

In Appendix Table A1, we include interactions between the demeaned firm's characteristics and the *Sibling P2 Stock* variable assuming that firm's characteristics have linear impacts on *Sibling P2 Stock*. The results are consistent with the main results. In Appendix Table A2, we also check if the estimates vary by changing the scale factor in transforming the dependent variable using inverse hyperbolic sine. These results are reported. As the scale factor increases from 1 (main results) to 10 and 100, the effect of in *Sibling P2 Stock* increases from 7.3% to 11% and 14%. Finally, in Appendix Table A3 we present results when estimating our models by industry (chemicals as well as primary and fabricated metals). The necessary loss in sample size brought about by slicing the data results in larger standard errors, but point estimates are similar to what we obtain in our main results.

Appendix Table A1. Modelling linear impacts of firm's characteristics on sibling P2 stock

	(1)	(2)	(3)	(4)
Variables	Main	Firm size	Firm scope	Firm industry concentration
Lagged own adoption	0.494*** (0.012)	0.495*** (0.012)	0.493*** (0.012)	0.494*** (0.012)
Lagged sibling P2 stock (S)	0.077** (0.032)	0.089** (0.036)	0.117** (0.056)	0.081** (0.033)
Lagged facility's toxic releases	-0.012*** (0.001)	-0.012*** (0.001)	-0.012*** (0.001)	-0.012*** (0.001)
Lagged facility's employment	0.003 (0.006)	0.002 (0.006)	0.003 (0.006)	0.003 (0.006)
Lagged facility's inspection by EPA	0.024 (0.018)	0.025 (0.018)	0.025 (0.018)	0.024 (0.018)
Lagged facility's inspection by State	0.003 (0.004)	0.003 (0.004)	0.003 (0.004)	0.003 (0.004)
Share of firm's sale in industry	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
No of facilities in a county	0.035** (0.015)	0.035** (0.015)	0.036** (0.016)	0.037** (0.015)
County unemployment rate	-0.004 (0.003)	-0.004 (0.003)	-0.004 (0.003)	-0.004 (0.003)
No. of siblings (A)	0.021 (0.013)	-0.007 (0.009)	0.022* (0.013)	0.016 (0.012)
Firm operating in multiple state (B)	-0.023* (0.014)	0.003 (0.018)	-0.034** (0.015)	-0.014 (0.014)
Percent of siblings in the same industry (C)	0.002 (0.024)	-0.005 (0.024)	-0.005 (0.024)	0.047 (0.029)
$\Delta(A - \bar{A}) \times S$		-0.046*** (0.017)		
$\Delta(B - \bar{B}) \times S$			-0.170 (0.141)	
$\Delta(C - \bar{C}) \times S$				0.113*** (0.040)
Observations	101,161	101,161	101,161	101,161
Over identification test statistics (Hansen's J)	1.079	0.980	0.958	1.070
P-value of Hansen's J	0.299	0.322	0.328	0.301
Weak identification test statistics (Wald F stats.)	27.46	12.47	1.807	15.31

Notes: The specifications here assume firm's characteristics have linear impacts on sibling P2 stock. N=101,161. All explanatory variables are first-differenced. *** p<0.01, ** p<0.05, *p<0.10. Facility-level cluster-robust standard errors in parentheses. All models include firm-level fixed effects and linear trends, state-year effects, and industry-years effects. Instruments include the second lag of own P2 adoption and the number of inspections by state and EPA on sibling facilities. For all models, the Hansen's J statistics indicate the orthogonality of the instrumental variables cannot be rejected. Wald F statistic based on the Kleibergen-Paap rk statistics in the presence of clustered standard errors (Baum, Shaffer, and Stillman 2007).

