Standard errors are clustered at the county (FIPS) level. *p<0.10; ** p<0.05; ***p<0.01

Appendix Exhibit 5. County-Level Changes in Selected Health Outcomes after P-HIP Implementation, 2002-2012 (Difference-in-Differences: Inverse Propensity Score Treatment Weighted Analysis)

	Poor or Fair Health	Any Smoking	Obese or Overweight
	(Std. Error)	(Std. Error)	(Std. Error)
	0.0012	0.0005	-0.0006
P-HIP Implementation	(0.002)	(0.001)	(0.002)
% Living in Poverty	0.0008	0.0002	0.0002
	(0.0006)	(0.0003)	(0.0006)
	0.0009	0.0006*	-0.0003
Unemployment Rate	(0.0006)	(0.0003)	(0.0007)
9/ 5 10 Years Old	0.595	-0.351	0.211
% 5-19 Years Old	(0.410)	(0.219)	(0.408)
9/ 20 20 Years Old	0.753	-0.630***	-0.111
% 20-39 Years Old	(0.485)	(0.229)	(0.427)
9/ 40 (4 Veers 014	0.286	-0.510***	-0.201
% 40-64 Years Old	(0.404)	(0.175)	(0.362)
9/ 65 Veara Old	0.387	-0.674***	-0.102
% 65+ Years Old	(0.441)	(0.215)	(0.410)
2002	0.004	0.0009	0.009***
2003	(0.003)	(0.002)	(0.003)
2004	0.018***	0.005***	0.018***
2004	(0.003)	(0.002)	(0.004)
2005	0.026***	0.001	0.030***
2003	(0.003)	(0.002)	(0.004)
2006	0.032***	-0.002	0.039***
2006	(0.004)	(0.002)	(0.004)
2007	0.033***	-0.002	0.051***
2007	(0.004)	(0.002)	(0.005)
2008	0.035***	-0.003	0.052***
2008	(0.004)	(0.002)	(0.004)
2000	0.031***	-0.005**	0.062***
2009	(0.005)	(0.002)	(0.005)
2010	0.036***	-0.007***	0.067***
2010	(0.005)	(0.003)	(0.006)
2011	0.037***	-0.001	0.061***
2011	(0.005)	(0.003)	(0.0060
2012	0.038***	0.002	0.068***
2012	(0.006)	(0.003)	(0.006)
Constant	-0.346	0.539***	0.253
	(0.393)	(0.187)	(0.353)
Ν	2,100	2,100	2,100
R^2	0.14	0.000	0.26
Number of Counties	230	230	230

Notes: Authors' analyses of author's categorization of P-HIPs and BRFSS SMART data from 2002-2012. Number of counties in sample varies from year-to-year based on BRFSS SMART data inclusion criteria. Any smoking includes individuals who report smoking daily and individuals who report smoking some. Overweight/obese includes individuals whose BMI ≥ 25 and ≤ 40 . Standard errors are clustered at the county (FIPS) level. *p<0.10; ** p<0.05; ***p<0.01

Appendix Exhibit 6. Annual County-Level Self-Reported Health Outcomes Before and After P-HIP Implementation, 2002-2012 (Event Study: Ordinary Least Squares Analysis)

	Poor or Fair Health	Any Smoking	Obese or Overweight
	(Robust Std. Error)	(Robust Std. Error)	(Robust Std. Error)
Period 1	-0.016	-0.020***	-0.029
	(0.012)	(0.006)	(0.021)
Period 2	-0.015	-0.01/***	-0.024
	(0.010)	(0.005)	(0.018)
Period 3	-0.014	-0.014***	-0.021
	(0.009)	(0.004)	(0.014)
Period 4	-0.011	-0.009**	-0.020
	(0.008)	(0.004)	(0.013)
Period 5	-0.013**	-0.10***	-0.017
	(0.006)	(0.003)	(0.011)
Period 6	-0.005	-0.008***	-0.012
	(0.005)	(0.003)	(0.008)
Period 7	-0.006	-0.004	-0.012*
	(0.005)	(0.003)	(0.007)
Period 8	-0.011**	-0.003	-0.016***
i chida o	(0.005)	(0.003)	(0.005)
Period 9			
	-0.005	0.001	-0.004
Period 10	(0.005)	(0.001)	(0.001)
	0.002	0.003	-0.005
Period 11	(0.002)	(0.003)	(0.005)
	0.002	0.010***	0.011
Period 12	(0.002)	(0.003)	(0,009)
	0.0003	0.010**	0.009)
Period 13	(0.0005)	(0.010)	(0.003)
	0.012	0.004)	0.012
Period 14	(0.007)	(0.010)	(0.012)
	(0.0007)	(0.004)	(0.014)
% in Poverty	(0.001)	(0.0004)	(0.00004)
	0.002***	0.0003)	(0.0007)
% Unemployed	(0,0000)	(0.0008)	(0.0009)
