Competing for Inventors: Market Concentration and the Misallocation of Innovative Talent

October 4, 2022

1 Main Text Tables

Table 1: Regressions of Change in 4-digit Knowledge Market Share over Change in HHI Measures, Long-Differences, 1997-2012

	Δ Inventor Share (pp)					
	(1)	(2)	(3)	(4)	(5)	(6)
Δ<u>HHI</u>	27.293*		27.183*		27.326*	
	(11.569)		(11.941)		(11.620)	
Δ HHI		22.399***		22.399***		22.350***
		(6.345)		(6.345)		(6.343)
Knowledge Market FE						
Sample	Full Sample	Full Sample	Trim Outliers	Trim Outliers	Mahalanobis 5%	Mahalanobis 5%
Weight	Sales	Sales	Sales	Sales	Sales	Sales
Observations	157	80	155	80	150	71

Note: Regressions weighted by sales in 2012; robust standard errors in parentheses; symbols denote significance levels $(+\ p<0.1,^{*}\ p<0.05,^{**}\ p<.01,^{***}\ p<.001)$; checkmarks indicate the inclusion of fixed effects. This table presents the results of specifications (**??**), when the outcome is the share of effective inventors of sector p over total inventors in knowledge market k, and the independent variable is the change in the lower bound of the Herfindal-Hirschman Index for product market p, as implied by Economic Census concentration ratios, or the HHI index reported in the Economic Census. "Full Sample", "Trim Outliers" and "Mahalanobis 5%" refer to the samples described in the main text.

Table 2: Regressions of Change in 4-digit Knowledge Market Share over Change in HHI Lower Bound, Long-Differences, 1997-2012

(a) Controlling for Change in Log Real Sales

	Δ Inventor Share (pp)					
	(1)	(2)	(3)	(4)	(5)	(6)
Δ<u>HHI</u>	26.093*	22.509*	25.904*	22.716*	26.111*	22.554*
	(10.696)	(10.848)	(11.124)	(10.948)	(10.725)	(11.019)
Δ log Sales	0.914**	0.548*	0.881**	0.539*	0.918**	0.562*
	(0.278)	(0.243)	(0.275)	(0.242)	(0.283)	(0.261)
Knowledge Market FE		✓		✓		✓
Sample	Full Sample	Full Sample	Trim Outliers	Trim Outliers	Mahalanobis 5%	Mahalanobis 5%
Weight	Sales	Sales	Sales	Sales	Sales	Sales
Observations	157	153	155	152	150	139

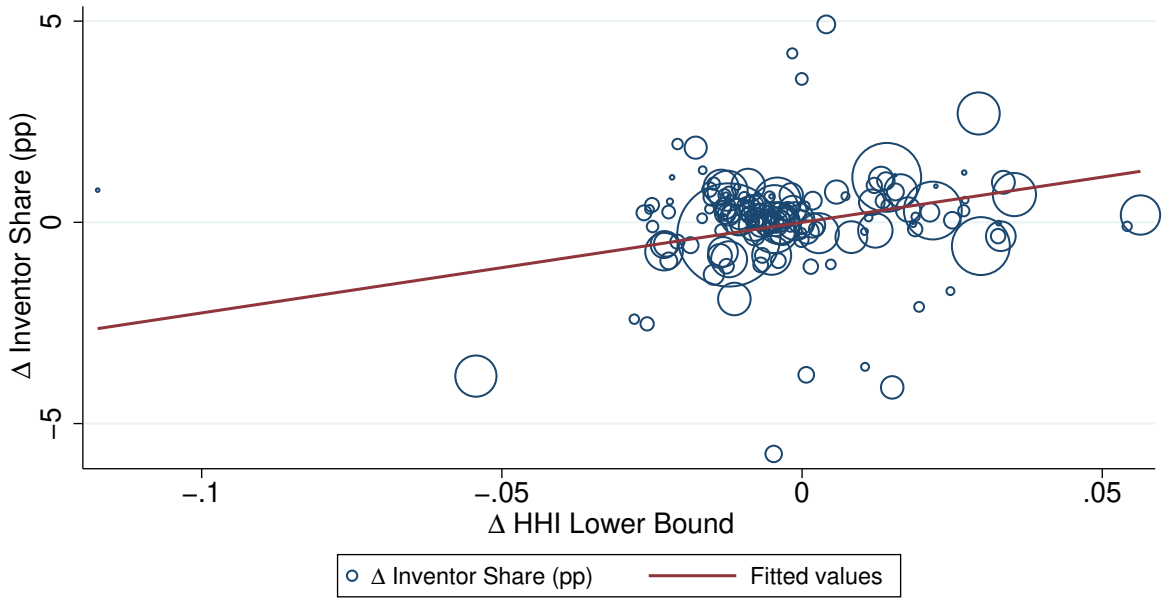
(b) Controlling for Change in Log Real Sales per Company