Appendix Table A2. The effects of using different scalars in the inverse hyperbolic sine transformation

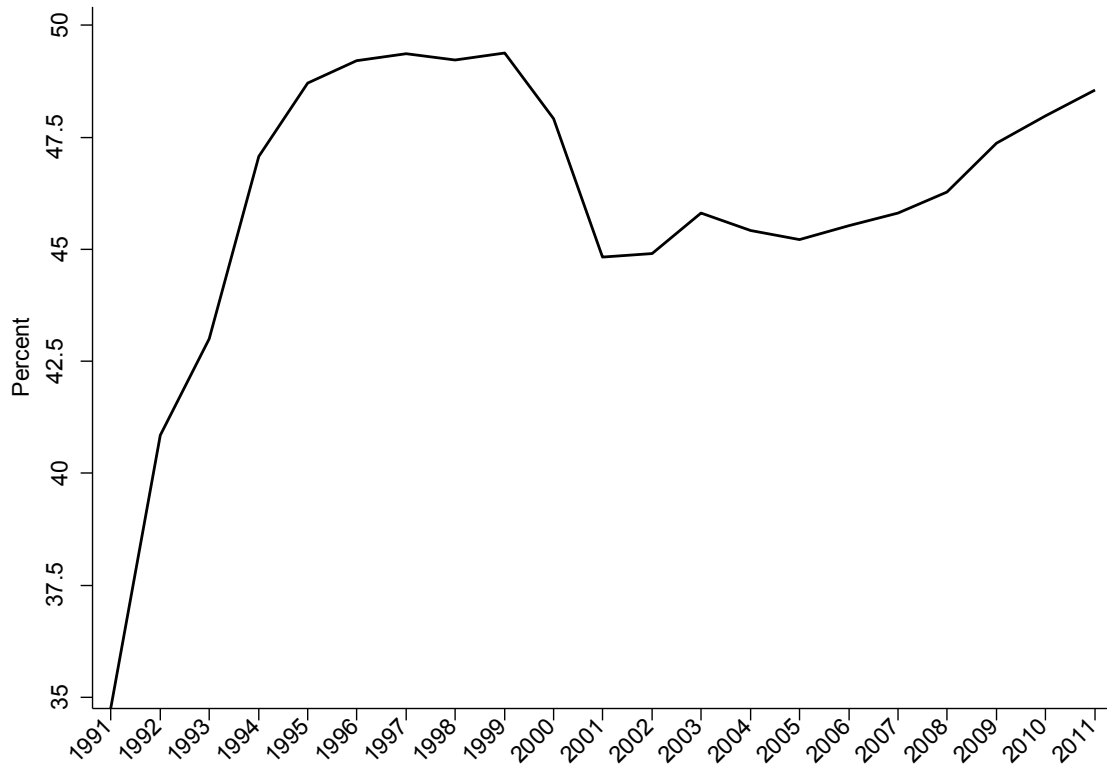
Variables	(1) K=10	(2) K=100
Lagged own adoptions	0.450*** (0.010)	0.431*** (0.010)
Lagged sibling P2 stock	0.115** (0.047)	0.137** (0.056)
Lagged facility's toxic releases	-0.026*** (0.003)	-0.041*** (0.005)
Lagged facility's employment	0.005 (0.013)	0.008 (0.021)
Lagged facility's inspection by EPA	0.055 (0.039)	0.086 (0.062)
Lagged facility's inspection by State	0.009 (0.008)	0.016 (0.012)
Share of firm's sale in industry	0.000 (0.001)	0.000 (0.002)
No of facilities in a county	0.073** (0.034)	0.112** (0.055)
County unemployment rate	-0.011 (0.008)	-0.018 (0.012)
No. of siblings	0.032 (0.028)	0.050 (0.043)
Firm operating in multiple state	0.001 (0.026)	0.002 (0.041)
Percent of siblings in the same industry	-0.005 (0.052)	-0.015 (0.083)
Over identification test statistics (Hansen's J)	0.794	0.697
Weak identification test statistics (Wald F stats.)	27.14***	26.49***

Notes: Inverse hyperbolic sine transformation is applied to the dependent variable and the variable of sibling P2 stock, by $ih_s(y) = \log(\sqrt{y^2 + 1} + y)$. Following Bellermare and Wichman (2018)'s suggestions, we check the consistency of the results by applying a scalar >1 to all the transformed variables, such as $ih_s(y) = \log(\sqrt{ky^2 + 1} + ky)$. We represent the results for K=10 and K=100 in this table. All explanatory variables are first-differenced. N=101,161. *** p<0.01, ** p<0.05, *p<0.10. Facility-level cluster-robust standard errors in parentheses. All models include firm-level fixed effects and linear trends, state-year effects, and industry-years effects. Instruments include the second lag of own P2 adoption and the number of inspections by state and EPA on sibling facilities. For both models, the Hansen's J statistics indicate the orthogonality of the instrumental variables cannot be rejected. Wald F statistic is based on the Kleibergen-Paap rk statistics in the presence of clustered standard errors (Baum, Shaffer, and Stillman 2007).