	(0.0009)	(0.0003)	(0.0010)
% 5-19 Years Old	(0.552)	-0.555	0.203
	(0.332)	(0.292)	(0.300)
% 20-39 Years Old	1.06	-0.092**	-0.383
	(0.699)	(0.328)	(0.589)
% 40-64 Years Old	0.496	-0.499*	-0.611
	(0.617)	(0.266)	(0.568)
% 65+ Years Old	0.6/3	-0./51**	-0.727
	(0.640)	(0.311)	(0.559)
Constant	-0.606	0.575**	0.619
	(0.570)	(0.267)	(0.499)
Ν	813	813	550
R^2	0.17	0.0000	0.016
Number of Counties	112	112	72

Notes: Authors' analyses of author's categorization of P-HIPs and BRFSS SMART data from 2002-2012. Number of counties in sample varies from year-to-year based on BRFSS SMART data inclusion criteria. Any smoking includes individuals who report smoking daily and individuals who report smoking some. Overweight/obese includes individuals whose BMI ≥ 25 and ≤ 40 . *p<0.10; ** p<0.05; ***p<0.01

Period 1 -0.019 -0.022^{***} -0.036 Period 2 -0.014 -0.019^{***} -0.026 Period 3 -0.014 -0.015^{***} -0.026 Period 3 -0.014 -0.015^{***} -0.024^{**} Period 4 -0.011 -0.011^{***} -0.024^{**} Period 5 -0.014^{***} -0.024^{**} -0.024^{**} Period 5 -0.014^{***} -0.012^{****} -0.019^{**} Period 5 -0.014^{***} -0.012^{****} -0.019^{**} Period 6 (0.005) (0.003) (0.008) Period 7 -0.006 -0.014^{***} -0.015^{***} Period 8 -0.011^{***} -0.004 -0.015^{***} Period 9 $ -$ Period 10 0.003 0.001 -0.003 Period 11 0.001 0.002 -0.011^{***} Period 12 0.002 0.011^{**} 0.013 Period 13 0.002 0.011^{**} </th <th></th> <th>Poor or Fair Health (Std. Error)</th> <th>Any Smoking (Std. Error)</th> <th>Obese or Overweight (Std. Error)</th>		Poor or Fair Health (Std. Error)	Any Smoking (Std. Error)	Obese or Overweight (Std. Error)
Period 1 (0.012) (0.007) (0.022) Period 2 -0.014 -0.019^{***} -0.026 (0.009) (0.005) (0.019) Period 3 -0.014 -0.015^{***} -0.025 Period 4 -0.011 -0.011^{***} -0.024^{*} Period 5 (0.007) (0.004) (0.013) Period 5 (0.006) (0.003) (0.011) Period 6 -0.014^{**} -0.015^{***} -0.019^{*} Period 7 (0.005) (0.003) (0.001) Period 7 (0.005) (0.003) (0.007) Period 8 (0.005) (0.003) (0.007) Period 9 - - - Period 10 (0.006) (0.003) (0.007) Period 11 (0.006) (0.003) (0.007) Period 12 0.002 0.011^{***} 0.012 Period 13 (0.007) (0.003) (0.007) Period 13 (0.007) (0.004) (0.012) Period 14	Dariad 1	-0.019	-0.022***	-0.036
Period 2 -0.014 -0.019*** -0.026 0009) (0.005) (0.019) Period 3 -0.014 -0.015*** -0.025 0009) (0.005) (0.015) -0.024* Period 4 -0.011 -0.011** -0.024* 0007) (0.004) (0.013) -0.014* Period 5 -0.014** -0.012*** -0.019* Period 6 -0.006 -0.016*** -0.015* 0.005) (0.003) (0.008) -0.017* Period 7 -0.004 -0.005 -0.014** Period 8 -0.011** -0.004 -0.016*** 0.005) (0.003) (0.007) Period 8 -0.014** Period 8 -0.011** -0.004 -0.016*** 0.005) (0.003) (0.005) Period 10 0.006 (0.003) (0.007) Period 11 (0.006) Period 12 Period 11 0.002 0.01** 0.01 Period 12 0.002 0.01** <td>Period I</td> <td>(0.012)</td> <td>(0.007)</td> <td>(0.022)</td>	Period I	(0.012)	(0.007)	(0.022)
Period 2 (0.009) (0.005) (0.019) Period 3 (0.009) (0.005) (0.015) Period 4 -0.011 -0.011^{**} -0.024^* Period 5 (0.007) (0.004) (0.013) Period 5 (0.006) (0.003) (0.011) Period 6 (0.005) (0.003) (0.011) Period 7 -0.006 -0.010^{***} -0.015^* Period 8 (0.005) (0.003) (0.007) Period 8 (0.005) (0.003) (0.007) Period 9 $ -$ Period 10 0.003 0.001 -0.003 Period 11 0.001 0.002 -0.002 Period 12 0.002 0.011^{***} 0.011 Period 13 0.006 0.003 0.007 Period 13 0.006 0.003 0.007 Period 13 0.002 0.011 0.002 Period 14 0.012 0.004 0.017 Period 13 0.007	Period 2	-0.014	-0.019***	-0.026