	Δ Inventor Share (pp)					
	(1)	(2)	(3)	(4)	(5)	(6)
Δ<u>HHI</u>	35.230**	20.783+	35.230**	20.783+	35.154**	22.854*
	(12.759)	(10.615)	(12.759)	(10.615)	(12.647)	(11.197)
Δ log Size	0.175	-0.040	0.175	-0.040	0.300	-0.055
	(0.382)	(0.253)	(0.382)	(0.253)	(0.460)	(0.346)
Knowledge Market FE		✓		✓		✓
Sample	Full Sample	Full Sample	Trim Outliers	Trim Outliers	Mahalanobis 5%	Mahalanobis 5%
Weight	Sales	Sales	Sales	Sales	Sales	Sales
Observations	81	79	81	79	75	67

Note: Regressions weighted by sales in 2012; robust standard errors in parentheses; symbols denote significance levels $(+\ p<0.1,^{*}\ p<0.05,^{**}\ p<.01,^{***}\ p<.001)$; checkmarks indicate the inclusion of fixed effects. This table presents the results of specifications (**??**), when the outcome is the share of effective inventors of sector p over total inventors in knowledge market k, and the independent variable is the change in the lower bound of the Herfindal-Hirschman Index for product market p, as implied by Census concentration ratios. "Full Sample", "Trim Outliers" and "Mahalanobis 5%" refer to the samples described in the main text.

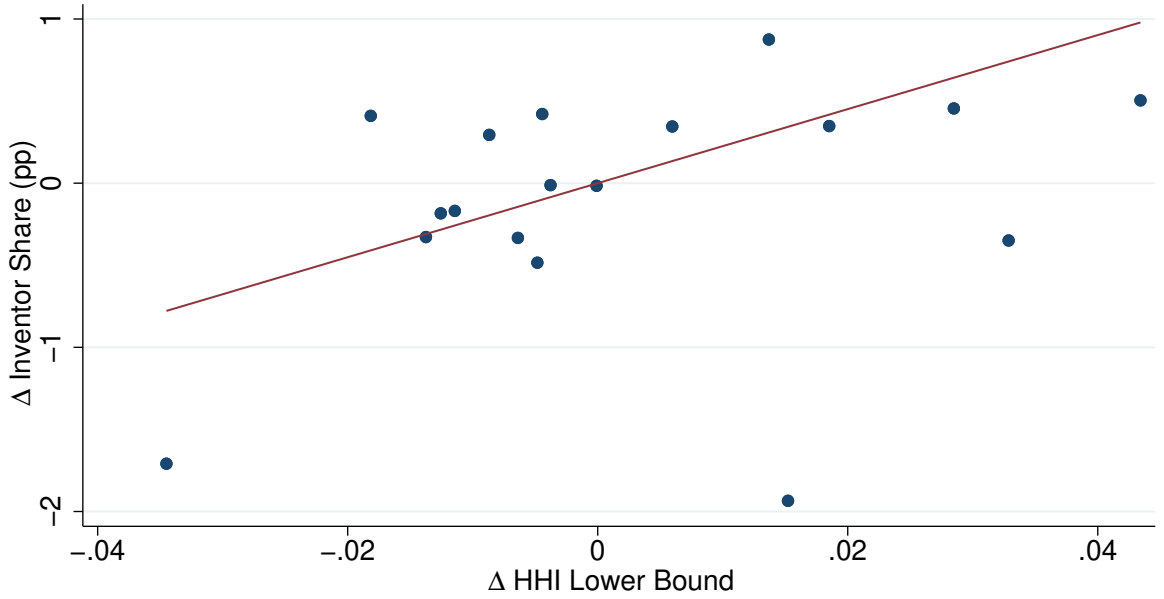
Figure 1: Residualized Scatter Plots Corresponding to Selected Columns in Table 2, Panel (a)

(a) Raw Scatter Plot, Specification in Column (2)



Full Sample. Absorbed FE: Knowledge Market. Partialled out: Δ log Sales. Observations weighted by Sales.

(b) Binned Scatter Plot, Specification in Column (6)



Mahalanobis 5%. Absorbed FE: Knowledge Market. Partialled out: Δ log Sales. Observations weighted by Sales.

