An Empirical Analysis of Industrial Concentration and Prices: Can We Blame Inflation on Corporate Greed?

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Abstract

In this paper I analyze the relationship between industrial concentration and inflation. I utilize a panel data analysis on annualized monthly producer price price data with a series of explanatory controls. While there is a positive association between industrial concentration and inflation, I find that industrial concentration cannot explain the changes in inflation over the last 25 years or during the Coronavirus Pandemic. It is unlikely that changing industry concentrations will have meaningful impacts on inflation. Policy makers should seek alternative options for quelling inflation.

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1 Introduction

Since the early 1980s, the United States and the majority of OECD countries have experienced low and stable inflation. However, since the beginning of the Coronavirus Pandemic in 2019, inflation has surged to historic levels. Headline inflation in the United States has accelerated, rising 8.5 percent for the 12-month period ending in March 2022. This is the single largest increase in the consumer price level since December 1981, widely considered to be the beginning of the Great Moderation (BLS, 2022). With a resurgence of inflation, consumers face a more difficult economy. Over the same 12-month period ending in March 2022, wages rose 6.1 percent, less than inflation, indicating that real wages have fallen. Rising prices make ordinary goods more expensive and hamper the ability of consumers to maintain their standard of living. Conversely, corporate pre-tax profits in the United States are at an all-time record high (BEA, 2022). Given the increased pressure on consumers, some policymakers have accused corporations in concentrated industries of exerting their market power to increase profits during the current inflationary period, further exacerbating inflation.

It is well established in the economic literature that there is a strong positive relationship between market power and prices. In traditional microeconomic models, firms with more monopoly power use their market power to reduce the optimal quantity of goods supplied and increase prices, generating larger profits as a consequence of reduced consumer surplus. The recent episode of increased inflation creates an opportunity to investigate the potential links between market power and inflation pass-troughs. It is feasible that large corporations with market power may be taking advantage of high overall inflation to increase their margins and translate large price changes into greater inflation in the aggregate. In other words, highly concentrated industries may be positively contributing to inflationary pressure. If such an inflationary relationship is credible, this may establish a tenable justification for enforcing antitrust laws and increased regulatory scrutiny as a method of combating inflation in addition to the Federal Reserve's traditional monetary policy. In this paper, I employ an expansive panel data analysis on the interaction between producer price inflation and industry concentration. I organize this paper as follows: In the first section, I outline

the purpose of this paper. In the second section, I explore the historical and modern literature on market concentration and inflation, and address the academic and political discourse on industry concentration and inflation. In the third section, I detail my methodology and explain the construction of my regression equation, and address concerns of endogeneity. In the fourth section, I explain the results of my model with respect to different definitions of industry concentration, measuring the change in price level and rate of inflation for robustness. I then conclude with my final remarks and provide brief policy implications.

2 Literature Review

While there is significant press coverage of market power and inflation today, certainly spurred by our heightened inflationary period, economic literature regarding market power and inflation is rooted in the previous historical episode of sustained inflation in US history, the Great Inflation. From 1965 to 1982, inflation steadily rose from a little more than 1 percent per year until it reached 14 percent in 1980. During this time, economists attempted to link the possible contribution that market power may have had on rising prices.

One of the first published works linking inflation and market power provided a theoretical explanation. In industrialized nations, the fact that factory production has given sellers the ability to upwardly bias the flexibility of pricing structures with market superiority is obvious. Anything that increases competition such as entrepreneurial incentives, oligopolistic restraints, research and development encouragements, and facilitation for the entry and access to innovation will directly and effectively be anti-inflationary according to (Scitovsky, 1978). The opposite of this, a non-competitive concentrated market will be inflationary. A formal model linking inflation and industry concentration was proposed the following year. Using a simple two good algebraic model relating industry concentration levels to an economy-wide price index, (Gisser and Johnson, 1979) simulated a relationship between concentration changes and inflation. Unsurprisingly their model yielded a positive correlation between concentration and the price index. However, they found the

act of reducing concentration is likely to have little impact on the consumer price index. Thus, they conclude that there is little linking industrial concentration and price level changes. In a response to Gisser and Johnson, an empirical study provided evidence in support of their conclusions. Using a census of manufacturers and the associated levels of inflation within individual disaggregated industries (Eckard Jr, 1981) found that over the 1970s, industry concentrations varied for individual industries but remained stable across the aggregate. Hence, rising industry concentrations are not directly responsible for the increases in prices. Another empirical analysis yielded similar results to the previous works. Examining price-setting strategies from a market power approach, (Lieberman and Zilberfard, 1985) found that firms in more concentrated industries do not adjust their prices at a significantly higher rate. They also found that firms in more concentrated industries behave similarly to firms in less concentrated industries and firms do not tend to raise prices jointly with other firms nor do they use an incident of price adjustment of one of their products to adjust the price of other products. Overall, this suggests that firms do not unilaterally raise their prices across markets.