Period 3 -0.014 -0.015^{***} -0.025 Period 4 0.009 (0.005) (0.015) Period 4 0.011 -0.011^{***} -0.024^{*} Period 5 -0.014^{**} -0.012^{***} -0.019^{**} Period 6 -0.016^{***} -0.012^{***} -0.019^{***} Period 7 0.006 -0.010^{***} -0.015^{**} Period 7 -0.004 -0.005 -0.014^{**} Period 8 -0.011^{**} -0.004 -0.005 Period 9 $$ $$ $$ Period 9 $$ $$ $$ Period 9 $$ $$ $$ Period 10 0.003 0.001 -0.003 Period 11 0.004 0.003 (0.007) Period 12 0.002 0.011^{***} 0.013 Period 13 0.006 0.003 (0.007) Period 14 0.007 0.004 0.012 Period 13		(0.009)	(0.005)	(0.019)
Period J (0.009) (0.005) (0.015) Period 4 -0.011 -0.011^{**} -0.024^* (0.007) (0.004) (0.013) Period 5 -0.014^{**} -0.012^{***} -0.019^* Period 6 0.006 0.010^{***} -0.015^* Period 7 -0.004 -0.005 -0.014^{***} Period 8 -0.011^{***} -0.004 -0.016^{****} Period 9 $$ $ -$ Period 10 0.003 0.001 -0.002 Period 10 0.003 0.001 -0.003 Period 11 (0.005) (0.003) (0.005) Period 12 0.002 0.011^{***} 0.012 Period 13 0.006 0.003 (0.007) Period 14 (0.007) (0.004) (0.012) Period 13 0.006 0.003 (0.007) Period 14 (0.007) (0.004) (0.012) Period 14 (0.007) (0.004) (0.012) Period 13 $0.$	Dariad 3	-0.014	-0.015***	-0.025
Period 4 -0.011 -0.011^{**} -0.024^* 0.007) (0.004) (0.013) Period 5 0.014^{**} -0.012^{**} -0.019^* Period 6 0.006 -0.010^{**} -0.015^* Period 7 0.005 (0.003) (0.007) Period 7 -0.004 -0.005 -0.014^{**} Period 8 -0.011^{**} -0.004 -0.016^{***} (0.005) (0.003) (0.007) Period 8 -0.011^{**} Period 9 $$ $$ $$ $-$ Period 10 0.003 0.001 -0.002 Period 11 0.001 0.002 -0.002 Period 12 (0.006) (0.003) (0.007) Period 13 0.006 0.001^{**} 0.011 Period 14 (0.007) (0.003) (0.007) Period 13 0.006 0.0003 (0.007) Period 14 (0.007) (0.003) (0.007) <tr< td=""><td>r chioù 5</td><td>(0.009)</td><td>(0.005)</td><td>(0.015)</td></tr<>	r chioù 5	(0.009)	(0.005)	(0.015)
Period 4 (0.007) (0.004) (0.013) Period 5 -0.014^{**} -0.012^{***} -0.019^{*} Period 6 (0.005) (0.003) (0.011) Period 6 (0.005) (0.003) (0.008) Period 7 -0.004 -0.005 -0.014^{**} (0.005) (0.003) (0.007) Period 8 -0.011^{**} -0.004 -0.016^{***} (0.005) (0.003) (0.007) Period 8 -0.011^{**} -0.004 -0.016^{***} (0.005) (0.003) (0.007) 0.004 -0.016^{***} Period 9 $$ $$ $ -$ Period 10 0.003 0.001 -0.002 -0.002 Period 11 (0.004) (0.003) (0.007) Period 12 0.002 0.011^{***} 0.011 Period 13 (0.007) (0.004) (0.012) Period 14 0.012 0.010^{**} 0.011 Period 13 0.007 0.003 <td< td=""><td>Period 1</td><td>-0.011</td><td>-0.011**</td><td>-0.024*</td></td<>	Period 1	-0.011	-0.011**	-0.024*
Period 5 -0.014^{**} -0.012^{***} -0.019^* Period 6 (0.006) (0.003) (0.011) Period 6 (0.005) (0.003) (0.008) Period 7 -0.004 -0.005 -0.014^{**} Period 8 (0.005) (0.003) (0.007) Period 9 $$ $$ $$ Period 10 0.003 0.001 -0.003 Period 11 0.001 0.003 (0.005) Period 12 0.002 -0.012^{***} $$ Period 13 0.001 0.003 (0.007) Period 14 0.012 0.003 (0.007) Period 13 (0.007) (0.004) (0.012) Period 14 0.012 0.011^{**} 0.017 Period 14 0.007 (0.003) (0.007) Period 14 0.007 (0.003) (0.007) Period 14 0.012 0.010^{**} 0.017 Period 14 <	1 01100 4	(0.007)	(0.004)	(0.013)