Note: This figure presents residualized scatter plots of the change in the share of effective inventors of sector p over total inventors in knowledge market k, over the change in the lower bound of the Herfindal-Hirschman Index for product market p, as implied by Census concentration ratios. The upper panel reports the data for the full sample, where both variables are residualized by change in log real sales and knowledge market fixed effects. The size of the markers is proportional to the weight of each observation in the regression (sector sales in 2012). The regression line uses the coefficient on the change in HHI lower bound in Column (2) of Table 2. The lower panel presents a binned scatter plot removing the observations with the highest 5% Mahalanobis distance from the sample centroid. Observations are aggregated using sales weights and the regression line is from Column (6) of Table 2.

Table 3: IV Regressions of Change in 4-digit Knowledge Market Share over Change in HHI Lower Bound, 2SLS Long-Difference, 1997-2012

(a) 2SLS Results

	Δ Inventor Share (pp)	
	(1)	(2)
Δ<u>HHI</u>	32.426+	30.096+
	(16.987)	(15.819)
	[4.850, 99.013]	[4.415, 92.104]
Δlog Sales		0.525*
		(0.247)
		[0.525, 0.525]
Knowledge Market FE	✓	✓
Sample	Full Sample	Mahalanobis 5%
Weight	Sales	Sales
Observations	157	150
First-Stage F	4.65	4.75
Anderson-Rubin p-value	.0298	.0321

(b) First Stage and Reduced Form

	Δ Inventor Share (pp)	Δ<u>HHI</u>
	(1)	(2)
Δlog Restrictions	0.478*	0.016*
	(0.220)	(0.007)
Δlog Sales	0.539+	-0.000
	(0.274)	(0.005)
Knowledge Market FE	✓	✓
Sample	Full Sample	Full Sample
Weight	Sales	Sales
Observations	153	153

Note: Regressions weighted by sales in 2012; robust standard errors in parentheses; symbols denote significance levels $(+\ p<0.1,^{*}\ p<0.05,^{**}\ p<.01,^{***}\ p<.001)$; checkmarks indicate the inclusion of fixed effects. This table presents the results of specifications (**??**), when the outcome is the share of effective inventors of sector p over total inventors in knowledge market k, and the independent variable is the change in the lower bound of the Herfindal-Hirschman Index for product market p, as implied by Economic Census concentration ratios, instrumented by the change in log-restrictions relevant to the NAICS sector. The lower panel present first-stage and reduced-form relations. "Full Sample" and "Mahalanobis 5%" refer to the samples described in the main text.

Table 4: Regressions of Change in Inventor Distribution Measures over Change in 4-digit Knowledge Market Share, Long-Difference, 1997-2012

	Δ 90/50 Quantile Ratio	Δ Top 10%/Bottom 50%	Δ Top-50/Bottom-50 Share Ratio	Δ Top 10%	Δ Bottom 50%
	(1)	(2)	(3)	(4)	(5)
Δ Inventor Share (pp)	0.211+	0.243*	0.314+	0.018**	-0.008*
	(0.107)	(0.097)	(0.184)	(0.006)	(0.004)
Δlog Sales	-0.100	0.328	0.147	0.026	0.005
	(0.122)	(0.294)	(0.316)	(0.020)	(0.007)
Knowledge Market FE	✓	✓	✓	✓	✓
Sample	Full Sample	Full Sample	Full Sample	Full Sample	Full Sample
Weight	Sales	Sales	Sales	Sales	Sales
Observations	118	118	118	118	118

Note: Regressions weighted by sales in 2012; robust standard errors in parentheses; symbols denote significance levels $(+\ p<0.1,^{*}\ p<0.05,^{**}\ p<.01,^{***}\ p<.001)$; checkmarks indicate the inclusion of fixed effects. Please refer to notes in Table 2 for further details. Column (1) uses the ratio in the 90 percentile of effective inventors to the median as the outcome variable. Columns (2) and (3) instead present the share ratio, that is the share of effective inventors accruing to the top 10 or 50% relative to the share accruing to the bottom 50% of the distribution within each NAICS sector.