While literature from previous decades may have concluded that the link between industrial concentration and inflation is weak, over the last 40 years, evidence regarding changes in market power is mixed. One common method of measuring market power is the markup firms charge above production costs. A recent analysis of the distribution of markups by (De Loecker et al., 2020) found that aggregate markups have been largely stable between 1955 and 1980 but average markups have risen from 21 percent above cost in 1980 to 61 percent above cost in 2016. Strikingly, these changes have not been symmetric. The median markup remained constant while a few firms in highly concentrated industries skewed the distribution rightward. This suggests that a few ”superstar” firms may be exhibiting a large degree of market power, individually driving up markups. However, the plausibility of a select few mega-firms exhibiting greater markups has been questioned. (Hall, 2018) finds that there exists substantial heterogeneity across industrial sectors and in markup price rates. He also finds, there is no evidence that highly concentrated industries have higher markups than less concentrated industries. A review of the literature by (Basu, 2019)

finds that it is inconclusive that overall markups have increased and no clear trend emerges for the change in market concentration since the 1980s. Increased markups should theoretically reduce the hiring of workers and raise the price level, yet these theoretical predictions of a substantial rise in markup are not easily verified in recent US or UK data by (Aquilante et al., 2019). The mass of literature has not seen conclusive evidence to suggest that industrial concentrations are increasing nor is there clear evidence that higher concentrations manifest in increased aggregate inflation.

Nonetheless, some pundits and policymakers have argued that the recent increase in inflation associated with the Coronavirus Pandemic of 2019 can in some part be attributed to the increase in markups and concentration afforded to firms over the last 40 years. For example, in the highly consolidated industries of meat processing, gross profits have collectively increased by more than 120 percent since the start of the pandemic, with gross margins increasing 50 percent, far exceeding the rise in input costs of labor and transportation (Deese et al., 2021). Moreover, the trend of firms claiming the ability to raise prices is not isolated to a few industries. In a recent survey of retailers, 60 percent of large retailers say that inflation has given them the ability to raise prices beyond what is required to offset higher costs (Digital, 2022), suggesting an increase in inflationary pressure. Indeed, profits of US companies during the pandemic have soared. For all of 2021, pre-tax profits rose 25 percent to roughly $2.81 trillion significantly outpacing the 7 percent rise in consumer prices over the same time period. Corporate pre-tax profits were at their highest levels ever recorded over 2021 (BEA, 2022). Yet, it is unlikely that these profits are directly driving up inflation. While most firms are optimistic about their ability to raise margins over 2022, even if those price increases are realized, consumer goods markets that are dominated by a few large firms are not the major source of inflation. Inflation is rooted in rentals, oil prices, transportation costs, and food (Nersisyan and Wray, 2022). These are variables that are ingrained in the global economy. An individual firm with significant market power is unlikely to be able to separate its sale price from larger domestic and international market forces.

3 Methodology

In this paper, I evaluate the interaction of inflation and industry concentration through the lens of disaggregated producer prices based on monthly data from 1996-2022, giving particular attention to the recent changes in prices during the Coronavirus Pandemic from 2019-2022. I construct my combined panel as follows. I source my price level data from the US Bureau of Labor Statistics producer price index database with a 6-digit NCAIS code industry classification. 6-digit codes are used for maximal data granularity. Where 6-digit code data is not available, shorter codes of more aggregated industries are substituted. These observations are monthly producer price index levels which I converted to annualized rates of inflation for each given month. My key explanatory variables of industry concentration are sourced from the US Census Bureau. Where available I use the Herfindahl-Hirschman Index (HHI), a common measure of market concentration to determine market competitiveness. Where HHI is not available, I substitute it for the fraction of industry revenue produced by the largest 50, 20 and 4 firms relative to the revenue generated by the entire industry. In practice, these values can differ. However, in the combined panel the correlation of HHI and the fraction of top firm industry revenue has a coefficient of nearly 0.9. Additionally, when substituted for each other my regressions produce similar values (see Table 7). I use concentration data from 2017, which is the most recent U.S Census Bureau release. While it is plausible that concentration ratios may have not remained constant over the period 1996-2022 which I am examining, a recent analysis has found that monopoly power has remained largely the same with average concentration ratios increasing just 1 percent from 2002 to 2017 (Atkinson and de Sousa, 2021). Furthermore, in the previous section, it was documented that median price markups have remained unchanged.