Period J (0.006) (0.003) (0.011) Period 6 -0.006 -0.010^{***} -0.015^* Period 7 -0.004 -0.003 (0.008) Period 8 -0.005 (0.003) (0.007) Period 9 $$ $$ $$ Period 9 $$ $$ $$ Period 10 0.003 0.001 -0.003 Period 10 0.003 0.001 -0.003 Period 11 0.001 0.002 -0.002 Period 12 0.002 0.011^{**} 0.013 Period 13 0.002 0.011^{**} 0.013 Period 13 0.006 0.003 (0.007) Period 14 0.007 (0.004) (0.012) Period 13 0.006 0.01^{**} 0.011 Period 14 0.007 (0.003) (0.007) Period 14 0.007 (0.003) (0.007) Period 13 0.007 (0.003) (0.007) Period 14 0.017 (0.003)	Period 5	-0.014**	-0.012***	-0.019*
Period 6 -0.006 -0.010^{***} -0.015^* Period 7 -0.004 -0.003 (0.008) Period 8 -0.011^{**} -0.004 -0.014^{**} Period 8 -0.011^{**} -0.004 -0.016^{***} Period 9 $$ $$ $$ Period 10 0.003 0.001 -0.003 Period 11 0.001 0.002 -0.002 Period 12 0.002 -0.002 -0.002 Period 13 0.006 (0.003) (0.007) Period 13 0.006 0.003 (0.007) Period 14 0.012 0.004 (0.012) Period 13 0.006 0.003 (0.007) Period 14 (0.007) (0.003) (0.007) 0.001 0.0005 0.0003 (0.007) Period 14 (0.007) (0.003) (0.007) 0.001 0.0005 0.0003 (0.007) 0.003^{***} <	r chioù 5	(0.006)	(0.003)	(0.011)
Period 0 (0.005) (0.003) (0.008) Period 7 -0.004 -0.005 $-0.014**$ (0.005) (0.003) (0.007) Period 8 (0.005) (0.003) (0.007) Period 9 $$ $$ $$ Period 10 0.003 0.001 -0.003 (0.006) (0.003) (0.006) Period 11 0.001 0.002 -0.002 Period 12 (0.006) (0.003) (0.007) Period 13 0.002 $0.011***$ 0.013 Period 13 0.006 (0.003) (0.009) Period 14 (0.007) (0.004) (0.012) Period 14 (0.008) (0.004) (0.012) Period 13 0.006 0.004 (0.015) $\%$ in Poverty 0.001 0.0005 0.0003 (0.007) (0.003) (0.007) $\%$ Unemployed $0.003***$ 0.0008 0.0009 $\%$ 20-39 Years Old $1.275*$ $-0.666*$ -0.503 $\%$ 20-39 Years Old 0.759 (0.316) (0.580) $\%$ 40-64 Years Old 0.660 $-0.495*$ -0.503 $\%$ 65+ Years Old 0.666 -0.331 (0.573) $\%$ 65+ Years Old 0.678 (0.331) (0.573) $\%$ 65+ Years Old (0.678) (0.331) (0.573) $\%$ 746746746746 R^2 0.161 0.0001 0.281 Number of Counties808080	Period 6	-0.006	-0.010***	-0.015*
Period 7 -0.004 -0.005 -0.014^{**} 00005) 00003) 00007) Period 8 -0.011^{**} -0.004 -0.016^{***} 0005) 0003) 00003) 0005) Period 9 Period 10 0.003 0.001 -0.003 Period 11 0.001 0.002 -0.002 Period 12 0.002 0.011^{***} 0.013 Period 12 0.002 0.011^{***} 0.013 Period 13 0.006 0.003 (0.009) Period 14 0.012 0.004 (0.013) Period 13 0.006 0.010^{**} 0.011 Period 14 0.012 0.010^{**} 0.007 0.001 0.0005 0.0003 0.0007 0.001 0.0005 0.0003 0.0007 0.001 0.0005 0.0003 0.0007 0.001 0.0005 0.0003 0.0007		(0.005)	(0.003)	(0.008)
Period 7 (0.005) (0.003) (0.007) Period 8 $-0.011**$ -0.004 $-0.016***$ (0.005) (0.003) (0.005) Period 9Period 10 0.003 0.001 -0.003 (0.006) (0.003) (0.006) Period 11 0.001 0.002 -0.002 Period 11 0.001 0.002 -0.002 Period 12 0.002 $0.011***$ 0.013 Period 13 0.006 $0.003*$ (0.007) Period 14 0.012 0.0044 (0.012) Period 14 0.012 0.001 0.0005 Period 14 0.012 0.001 0.0005 0.0003 (0.007) (0.003) (0.007) 0.001 0.0005 0.0003 $\%$ in Poverty 0.001 0.0005 0.0003 $\%$ Unemployed (0.001) (0.005) (0.001) $\%$ 5-19 Years Old $1.275*$ $-0.666*$ -0.503 $\%$ 40-64 Years Old 0.751 (0.3316) (0.580) $\%$ 40-64 Years Old 0.660 $-0.495*$ -0.551 (0.678) (0.331) (0.573) 0.642 $\%$ 40-64 Years Old 0.678 0.331 (0.573) Constant 0.779 $0.560*$ 0.549 (0.611) (0.287) (0.522) N 746 746 746 R^2 0.161 0.0001 0.261 Number of Counties 80 80 <td>Period 7</td> <td>-0.004</td> <td>-0.005</td> <td>-0.014**</td>	Period 7	-0.004	-0.005	-0.014**