Table 5: Regressions of Changes in Forward Citation over 4-digit Knowledge Market Share, Long-Differences, 1997-2012

(a) Full sample

	Δlog Citations/Patent (CPC)	Δlog Citations/Patent (Total)	Δ Patent Generality
	(1)	(2)	(3)
Δ Inventor Share (pp)	-0.197***	-0.227***	-0.004
	(0.044)	(0.051)	(0.004)
Δlog Sales	-0.234*	-0.258+	0.008
	(0.112)	(0.148)	(0.013)
Knowledge Market FE	✓	✓	✓
Sample	Full Sample	Full Sample	Full Sample
Weight			
Observations	153	153	153

(b) Full sample, restricting to the middle range of the change in inventor shares (−2% to +2%)

	Δlog Citations/Patent (CPC)	Δlog Citations/Patent (Total)	Δ Patent Generality
	(1)	(2)	(3)
Δ Inventor Share (pp)	-0.545***	-0.618***	-0.025*
	(0.113)	(0.137)	(0.012)
Δlog Sales	-0.232*	-0.255+	0.008
	(0.109)	(0.146)	(0.012)
Knowledge Market FE	✓	✓	✓
Sample	Full Sample	Full Sample	Full Sample
Weight			
Observations	144	144	144

Note: Unweighted regressions; robust standard errors in parentheses; symbols denote significance levels $(+\ p<0.1,^{*}\ p<0.05,^{**}\ p<.01,^{***}\ p<.001)$; checkmarks indicate the inclusion of fixed effects. This table present the results of specification (**??**), when the outcome is the log-change in forward citations and the change in patent generality in sector p over the change in the share of inventors employed in sector p. Column (1) and (2) presents the results when forward citations are extrapolated the procedure Hall et al. (2000) to avoid truncation bias. A specific cite-lag distribution over 35 years is estimated for each pair of cited and citing CPC2-codes. Column (1) employs the extrapolation scheme by each pair of CPC2 cited and citing sector. Column (2) applies the extrapolation scheme to total citations received by each cited patent. Column (3) presents results on the patent generality measures. All columns exclude self-citations. Upper panel: full sample; bottom panel: excluding sectors with absolute increase in the inventor share above 2%.

Table 6: Regressions of Change in Excess Self-Citations over 4-digit Knowledge Market Share, Long-Differences, 1997-2012

	Δ CPC group self-citations		Δ CPC subgroup self-citations	
	(1)	(2)	(3)	(4)
Δ Inventor Share (pp)	0.920	-0.444	0.958+	-0.228
	(0.711)	(1.083)	(0.512)	(0.801)
Δ log Sales	-1.841	-1.954	-1.456	-1.674
	(1.925)	(1.988)	(1.326)	(1.279)
Knowledge Market FE		✓		✓
Sample	Full Sample	Full Sample	Full Sample	Full Sample
Weight				
Observations	157	153	157	153

Note: Unweighted regressions; robust standard errors in parentheses; symbols denote significance levels $(+\ p<0.1,^{*}\ p<0.05,^{**}\ p<.01,^{***}\ p<.001)$; checkmarks indicate the inclusion of fixed effects. This table presents the results of specifications (**??**), when the outcome is the change in excess self-citations in sector p over the change in the share of inventors employed in sector p.

Table 7: Regressions of Changes in Inventor Productivity over Changes in Inventors' Share and HHI, Long-Difference, 1997-2012

(a) Change in Inventors' Share as Independent Variable

	Δ Growth/Inventor (pp)			
	(1)	(2)	(3)	(4)
Δ Inventor Share (pp)	-0.007**	-0.005*	-0.007**	-0.005*
	(0.002)	(0.002)	(0.002)	(0.002)
Δlog Sales		-0.051*		-0.054*
		(0.021)		(0.021)
Knowledge Market FE	✓	✓	✓	✓
Sample	Full Sample	Full Sample	Mahalanobis 5%	Mahalanobis 5%
Weight	Sales	Sales	Sales	Sales
Observations	101	101	96	93

(b) Change in HHI as Independent Variable

	Δ Growth/Inventor (pp)			
	(1)	(2)	(3)	(4)
ΔHHI	-0.332**	-0.292*	-0.332**	-0.290*
	(0.113)	(0.123)	(0.114)	(0.126)
Δlog Sales		-0.052*		-0.053*
		(0.021)		(0.022)
Knowledge Market FE	✓	✓	✓	✓
Sample	Full Sample	Full Sample	Mahalanobis 5%	Mahalanobis 5%
Weight	Sales	Sales	Sales	Sales
Observations	101	101	98	94

Note: Regressions weighted by sales in 2012; robust standard errors in parentheses; symbols denote significance levels $(+\ p<0.1,^{*}\ p<0.05,^{**}\ p<.01,^{***}\ p<.001)$; checkmarks indicate the inclusion of fixed effects. Please refer to notes in Table 2 for further details. Inventor productivity is measured as the average growth in output per worker over the five years starting in the Economic Census year over the total number of effective inventors in each sector. The upper panel presents estimates when the independent variable is the change in the share of inventors accruing to a sector, while the bottom panel uses the change in the lower bound of the HHI index.