In order to minimize endogeneity concerns, I introduce key regressors that have historically explained changes in producer prices other than industrial concentration. Some industries operate in volatile price markets where the final cost of consumer goods changes frequently due to external forces. In order to control this, I map each industry in my panel to the frequency of the price change of the consumer goods most closely associated with that industry. I source the frequency of

consumer price change data from (Nakamura and Steinsson, 2008). In order to account for pricing pass-throughs, I introduce controls for commodity price exposure sourced from the cost-share input-output tables from the Bureau of Economic Analysis. Firms in industries whose input goods are volatile commodities such as oil or grain often raise prices as a response to input price changes. Lastly, I control for the overall output share that each industry contributes to the aggregate economy also sourced from the Bureau of Economic Analysis. The model below is relatively simple and can be improved with additional time and industry fixed effects and greater data granularity. I avoided a more complex regression due to the availability of disaggregated industry level data.

The combined panel has 120140 observations split across 516 individual industries for which the Bureau of Labor Statistics currently publishes data. Using our constructed panel the final specification used in this paper is the following ordinary least squares regression.

$$y_{i,t} = \alpha_t + \beta \text{SalesShare}_i + \gamma \text{Controls}_i + \varepsilon_{i,t}$$

Where $y_{i,t}$ is the outcome variable of interest representing the rate of inflation and the log price level. Controls_i represents the frequency of consumer product changes, the value added share, and the exposure to commodity prices as mentioned above.

In order to visualize and track the response of our key variables across time periods, I utilize binscatter plots under various panel classifications to supplement my regression results. The panel is then divided into the following categories to determine the relationship between inflation and concentration. I run the model without controls for the entire time period, I introduce controls in the model, and I run a cross-sectional regression on prices in December 2021 with and without controls seeking any evidence that increased industrial concentration contributed to inflation before or during the pandemic.

For the cross-sectional regression, I pick December 2021 as the fixed candidate to examine the effect of concentration on prices during the pandemic. Local pricing data is highly dependent on previous price patterns. In order to account for the trailing effect of prices, I include the re-

spective price level and inflation rate in December 2020 and 2019 in the cross-sectional model along with the main controls of concentration, frequency of price change, exposure to commodity prices, and the share of economic value added by each industry. The model for the cross-sectional regression is as follows.

$$y_{i,Dec2021} = \alpha_t + \beta \text{Controls}_i + y_{i,Dec2020} + y_{i,Dec2019} + \varepsilon_{i,Dec2021}$$

For each of the listed model specifications, I also evaluate the model at 3 levels of concentration for robustness. Concentration is measured as the HHI or the fraction of revenue captured by the top 50, top 20, or top 4 firms of each respective industry. Lastly, I repeat my calculations using price levels as the dependent variable instead of inflation as a robustness check. I follow conventional economic norms citing statistical significance at the 5 percent level in the following section.

4 Results

First, I investigate the direct association between price changes and concentration over the entire sample without controls. For the figures in this section the first three graphs in each figure display the relationship between concentration and inflation. The last three show the relationship between concentration and log price level.