Period 8 -0.011^{**} -0.004 -0.016^{***} Period 9 Period 10 0.003 0.001 -0.003 Period 11 0.001 0.002 -0.002 Period 11 0.001 0.002 -0.002 Period 12 0.002 0.011^*** 0.013 Period 13 0.006 0.003 (0.009) Period 13 0.006 0.010*** 0.011 Period 14 0.012 0.004 (0.012) Period 14 0.012 0.004 (0.017) Period 14 0.001 0.0005 0.0003 Period 14 0.0012 0.001** 0.017 Period 14 0.001 0.0005 0.0003 % in Poverty 0.001 0.0005 0.0003 % 0.001 0.0005 (0.001) 0.0005 % 0.001 0.0005 0.0003 0.0009 % 0.001 0.0005 (0.001) 0.0005 % 0.001	i chidu /	(0.005)	(0.003)	(0.007)
Period 9Period 10 0.003 0.001 -0.003 0.001 0.006 0.003 0.006 Period 11 0.001 0.002 -0.002 Period 11 0.001 0.002 -0.002 Period 12 0.002 0.011^{***} 0.013 Period 13 0.006 0.003 (0.009) Period 14 0.012 0.004 (0.012) Period 14 0.012 0.004 (0.015) Period 14 0.012 0.007 (0.004) 0.006 0.010^{**} 0.017 Period 14 0.012 0.0007 0.007 (0.003) (0.007) 0.001 0.0005 0.0003 0.007 (0.003) (0.007) $\%$ in Poverty (0.007) (0.003) 0.007 (0.003) (0.007) $\%$ unemployed 0.003^{***} 0.0008 0.0009 (0.590) (0.316) $\%$ 5-19 Years Old 1.133^{*} -0.325 0.291 (0.590) (0.316) $\%$ 40-64 Years Old 0.660 -0.495^{*} 0.759 -0.566^{*} -0.503 $\%$ 65+ Years Old 0.789 -0.739^{**} 0.664^{*} 0.573 0.560^{*} 0.511 (0.678) (0.331) 0.522 N 746 746 R^{2} 0.161 0.0001 0.261 Number of Counties 80 80 80	Period 8	-0.011**	-0.004	-0.016***
Period 9 Period 10 0.003 0.001 -0.003 Period 11 0.001 0.002 -0.002 Period 11 0.001 0.002 -0.002 Period 12 0.002 0.011^{***} 0.013 Period 13 0.006 0.010^{**} 0.011 Period 13 0.006 0.010^{**} 0.011 Period 14 0.012 0.004 (0.012) Period 14 0.007 (0.004) (0.012) Period 14 0.001 0.0005 0.0003 Vin Poverty 0.001 0.0005 0.0003 % in Poverty 0.0007 (0.003) (0.0007) % 0.0007 (0.003) (0.0007) (0.003) % Unemployed 0.003^{***} 0.0008 0.0009 % 5-19 Years Old 1.133^{*} -0.325 0.291 % 20-39 Years Old 0.666 -0.503 (0.624) % 40-64 Years Old		(0.005)	(0.003)	(0.005)
Period 10 0.003 0.001 -0.003 Period 11 0.001 0.002 -0.002 Period 11 (0.004) (0.003) (0.007) Period 12 0.002 0.011^{***} 0.013 Period 13 0.006 (0.003) (0.009) Period 14 0.012 0.0044 (0.012) Period 14 0.012 0.0044 (0.015) % in Poverty 0.001 0.0005 0.0003 % Unemployed (0.007) (0.003) (0.007) % 5-19 Years Old 1.133^* -0.325 0.291 % 40-64 Years Old (0.590) (0.316) (0.580) % 65+ Years Old (0.751) (0.331) (0.573) % 65+ Years Old (0.678) (0.331) (0.573) Constant -0.779 0.560^* 0.549 N746746746R ² 0.161 0.0001 0.261 Number of Counties 80 80 80	Period 9			
Period 10 (0.006) (0.003) (0.006) Period 11 0.001 0.002 -0.002 Period 12 0.002 0.011^{***} 0.013 Period 13 0.006 0.0033 (0.009) Period 13 0.006 0.010^{**} 0.011 Period 14 0.012 0.010^{**} 0.017 Period 14 0.012 0.010^{**} 0.017 Period 14 0.007 0.0005 0.0003 Vi in Poverty 0.001 0.0005 0.0003 % in Poverty 0.001 0.0005 0.0007 % Unemployed 0.003^{***} 0.0008 0.0009 % 0.001 0.0005 0.0003 0.0009 % 5-19 Years Old 1.133^* -0.325 0.291 % 5-19 Years Old 1.275^* -0.666^* -0.503 % 20-39 Years Old 0.660 -0.495^* -0.551 % 40-64 Years Old 0.660 -0.495^* -0.551 % 65+ Years Old 0.660 -0.3311 (0.573)	P 1 1 4 0	0.003	0.001	-0.003