A Appendix Tables

Table 8: Regressions of Change in Total Inventors' Share over Change in HHI Lower Bound, Long-Difference, 1997-2012

	Ch. Total Eff. Inv. Share (%)					
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta\underline{\text{HHI}}$	0.297	1.692	1.328*	1.532*	0.271	1.889
	(2.007)	(1.956)	(0.649)	(0.696)	(2.038)	(2.023)
Δlog Sales	0.460	0.436	0.133**	0.109*	0.464	0.472
	(0.281)	(0.292)	(0.047)	(0.047)	(0.283)	(0.312)
Knowledge Market FE		✓		✓		✓
Sample	Full Sample	Full Sample	Trim Outliers	Trim Outliers	Mahalanobis 5%	Mahalanobis 5%
Weight	Sales	Sales	Sales	Sales	Sales	Sales
Observations	157	153	147	143	150	139

Note: Regressions weighted by sales in 2012; Robust standard errors in parentheses; Symbols denote significance levels $(+\ p<0.1,^{*}\ p<0.05,^{**}\ p<.01,^{***}\ p<.001)$; Checkmarks indicate the inclusion of fixed effects. Please refer to notes in Table 2 for further details.

Table 9: Regressions of Change in 4-digit Knowledge Market Share of Total Inventors over Change in HHI Measures, Long-Differences, 1997-2012

	Δ Inventor Share (pp)					
	(1)	(2)	(3)	(4)	(5)	(6)
ΔHHI	74.172+		73.706+		74.177+	
	(40.957)		(41.600)		(41.047)	
Δ HHI		71.749**		71.997**		71.583**
		(24.464)		(25.060)		(24.433)
Knowledge Market FE						
Sample	Full Sample	Full Sample	Trim Outliers	Trim Outliers	Mahalanobis 5%	Mahalanobis 5%
Weight	Sales	Sales	Sales	Sales	Sales	Sales
Observations	157	80	155	79	150	72

Note: Regressions weighted by sales in 2012; Robust standard errors in parentheses; Symbols denote significance levels $(+\ p<0.1,^{*}\ p<0.05,^{**}\ p<.01,^{***}\ p<.001)$; Checkmarks indicate the inclusion of fixed effects. This Tables presents the results of specifications (**??**), when the outcome is the share of total inventors of sector p over total inventors in knowledge market k, and the independent variable is the change in the lower bound of the Herfindal-Hirschman Index for product market p, as implied by Economic Census concentration ratios, or the HHI index reported in the Economic Census. "Full Sample", "Trim Outliers" and "Mahalanobis 5%" refer to the samples described in the main text.

Table 10: Regressions of Change in 4-digit Knowledge Market Share of Total Inventors over Change in HHI Lower Bound, Long-Differences, 1997-2012

(a) Controlling for Change in Log Real Sales

	Δ Inventor Share (pp)					
	(1)	(2)	(3)	(4)	(5)	(6)
ΔHHI	71.724+	67.160+	71.308+	67.860+	71.772+	68.398+
	(39.265)	(37.176)	(40.036)	(37.518)	(39.316)	(37.717)
Δ log Sales	1.864*	1.422*	1.688*	1.381+	1.878*	1.443+
	(0.766)	(0.717)	(0.736)	(0.711)	(0.774)	(0.745)
Knowledge Market FE		✓		✓		✓
Sample	Full Sample	Full Sample	Trim Outliers	Trim Outliers	Mahalanobis 5%	Mahalanobis 5%
Weight	Sales	Sales	Sales	Sales	Sales	Sales
Observations	157	156	155	154	150	142