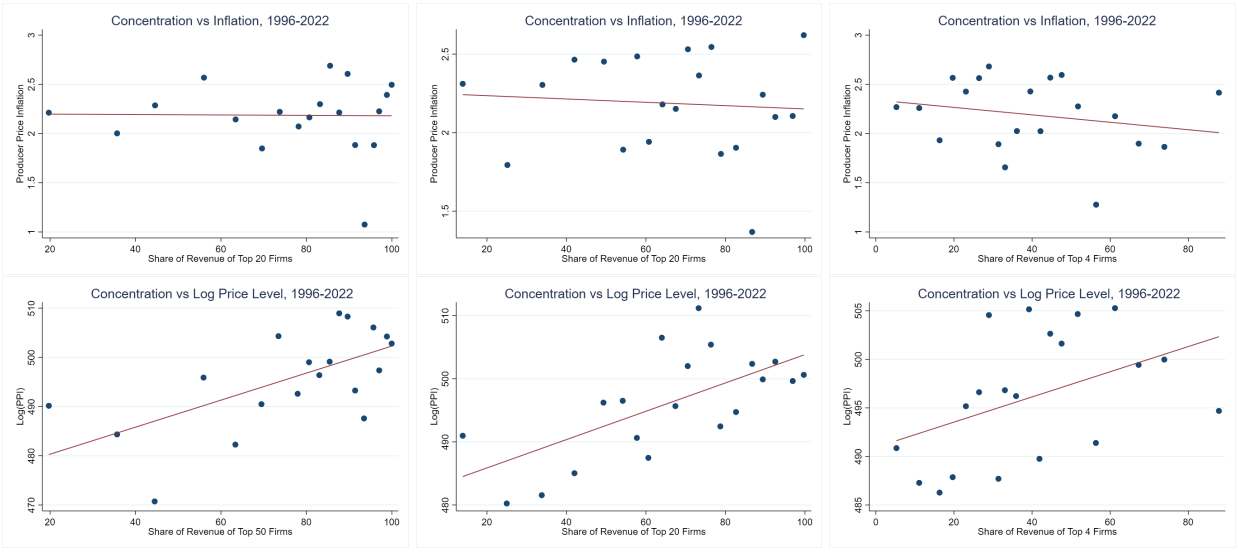

Figure 1: Binscatter Full Sample

Over the entire sample, the association between concentration and inflation is flat. Surprisingly as we examine the concentration of the 4 largest firms a negative correlation is seen. At the top 50, 20, and 4 firm concentration level the association is indistinguishable from zero. At most, a 1 percent increase in the fraction of revenue of the top 4 firms is associated with a 0.003 percent reduction in inflation in the full sample. However, the relationship between concentration and inflation is not significant at any firm concentration level. With respect to the price level, we see strong positive associations between concentration and price level. Larger more concentrated industries tend to have higher price levels than less concentrated industries. At the 50 firm concentration level, a 1 percent increase in the fraction of revenue captured by top firms is associated with a 31 percent increase in the price level. At the 20 firm level, a 1 percent increase in the fraction of revenue captured by top firms is associated with a 25 percent increase in the price level. At the

4 firm concentration level, a 1 percent increase in the fraction of revenue captured by top firms is associated with a 16 percent increase in prices. The coefficient on concentration in the price level graphs is significant at the top 50 and top 20 firm level.

Taken in aggregate, these results are not entirely surprising. Industries such as automobile manufacturing or oil refining, which tend to have a higher cost bases overall, often concentrate on economies of scale. While more concentrated industries may charge a higher markup, larger industries do not exhibit an association of higher inflation at the top 50, top 20, or top 4 firm concentration levels. The effect on price levels is also relatively modest. Most of the period from 1996-2022 overlaps with the Great Moderation, an extended period of low and stable inflation. It is likely that within the time period examined any large variation in inflation occurred only since the start of the pandemic and is thus not observable here.

While the preliminary results above do not directly suggest any clear association between concentration and inflation, we will also examine the results of the full model with controls over the entire period.

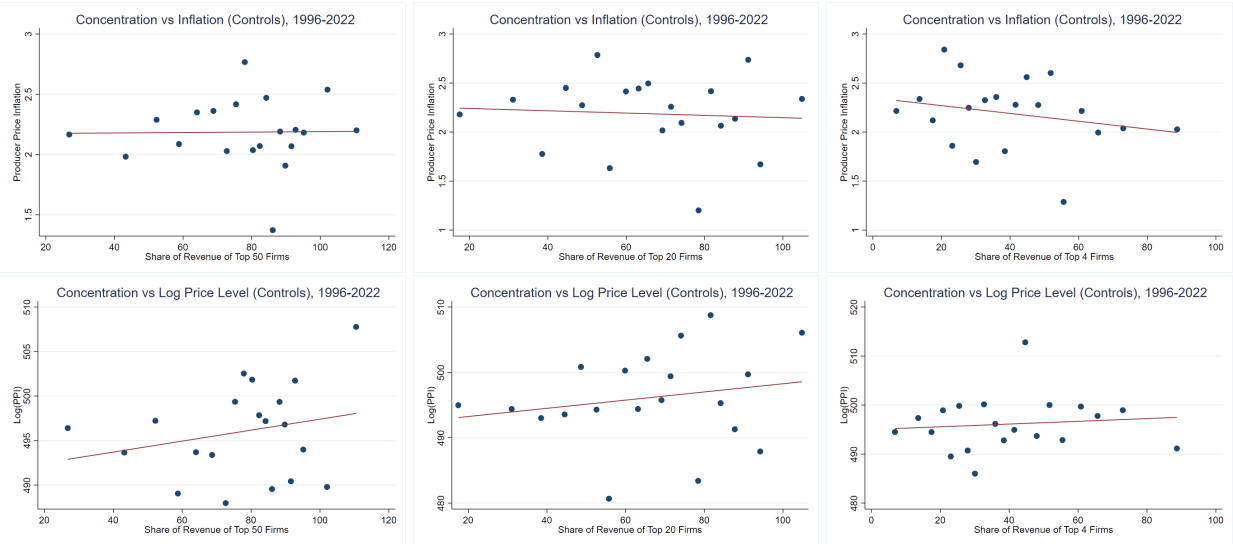

Figure 2: Binscatter Full Sample Controls

Examining the entire sample under the full model with controls, the results are the same for inflation. More concentrated industries with higher levels of market power do not exhibit higher rates of inflation. Likewise, we observe the same counter-intuitive negative association between