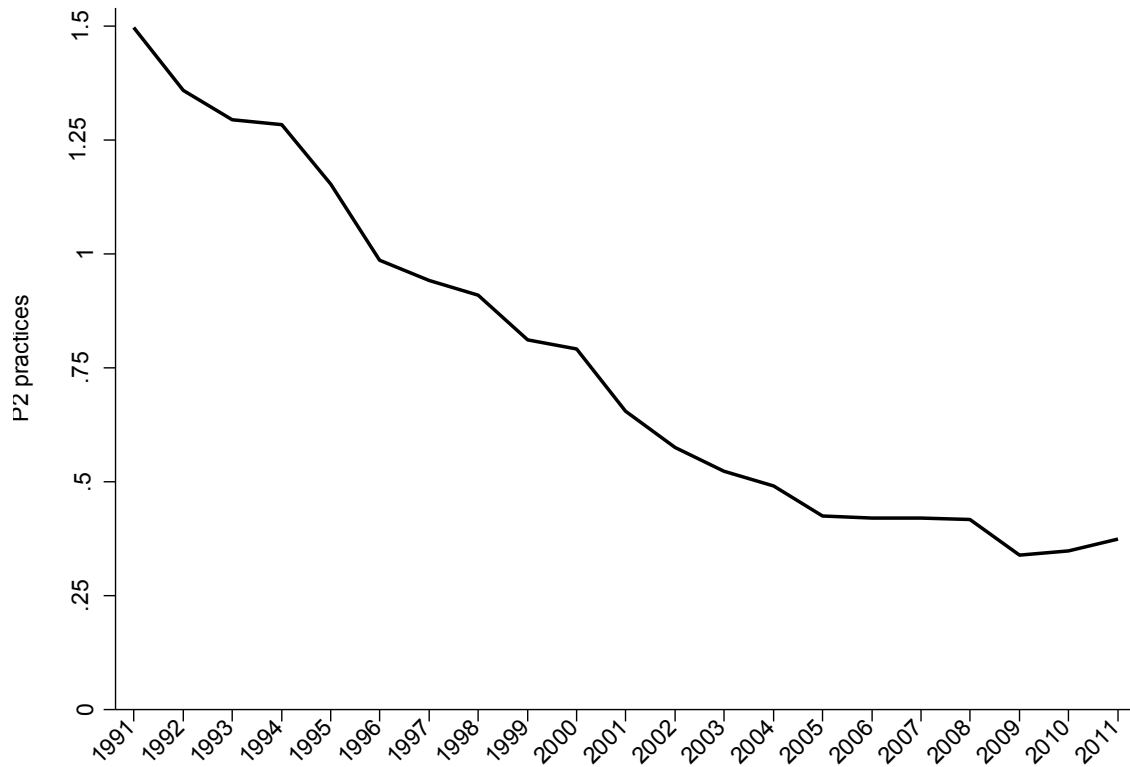
Appendix Table A3. The effects of sibling P2 stock evaluated using industry subsample

VARIABLES	(1)	(2)
	Chemical Industry	Primary and Fabricated Metal Industry
Lagged own adoptions	0.490*** (0.025)	0.500*** (0.022)
Lagged sibling's P2 stock	0.079 (0.066)	0.078 (0.062)
Lagged facility's toxic releases	-0.008** (0.003)	-0.011*** (0.003)
Lagged facility's employment	-0.005 (0.017)	0.015 (0.012)
Lagged facility's CAA inspection by EPA	0.020 (0.036)	0.040 (0.033)
Lagged facility's CAA inspection by State	-0.002 (0.005)	0.008 (0.009)
Number of siblings	0.041 (0.027)	-0.004 (0.027)
Firm operating in more than one state	0.003 (0.041)	-0.031 (0.026)
Percent of siblings in same industry	0.029 (0.063)	-0.026 (0.049)
Share of firm's sale in the industry	-0.002 (0.002)	0.001 (0.001)
Number of TRI facilities in a county	0.010 (0.045)	0.012 (0.029)
County unemployment rate	-0.016* (0.009)	0.001 (0.006)
Firm-level time trend	Yes	Yes
State and year fixed effects	Yes	Yes
Hansen's over identification test	1.111	0.710
P-value of the overt identification test	0.292	0.399
Weak identification test	17.94***	5.308
Observations	23125	26971