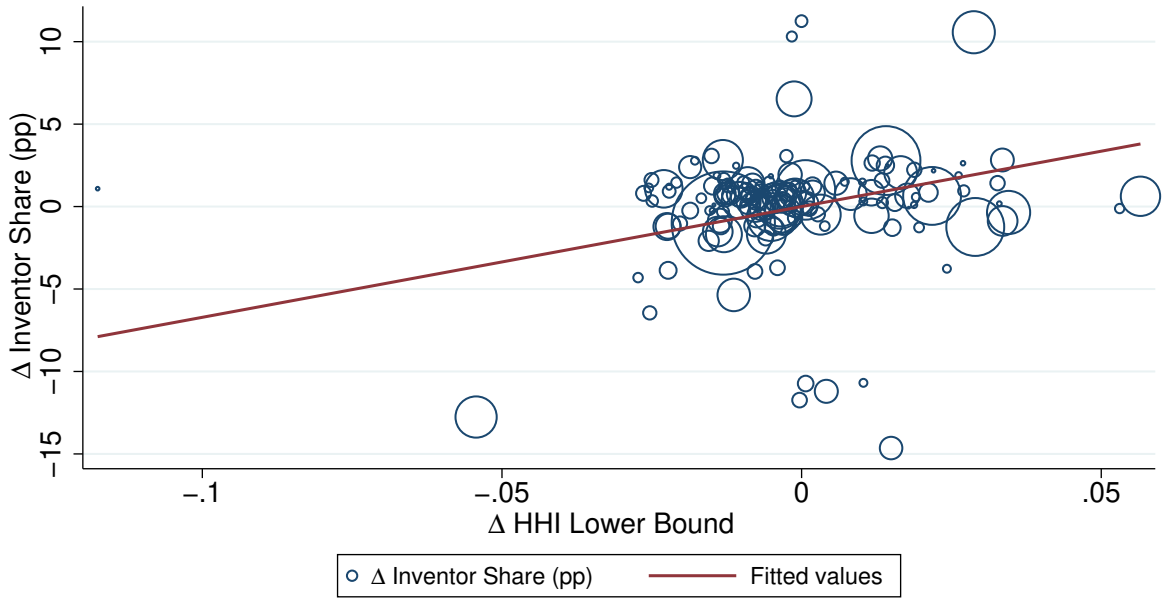
(b) Controlling for Change in Log Real Sales per Company

	Δ Inventor Share (pp)					
	(1)	(2)	(3)	(4)	(5)	(6)
ΔHHI	104.562*	81.339+	103.402+	82.040+	104.355*	82.964+
	(51.534)	(43.722)	(52.824)	(43.556)	(51.356)	(46.147)
Δ log Size	0.571	-0.277	0.196	-0.515	0.571	-0.656
	(1.013)	(0.809)	(0.920)	(0.793)	(1.048)	(1.049)
Knowledge Market FE		✓		✓		✓
Sample	Full Sample	Full Sample	Trim Outliers	Trim Outliers	Mahalanobis 5%	Mahalanobis 5%
Weight	Sales	Sales	Sales	Sales	Sales	Sales
Observations	81	80	80	79	76	69

Note: Regressions weighted by sales in 2012; Robust standard errors in parentheses; Symbols denote significance levels $(+\ p<0.1, ^{*}\ p<0.05, ^{**}\ p<.01, ^{***}\ p<.001)$; Checkmarks indicate the inclusion of fixed effects. This Tables presents the results of specifications (**??**) and (**??**), when the outcome is the share of effective inventors of sector p over total inventors in knowledge market k, and the independent variable is the change in the lower bound of the Herfindal-Hirschman Index for product market p, as implied by Census concentration ratios. "Full Sample", "Trim Outliers" and "Mahalanobis 5%" refer to the samples described in the main text.

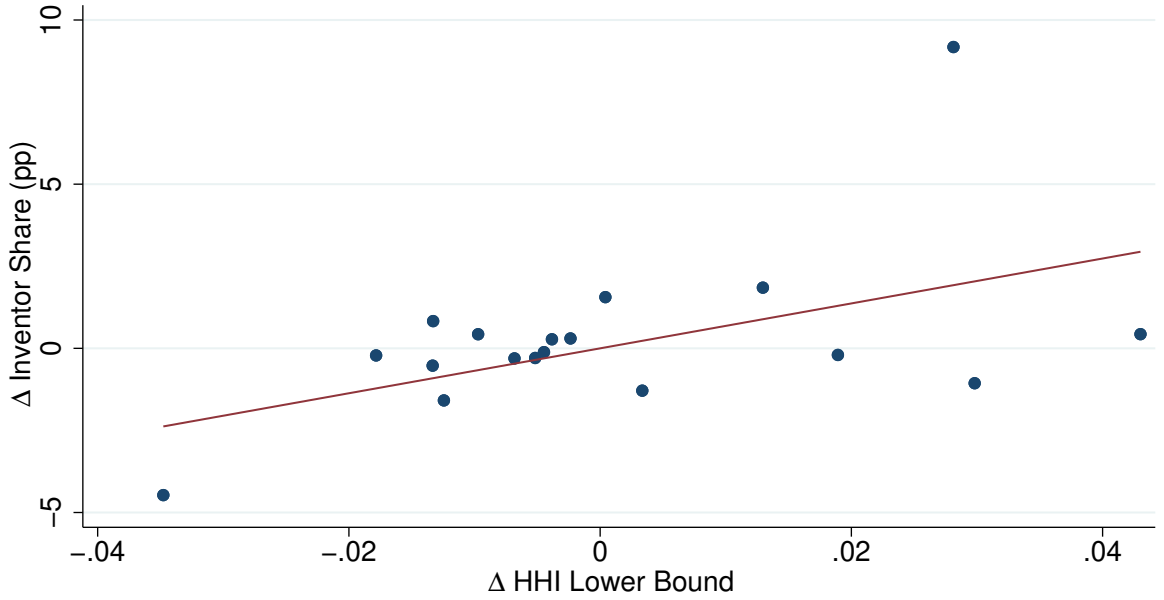
Figure 2: Residualized Scatter Plots Corresponding to Selected Columns in Table 10, Panel (a)