concentration and inflation at the top 4 firm-level concentration specifications as we did without controls. This negative relationship is not statistically significant. In terms of price levels, after adding controls the positive relationship between industry concentration and price levels disappears. At each firm specification of concentration level the relationship between price level and concentration is practically zero. With controls, these results suggest that accounting for exposure to commodities, the price volatility of consumer goods, and the share of value added to the economy by a given industry the effect of market power on annual inflation and the price level is indistinguishable from zero over the last 25 years.

Given the limited literature evidence linking market power and inflation, it is not surprising that we do not see a positive relationship between either inflation or price level and industry concentration as previously mentioned. We next investigate the cross-sectional regression of prices and concentration. Below we examine the relationship between concentration and prices without any controls during December 2021. This encompasses a higher inflation period, which should illuminate any positive relationship of concentration and prices, if one exists.

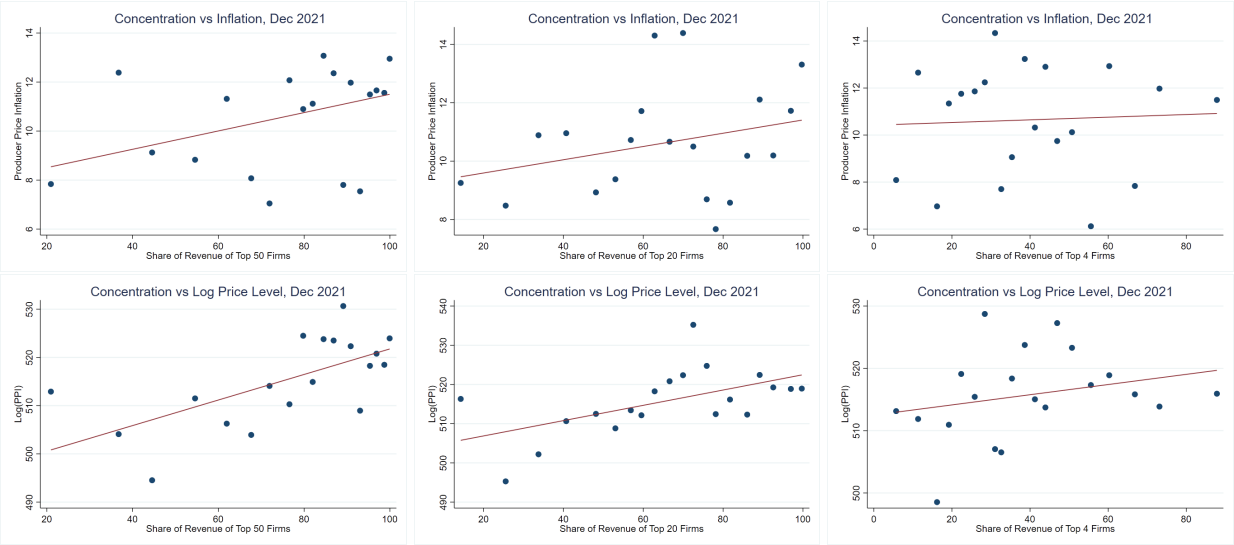

Figure 3: Binscatter December 2021

Compared to the full sample, there is a modest positive relationship between inflation and concentration during the Coronavirus Pandemic. This relationship weakens at higher specified firm concentration levels, similar to what we observed over the full sample. Notably, both the graphs for inflation and the price level appear to share the same positive pattern. At the top 50 firm concentration specification, a 1 percent increase in the fraction of revenue captured by the top firms is associated with a 0.037 percent increase in inflation. At the top 20 firm level, a 1 percent increase in the fraction of revenue captured by top firms is associated with a 0.027 percent increase in inflation and at the top 4 firm level, a 1 percent increase in the fraction of revenue captured by top firms is associated with a 0.06 percent increase in inflation. While the change in inflation is positive in all specifications, the high variability in the data means that these coefficients are not significant. However, we do see significant effects with respect to the change in price level. At the 50 firm concentration level, a 1 percent increase in the fraction of revenue captured by top firms is associated with a 30 percent increase in prices. At the 20 firm level, a 1 percent increase in the fraction of revenue captured by top firms is associated with a 22 percent increase in prices. At the 4 firm level, a 1 percent increase in the fraction of revenue captured by top firms is associated with a 8.5 percent increase in prices. The price level response is not significant at the top 4 firm level specification. The results found during the pandemic are similar to those over the entire sample.