Period 11 0.001 0.002 -0.002 Period 12 0.002 0.011^{***} 0.013 Period 12 0.006 0.003 (0.009) Period 13 0.006 0.010^{**} 0.011 Period 14 0.012 0.010^{**} 0.017 Period 14 0.001 0.0005 0.0003 % in Poverty 0.001 0.0005 0.0003 % Unemployed 0.001 0.0005 0.0003 % 5-19 Years Old 1.133^{*} -0.325 0.291 % 20-39 Years Old 1.275^{*} -0.666^{*} -0.503 % 65+ Years Old 0.789 -0.739^{**} -0.649 % 65+ Years Old 0.789 -0.739^{**} -0.649 % 65+ Years Old 0.678 (0.331) (0.573) Constant -0.779 0.560^{*} 0.549 N746746746R ² 0.161 0.0001 0.261 Number of Counties 80 80 80	Period 10	(0.006)	(0.003)	(0.006)
Period 11 (0.004) (0.003) (0.007) Period 12 0.002 0.011^{***} 0.013 Period 13 0.006 0.003 (0.009) Period 13 0.006 0.010^{**} 0.011 Period 14 0.012 0.010^{**} 0.017 Period 14 0.001 0.0005 0.0003 % in Poverty 0.001 0.0005 0.0003 % Unemployed 0.003^{***} 0.0008 0.0009 % 5-19 Years Old 1.133^{*} -0.325 0.291 % 20-39 Years Old 1.275^{*} -0.666^{*} -0.503 % 40-64 Years Old 0.660 -0.495^{*} -0.551 % 65+ Years Old 0.789 -0.739^{**} -0.649 % 65+ Years Old 0.678 (0.331) (0.573) Constant -0.779 0.560^{*} 0.549 N 746 746 746 R ² 0.161 0.0001 0.261 Number of Counties 80 80 80	D • 144	0.001	0.002	-0.002
Period 12 $0.002'$ 0.011^{***} $0.013'$ Period 13 0.006 0.003 (0.009) Period 13 0.006 0.010^{**} 0.011 Period 14 0.012 0.010^{**} 0.017 Period 14 0.008 (0.004) (0.015) % in Poverty 0.001 0.0005 0.0003 % Unemployed 0.003^{***} 0.0008 $0.0007)$ % Unemployed 0.003^{***} 0.0008 0.0009 % 5-19 Years Old 1.133^* -0.325 0.291 % 20-39 Years Old 1.275^* -0.666^* -0.503 % 40-64 Years Old 0.660 -0.495^* -0.551 % 65+ Years Old 0.789 -0.739^{**} -0.649 % 65+ Years Old 0.789 -0.739^{**} -0.649 % 65+ Years Old (0.678) (0.311) (0.573) Constant -0.779 0.560^* 0.549 N746746746R ² 0.161 0.0001 0.261 Number of Counties 80 80 80	Period 11	(0.004)	(0.003)	(0.007)
Period 12 (0.006) (0.003) (0.009) Period 13 0.006 0.010^{**} 0.011 Period 14 0.012 0.010^{**} 0.017 Period 14 0.012 0.010^{**} 0.017 (0.008) (0.004) (0.015) % in Poverty 0.001 0.0005 0.0003 % Unemployed 0.003^{***} 0.0008 0.0009 % Unemployed 0.003^{***} 0.0008 0.0009 % 5-19 Years Old 1.133^{*} -0.325 0.291 (0.590) (0.316) (0.580) % 20-39 Years Old 1.275^{*} -0.666^{*} -0.503 (0.751) (0.355) (0.624) % 40-64 Years Old 0.660 -0.495^{*} -0.551 % 65+ Years Old 0.789 -0.739^{**} -0.649 (0.678) (0.311) (0.573) Constant -0.779 0.560^{*} 0.549 (0.611) (0.287) (0.522) N 746 746 746 R^2 0.161 0.0001 0.261 Number of Counties 80 80 80	D 110	0.002	0.011***	0.013
Period 13 0.006 0.010^{**} 0.011 Period 14 0.012 0.012 0.010^{**} 0.017 Period 14 0.012 0.010^{**} 0.017 0.008 (0.004) (0.015) % in Poverty 0.001 0.0005 0.0003 % Unemployed 0.007 (0.003) (0.007) % Unemployed 0.003^{***} 0.0008 0.0009 % 5-19 Years Old 1.133^{*} -0.325 0.291 % 20-39 Years Old 1.275^{*} -0.666^{*} -0.503 % 40-64 Years Old 0.660 -0.495^{*} -0.551 % 65+ Years Old 0.789 -0.739^{**} -0.649 % 65+ Years Old (0.678) (0.331) (0.573) Constant 0.779 0.560^{*} 0.549 N 746 746 746 R ² 0.161 0.0001 0.261 Number of Counties 80 80 80	Period 12	(0.006)	(0.003)	(0.009)