(a) Raw Scatter Plot, Specification in Column (2)



Full Sample. Absorbed FE: Knowledge Market. Partialled out: Δ log Sales. Observations weighted by Sales.

(b) Binned Scatter Plot, Specification in Column (6)



Mahalanobis 5%. Absorbed FE: Knowledge Market. Partialled out: Δ log Sales. Observations weighted by Sales.

Note: This figure presents residualized scatter plots of the change in the share of effective inventors of sector p over total inventors in knowledge market k, over the change in the lower bound of the Herfindal-Hirschman Index for product market p, as implied by Census concentration ratios. The upper panel reports the data corresponding to the full sample, where both variables have been residualized by change in log real sales and knowledge market fixed effects. The size of the markers is proportional to the weight of each observation in the regression, corresponding to total sector sales in 2012. The regression line corresponds to the coefficient on the change in HHI lower bound reported in Column (2) of Table 10. The lower panel presents a binned scatter plot on the sample where the observations with the highest 5% Mahalanobis distance from sample centroid have been removed. Observations are aggregated using sales weights and the regression line results from the specification in Column (6) of Table 10.

Table 11: Regressions of Change in 4-digit Knowledge Market Share of Inventors over Change in HHI Lower Bound, Long-Differences, 1997-2012

	Δ Inventor Share (pp)			
	(1)	(2)	(3)	(4)
Δ<u>HHI</u>	22.509*	24.083*	67.160+	74.769+
	(10.848)	(10.565)	(37.176)	(39.225)
Δlog Sales	0.548*		1.422*	
	(0.243)		(0.717)	
Δ Sales ($ bn)		2.617*		6.382+
		(1.108)		(3.365)
ΔSales^2		-0.749		-1.749
		(0.482)		(1.468)
ΔSales^3		0.081		0.165
		(0.076)		(0.232)
ΔSales^4		-0.003		-0.005
		(0.003)		(0.009)
4D Knowledge Market FE	✓	✓	✓	✓
Sample	Full Sample	Full Sample	Full Sample	Full Sample
Weight	Sales	Sales	Sales	Sales
Observations	153	153	156	156

Note: Regressions weighted by sales in 2012; Robust standard errors in parentheses; Symbols denote significance levels $(+\ p<0.1,^{*}\ p<0.05,^{**}\ p<.01,^{***}\ p<.001)$; Checkmarks indicate the inclusion of fixed effects. This Tables presents the results of specifications (**??**), when the outcome is the share of effective inventors of sector p over total inventors in knowledge market k, and the independent variable is the change in the lower bound of the Herfindal-Hirschman Index for product market p, as implied by Census concentration ratios. "Full Sample" refers to the sample described in the main text.

Table 12: Regressions of Change in Inventor Distribution Measures over Change in 4-digit Knowledge Market Share, Long-Difference, 1997-2012

	Δ 90/50 Quantile Ratio	Δ Top 10%/Bottom 50%	Δ Top-50/Bottom-50 Share Ratio	Δ Top 10%	Δ Bottom 50%
	(1)	(2)	(3)	(4)	(5)
ΔHHI	15.426*	1.793	10.566	-0.085	-0.409*
	(6.848)	(5.797)	(8.078)	(0.539)	(0.188)
Δlog Sales	0.048	0.464	0.340	0.036	-0.000
	(0.154)	(0.349)	(0.407)	(0.022)	(0.008)
4D Knowledge Market FE	✓	✓	✓	✓	✓
Sample	Full Sample	Full Sample	Full Sample	Full Sample	Full Sample
Weight	Sales	Sales	Sales	Sales	Sales
Observations	118	118	118	118	118