Finally, we examine the relationship between concentration and prices during December 2021 under our fully specified model. In order to account for the trailing effects of prices, I also include lags of the rate of inflation and price level in December 2020 and December 2019 as detailed in the methodology section of the paper.

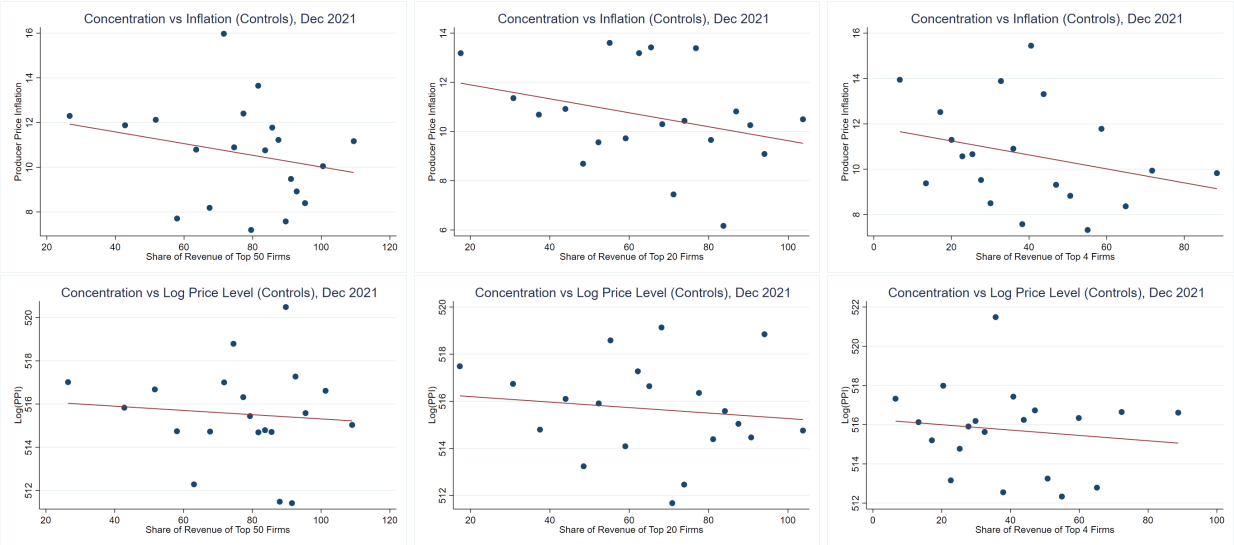

Figure 4: Binscatter December 2021 Controls

When we examine the relationship between concentration and prices we do not see a positive relationship between the variables in our fully specified model. In fact the effects on both the price level and inflation are negative in December 2021. None of the coefficients produced by the cross-sectional regression are significant.

The results we see during the pandemic are similar to those over the entire sample time period with and without controls. Thus, the results of our cross-sectional regression suggest that there is no tenable relationship between industrial concentration and aggregate prices during the pandemic. If anything, more concentrated industries may have had less of an ability to increase their prices compared to their less concentrated counterparts when accounting for various factors of firm price setting decisions. These results clearly illustrate that once we control for the volatility of consumer prices, exposure to commodities, the share of value added to the economy, and pricing lags the relationship between industrial concentration and inflation is insignificant, even during the pandemic.

5 Conclusion

Since the start of the Coronavirus Pandemic, inflation has significantly increased. Rising prices make goods more expensive for consumers and reduce their consumption potential. Rising prices also force firms to update their own prices which can compound itself into greater inflation. Since firms set prices, political pundits have recently used the backdrop of inflation to argue that firms with significant market power are generating inflation by increases their prices to extract profits at the expense of greater inflation economy wide. Previous research, in both empirical and theoretical models, has shown that industry concentration and inflation are weakly linked.

Using a series of least squares regressions on a disaggregated panel, my results are in line with that of previous literature. I find that while there is a positive association between industry concentration and inflation, the change in inflation associated with more concentrated industries can be almost entirely explained by the additional factors that influence production costs. Industries that are more concentrated commonly face higher input costs, produce more final goods that tend to have volatile costs, are exposed to volatile commodity prices, and are a larger share of total economic output. These results also hold for the Coronavirus Pandemic. Overall, industrial concentration cannot explain rising prices and inflation.