Period 13 (0.007) (0.004) (0.012) Period 14 0.012 0.010^{**} 0.017 (0.008) (0.004) (0.015) % in Poverty 0.001 0.0005 0.0003 (0.007) (0.003) (0.007) % Unemployed 0.003^{***} 0.0008 0.0009 (0.001) (0.0005) (0.001) % 5-19 Years Old 1.133^{*} -0.325 0.291 (0.590) (0.316) (0.580) % 20-39 Years Old 1.275^{*} -0.666^{*} -0.503 (0.659) (0.355) (0.624) % 40-64 Years Old 0.660 -0.495^{*} -0.551 (0.659) (0.284) (0.594) % 65+ Years Old 0.789 -0.739^{**} -0.649 (0.611) (0.287) (0.522) N 746 746 746 R^2 0.161 0.0001 0.261 Number of Counties 80 80 80	D : 112	0.006	0.010**	0.011
Period 14 $0.012'$ 0.010^{**} $0.017'$ Weine Poverty 0.001 0.0005 0.0003 Wine Poverty 0.001 0.0005 0.0003 Wunemployed 0.003^{***} 0.0008 0.0009 Wunemployed 0.003^{***} 0.0008 0.0009 Wunemployed 0.001 (0.0005) (0.001) Weine Sold 1.133^{*} -0.325 0.291 Weine Sold 0.590 (0.316) (0.580) Weine Sold 0.660 -0.495^{*} -0.503 Weine Sold 0.660 -0.495^{*} -0.551 Weine Sold 0.678 (0.331) (0.573) Constant -0.779 0.560^{*} 0.549 Wine Sold 0.611 0.0001 0.261 Number of Counties 80 80 80	Period 13	(0.007)	(0.004)	(0.012)
Period 14 (0.008) (0.004) (0.015) % in Poverty 0.001 0.0005 0.0003 % Unemployed 0.003^{***} 0.0008 0.0009 % Unemployed (0.001) (0.0005) (0.001) % 5-19 Years Old 1.133^* -0.325 0.291 % 20-39 Years Old 1.275^* -0.666^* -0.503 % 40-64 Years Old 0.660 -0.495^* -0.551 % 65+ Years Old 0.789 -0.739^{**} -0.649 % 65+ Years Old (0.678) (0.331) (0.573) Constant -0.779 0.560^* 0.549 N746746746R ² 0.161 0.0001 0.261 Number of Counties 80 80 80	D 114	0.012	0.010**	0.017
% in Poverty 0.001 0.0005 0.0003 % Unemployed 0.003^{***} 0.0008 0.0009 % Unemployed 0.003^{***} 0.0008 0.0009 (0.001) (0.0005) (0.001) % 5-19 Years Old 1.133^{*} -0.325 0.291 (0.590) (0.316) (0.580) % 20-39 Years Old 1.275^{*} -0.666^{*} -0.503 % 40-64 Years Old 0.660 -0.495^{*} -0.551 % 65+ Years Old 0.789 -0.739^{**} -0.649 % 65+ Years Old (0.678) (0.331) (0.573) Constant -0.779 0.560^{*} 0.549 N746746746R ² 0.161 0.0001 0.261 Number of Counties 80 80 80	Period 14	(0.008)	(0.004)	(0.015)
% in Poverty (0.0007) (0.003) (0.0007) % Unemployed 0.003^{***} 0.0008 0.0009 (0.001) (0.0005) (0.001) % 5-19 Years Old 1.133^{*} -0.325 0.291 (0.590) (0.316) (0.580) (0.239) Years Old 1.275^{*} -0.666^{*} -0.503 (0.751) (0.355) (0.624) (0.644) Years Old 0.660 -0.495^{*} -0.551 (0.659) (0.284) (0.594) (0.678) (0.331) (0.573) Constant -0.779 0.560^{*} 0.549 (0.611) (0.287) (0.522) N746746746 R^2 0.161 0.0001 0.261 Number of Counties 80 80 80	0/ in Descentes	0.001	0.0005	0.0003
% Unemployed 0.003^{***} 0.0008 0.0009 % Unemployed (0.001) (0.0005) (0.001) % 5-19 Years Old 1.133^* -0.325 0.291 (0.590) (0.316) (0.580) % 20-39 Years Old 1.275^* -0.666^* -0.503 % 40-64 Years Old (0.751) (0.355) (0.624) % 40-64 Years Old 0.660 -0.495^* -0.551 % 65+ Years Old 0.789 -0.739^{**} -0.649 % 65+ Years Old (0.678) (0.331) (0.573) Constant 0.611 (0.287) 0.549 N746746746R ² 0.161 0.0001 0.261 Number of Counties808080	% in Poverty	(0.0007)	(0.003)	(0.0007)
% Unemployed (0.001) (0.0005) (0.001) % 5-19 Years Old1.133*-0.3250.291 (0.590) (0.316) (0.580) % 20-39 Years Old1.275*-0.666*-0.503% 40-64 Years Old (0.751) (0.355) (0.624) % 40-64 Years Old0.660-0.495*-0.551 (0.659) (0.284) (0.594) % 65+ Years Old (0.678) (0.331) (0.678) (0.331) (0.573) Constant-0.779 $0.560*$ 0.549 (0.611) (0.287) (0.522) N746746746R ² 0.161 0.0001 0.261 Number of Counties808080	0/11 1 1	0.003***	0.0008	0.0009