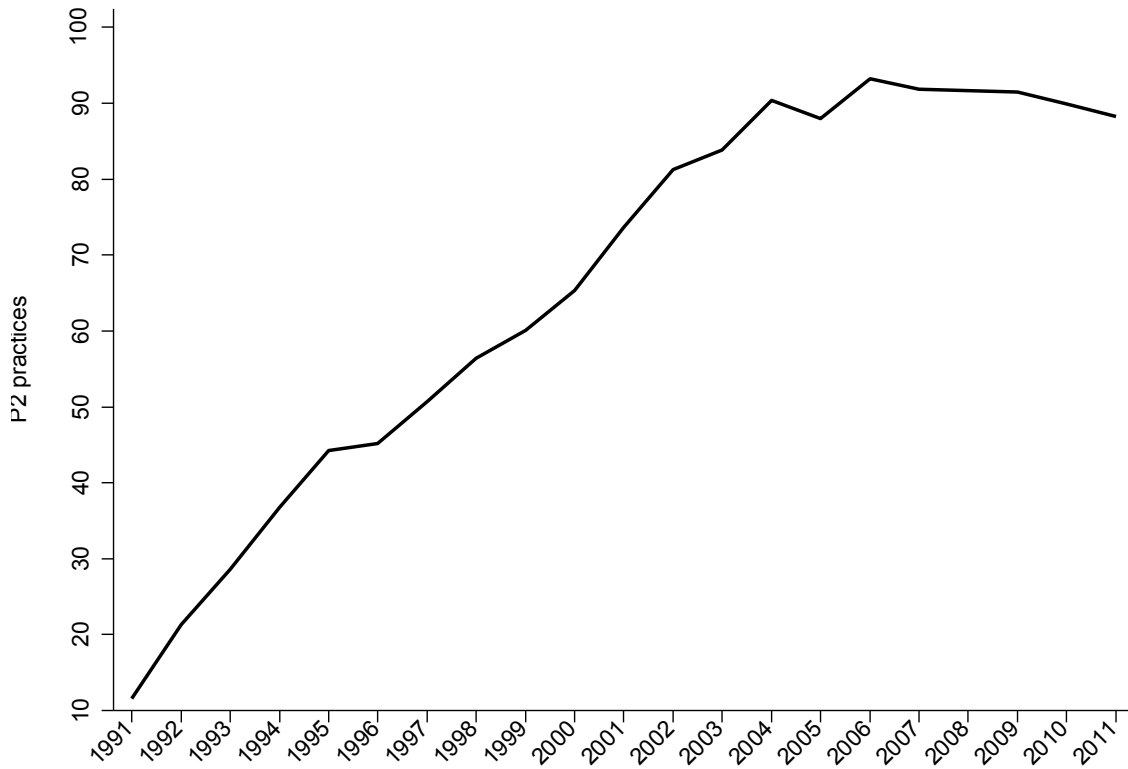
Notes: All explanatory variables are first-differenced. *** p<0.01, ** p<0.05, *p<0.10. Facility-level cluster-robust standard errors in parentheses. Instruments include the second lag of own P2 adoption and the number of inspections by state and EPA on sibling facilities. For both models, the Hansen's J statistics indicate the orthogonality of the instrumental variables cannot be rejected. Wald F statistic is based on the Kleibergen-Paap rk statistics in the presence of clustered standard errors (Baum, Shaffer, and Stillman 2007).



Appendix Figure A1. Percent of TRI facilities that reported at least one adoption of P2 practice in the sample over time



Appendix Figure A2. Average number of new P2 practices adopted by TRI facilities in the sample each year



Appendix Figure A3. Sample mean of firm-level sibling P2 stock each year