Unfortunately, implementing anti-trust laws and increasing regulatory scrutiny to combat market power is likely to be ineffective at influencing price levels or stabilizing inflation. In fact, doing so may destabilize established supply chains, decrease operational efficiency, and contribute more to the inflationary pressures already present. The Federal Reserve will have to look elsewhere and stick to its traditional tools for fighting inflation.

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Tables

Table 1: Top 50 Firms - Inflation Response

	(1) Full Sample	(2) Full Sample Controls	(3) Dec 2021	(4) Dec 2021 Controls
SalesShare	-0.000656	0.000405	0.0374	-0.0261
	(0.00304)	(0.00334)	(0.0239)	(0.0240)
Freq		0.00668		0.135***
		(0.00437)		(0.0318)
CommodityExposure		-0.00127		0.174***
		(0.00676)		(0.0479)
ValueAddedShare		-0.0477***		-0.0449
		(0.0176)		(0.125)
L12.infl				0.119
				(0.0943)
L24.infl				-0.584***
				(0.0751)
_cons	2.251***	2.521***	7.759***	8.274***
	(0.242)	(0.291)	(1.903)	(2.128)
N	112456	112456	496	495

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 2: Top 50 Firms - Price Level Response

	(1) Full Sample	(2) Full Sample Controls	(3) Dec 2021	(4) Dec 2021 Controls
SalesShare	0.266***	0.0493	0.265***	-0.00981
	(0.0580)	(0.0608)	(0.0851)	(0.0253)
Freq		0.0792		0.180***
		(0.0796)		(0.0330)
CommodityExposure		0.966***		0.184***
		(0.123)		(0.0523)
ValueAddedShare		-0.0588		-0.0389
		(0.323)		(0.132)
L12.l_ppi				1.251***
				(0.0983)
L24.l_ppi				-0.238**
				(0.0988)
_cons	470.6***	472.0***	495.3***	-0.620
	(4.601)	(5.282)	(6.778)	(6.912)
N	118576	118576	496	496

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Top 20 Firms - Inflation Response

	(1) Full Sample	(2) Full Sample Controls	(3) Dec 2021	(4) Dec 2021 Controls
SalesShare	-0.00114	-0.000713	0.0227	-0.0284
	(0.00289)	(0.00304)	(0.0226)	(0.0218)
Freq		0.00677		0.134***
		(0.00436)		(0.0317)
CommodityExposure		-0.000381		0.169***
		(0.00649)		(0.0460)
ValueAddedShare		-0.0480***		-0.0392
		(0.0175)		(0.124)
L12.infl				0.115
				(0.0943)
L24.infl				-0.587***
				(0.0751)
_cons	2.276***	2.586***	9.139***	8.149***
	(0.199)	(0.260)	(1.563)	(1.908)
N	112733	112733	497	496

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Top 20 Firms - Price Level Response

	(1) Full Sample	(2) Full Sample Controls	(3) Dec 2021	(4) Dec 2021 Controls
SalesShare	0.220***	0.0554	0.195**	-0.0116
	(0.0555)	(0.0554)	(0.0808)	(0.0229)
Freq		0.0835		0.180***
		(0.0796)		(0.0330)
CommodityExposure		0.981***		0.181***
		(0.118)		(0.0503)
ValueAddedShare		-0.0990		-0.0287
		(0.322)		(0.132)
L12.l_ppi				1.249***
				(0.0983)
L24.l_ppi				-0.237**
				(0.0989)
_cons	476.7***	472.3***	503.0***	-0.294
	(3.824)	(4.739)	(5.590)	(6.828)
N	118865	118865	497	497

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Top 4 Firms - Inflation Response

	(1) Full Sample	(2) Full Sample Controls	(3) Dec 2021	(4) Dec 2021 Controls
SalesShare	-0.00289	-0.00277	0.00567	-0.0308
	(0.00324)	(0.00327)	(0.0253)	(0.0235)
Freq		0.00664		0.132***
		(0.00436)		(0.0318)
CommodityExposure		-0.000149		0.159***
		(0.00624)		(0.0444)
ValueAddedShare		-0.0487***		-0.0398
		(0.0175)		(0.125)
L12.infl				0.114
				(0.0945)
L24.infl				-0.587***
				(0.0752)
_cons	2.318***	2.657***	10.42***	7.711***
	(0.145)	(0.232)	(1.134)	(1.699)
N	112250	112250	495	494

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Top 4 Firms - Price Level Response