Note: Regressions weighted by sales in 2012; Robust standard errors in parentheses; Symbols denote significance levels $(+\ p<0.1,^{*}\ p<0.05,^{**}\ p<.01,^{***}\ p<.001)$; Checkmarks indicate the inclusion of fixed effects. Please refer to notes in Table 2 for further details. Column (1) uses the ratio in the 90 percentile of effective inventors to the median as the outcome variable. Columns (2) and (3) instead present the share ratio, that is the share of effective inventors accruing to the top 10 or 50% relative to the share accruing to the bottom 50% of the distribution within each NAICS sector.

Table 13: Regressions of Changes in Forward Citation over HHI Changes, Long-Differences, 1997-2012

(a) Full sample

	Δlog Citations/Patent (CPC)	Δlog Citations/Patent (Total)	Δ Patent Generality
	(1)	(2)	(3)
ΔHHI	-11.133**	-12.524**	-0.335
	(3.730)	(4.324)	(0.431)
Δlog Sales	-0.454*	-0.523*	-0.019
	(0.201)	(0.257)	(0.022)
Knowledge Market FE	✓	✓	✓
Sample	Full Sample	Full Sample	Full Sample
Weight	Sales	Sales	Sales
Observations	153	153	153

(b) Full sample, restricting to the middle range of the change in inventor shares (−2% to +2%)

	Δlog Citations/Patent (CPC)	Δlog Citations/Patent (Total)	Δ Patent Generality
	(1)	(2)	(3)
ΔHHI	-10.646**	-13.052**	-0.624
	(4.018)	(4.979)	(0.473)
Δlog Sales	-0.467*	-0.554*	-0.022
	(0.214)	(0.273)	(0.023)
Knowledge Market FE	✓	✓	✓
Sample	Full Sample	Full Sample	Full Sample
Weight	Sales	Sales	Sales
Observations	144	144	144

Note: Unweighted regressions; Robust standard errors in parentheses; Symbols denote significance levels $(+\ p<0.1,^{*}\ p<0.05,^{**}\ p<.01,^{***}\ p<.001)$; Checkmarks indicate the inclusion of fixed effects. This Tables presents the results of specification (**??**), when the outcome is the log-change in forward citations and the change in patent generality in sector p over the change in the share of inventors employed in sector p. Column (1) and (2) presents the results when forward citations are extrapolated the procedure Hall et al. (2000) to avoid truncation bias. A specific cite-lag distribution over 35 years is estimated for each pair of cited and citing CPC2-codes. Column (1) employs the extrapolation scheme by each pair of CPC2 cited and citing sector. Column (2) applies the extrapolation scheme to total citations received by each cited patent. Column (3) presents results on the patent generality measures. All columns exclude self-citations. Upper panel: full sample; Bottom panel: excluding sectors with absolute increase in the inventor share above 2%.

Table 14: Regressions of Changes in the Lerner Index over Changes in the HHI Lower Bound, Long-Difference, 1997-2012

	Δ Lerner Index
	(2)
$\Delta\underline{HHI}$	1.652***
	(0.257)
Observations	258
R-squared	.14

Note: Robust standard errors in parentheses; Symbols denote significance levels $(+\ p<0.1,^{*}\ p<0.05,^{**}\ p<.01,^{***}\ p<.001)$. "6d Lerner Index" refers to the Lerner Index constructed as in (**??**)on NAICS 6-digits averaged at the 4-digit NAICS level weighting by the value of shipments; "4d Lerner Index" is computed using 4-digit aggregates for the value of shipments, payroll and costs, summing over the NAICS 6-digit composing each sector.

Table 15: Regressions of Changes in Inventors' Share over Changes in Actual and Fitted Lerner Index, Long-Difference, 1997-2012

	Δ Inventor Share (pp)	
	(1)	(2)
Δ Lerner	0.556	
	(5.465)	
Δ Lerner (Fitted)		26.736*
		(13.363)
Knowledge Market FE		
Sample	Full Sample	Full Sample
Weight	Sales	Sales
Observations	81	157

Note: Robust standard errors in parentheses; Symbols denote significance levels $(+\ p<0.1,^{*}\ p<0.05,^{**}\ p<.01,^{***}\ p<.001)$; Observations weighted by sales. The markup change 1997-2012 is the long-difference of the Lerner Index described above. "Fitted Lerner change" is the fitted value for the Lerner index based on the estimates in 14, and extended to all available sectors in the main sample.