% 5-19 Years Old1.133* (0.590)-0.325 (0.316)0.291 (0.580)% 20-39 Years Old1.275* (0.751)-0.666* (0.355)-0.503 (0.624)% 40-64 Years Old0.660 (0.659)-0.495* (0.284)-0.551 (0.594)% 65+ Years Old0.789 	% Unemployed	(0.001)	(0.0005)	(0.001)
% 5-19 Years Old (0.590) (0.316) (0.580) % 20-39 Years Old 1.275^* -0.666^* -0.503 (0.751) (0.355) (0.624) % 40-64 Years Old 0.660 -0.495^* -0.551 (0.659) (0.284) (0.594) (0.678) (0.311) (0.573) (0.611) (0.287) $0.522)$ N746746746 R^2 0.161 0.0001 0.261 Number of Counties808080	0/ 5 10 37 011	1.133*	-0.325	0.291
% 20-39 Years Old 1.275^* -0.666^* -0.503 % 40-64 Years Old 0.751 (0.355) (0.624) % 40-64 Years Old 0.660 -0.495^* -0.551 (0.659) (0.284) (0.594) % 65+ Years Old 0.789 -0.739^{**} -0.649 (0.678) (0.331) (0.573) Constant -0.779 0.560^* 0.549 N746746746R ² 0.161 0.0001 0.261 Number of Counties808080	% 5-19 Years Old	(0.590)	(0.316)	(0.580)
% 20-39 Years Old (0.751) (0.355) (0.624) % 40-64 Years Old0.660 -0.495^* -0.551 (0.659) (0.284) (0.594) % 65+ Years Old0.789 -0.739^{**} -0.649 (0.678) (0.331) (0.573) Constant -0.779 0.560^* 0.549 N746746746R ² 0.1610.0001 0.261 Number of Counties808080		1.275*	-0.666*	-0.503
% 40-64 Years Old 0.660 (0.659) -0.495^* (0.284) -0.551 (0.594)% 65+ Years Old 0.789 (0.678) -0.739^{**} (0.331) -0.649 (0.573)Constant -0.779 (0.611) 0.560^* (0.522) 0.549 (0.522)N746 R^2 0.161746 0.0001746 0.261Number of Counties80 808080	% 20-39 Years Old	(0.751)	(0.355)	(0.624)
% 40-64 Years Old (0.659) (0.284) (0.594) % 65+ Years Old 0.789 -0.739^{**} -0.649 (0.678) (0.331) (0.573) Constant -0.779 0.560^{*} 0.549 (0.611) (0.287) (0.522) N746746746R ² 0.161 0.0001 0.261 Number of Counties808080	0/ 40 (4 V 011	0.660	-0.495*	-0.551
% 65+ Years Old 0.789 (0.678) -0.739^{**} (0.331) -0.649 (0.573)Constant -0.779 (0.611) 0.560^* (0.287) 0.549 (0.522)N746 R^2 0.161746 0.0001746 0.261Number of Counties80 808080	% 40-64 Years Old	(0.659)	(0.284)	(0.594)
% 65+ Y ears Old(0.678)(0.331)(0.573)Constant-0.7790.560*0.549(0.611)(0.287)(0.522)N746746746R ² 0.1610.00010.261Number of Counties808080		0.789	-0.739**	-0.649
Constant -0.779 (0.611) 0.560^* (0.287) 0.549 (0.522)N746746746R ² 0.1610.00010.261Number of Counties808080	% 65+ Years Old	(0.678)	(0.331)	(0.573)
Constant (0.611) (0.287) (0.522) N746746746R ² 0.1610.00010.261Number of Counties808080	Constant	-0.779	0.560*	0.549
N746746746 R^2 0.1610.00010.261Number of Counties808080		(0.611)	(0.287)	(0.522)
R^2 0.161 0.0001 0.261 Number of Counties 80 80 80	N	746	746	746
Number of Counties808080	R^2	0 161	0 0001	0.261
	Number of Counties	80	80	80

Appendix Exhibit 7. Annual County-Level Self-Reported Health Outcomes Before and After P-HIP Implementation, 2002-2012 (Event Study: Inverse Propensity Score Treatment Weighted Analysis)

Notes: Authors' analyses of author's categorization of P-HIPs and BRFSS SMART data from 2002-2012. Number of counties in sample varies from year-to-year based on BRFSS SMART data inclusion criteria. Any smoking includes individuals who report smoking daily and individuals who report smoking some. Overweight/obese includes individuals whose BMI ≥ 25 and ≤ 40 . *p<0.10; ** p<0.05; ***p<0.01