	(1) Full Sample	(2) Full Sample Controls	(3) Dec 2021	(4) Dec 2021 Controls
SalesShare	0.147**	0.0428	0.0818	-0.0137
	(0.0629)	(0.0594)	(0.0910)	(0.0246)
Freq		0.0885		0.179***
		(0.0795)		(0.0331)
CommodityExposure		1.009***		0.177***
		(0.114)		(0.0487)
ValueAddedShare		-0.0934		-0.0298
		(0.322)		(0.132)
L12.l_ppi				1.248***
				(0.0985)
L24.l_ppi				-0.236**
				(0.0991)
_cons	485.2***	473.6***	512.5***	-0.481
	(2.808)	(4.209)	(4.072)	(6.807)
N	118358	118358	495	495

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Top 50 Firms Variable Feasibiltiy Check

	(1) infl	(2) infl	(3) infl	(4) infl	(5) infl	(6) infl
HHI	0.0000611	0.0000161				
	(0.000266)	(0.0000496)				
Freq	0.0140***	0.00257***	0.00336	0.001000	0.00668	0.00142**
	(0.00448)	(0.000845)	(0.00438)	(0.000716)	(0.00437)	(0.000703)
CommodityExposure	-0.00165	0.000529			-0.00127	0.000738
	(0.00623)	(0.00119)			(0.00676)	(0.00111)
ValueAddedShare	-0.00892	-0.00159	-0.0141	-0.00150	-0.0477***	-0.00582**
	(0.0176)	(0.00329)	(0.0192)	(0.00314)	(0.0176)	(0.00281)
L.infl		0.891***		0.889***		0.889***
		(0.00173)		(0.00141)		(0.00141)
SalesShare			-0.000863	-0.0000316	0.000405	0.000123
			(0.00331)	(0.000549)	(0.00334)	(0.000547)
ExposuretoAgriculture			-0.0629***	-0.00662**		
			(0.0166)	(0.00262)		
ExposuretoMiningExtraction			0.0625***	0.00834***		
			(0.0171)	(0.00269)		
_cons	2.136***	0.249***	2.400***	0.277***	2.521***	0.294***
	(0.218)	(0.0424)	(0.288)	(0.0484)	(0.291)	(0.0481)
N	73337	72997	112456	111934	112456	111934

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Top 20 Firms Variable Feasibiltiy Check

	(1) infl	(2) infl	(3) infl	(4) infl	(5) infl	(6) infl
HHI	0.0000611	0.0000161				
	(0.000266)	(0.0000496)				
Freq	0.0140***	0.00257***	0.00336	0.001000	0.00668	0.00142**
	(0.00448)	(0.000845)	(0.00438)	(0.000716)	(0.00437)	(0.000703)
CommodityExposure	-0.00165	0.000529			-0.00127	0.000738
	(0.00623)	(0.00119)			(0.00676)	(0.00111)
ValueAddedShare	-0.00892	-0.00159	-0.0141	-0.00150	-0.0477***	-0.00582**
	(0.0176)	(0.00329)	(0.0192)	(0.00314)	(0.0176)	(0.00281)
L.infl		0.891***		0.889***		0.889***
		(0.00173)		(0.00141)		(0.00141)
SalesShare			-0.000863	-0.0000316	0.000405	0.000123
			(0.00331)	(0.000549)	(0.00334)	(0.000547)
ExposuretoAgriculture			-0.0629***	-0.00662**		
			(0.0166)	(0.00262)		
ExposuretoMiningExtraction			0.0625***	0.00834***		
			(0.0171)	(0.00269)		
_cons	2.136***	0.249***	2.400***	0.277***	2.521***	0.294***
	(0.218)	(0.0424)	(0.288)	(0.0484)	(0.291)	(0.0481)
N	73337	72997	112456	111934	112456	111934

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

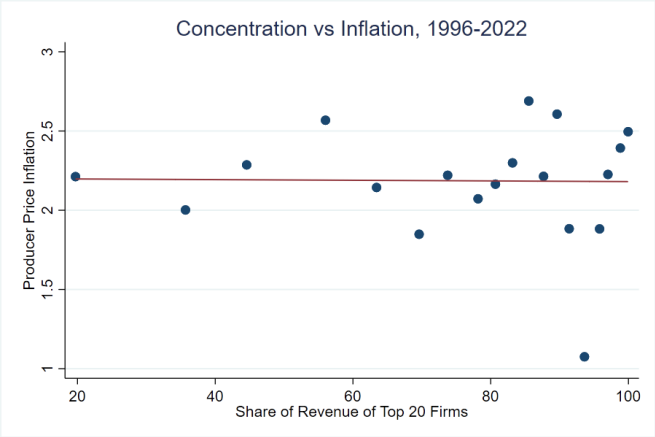
Table 9: Top 4 Firms Variable Feasibiltiy Check

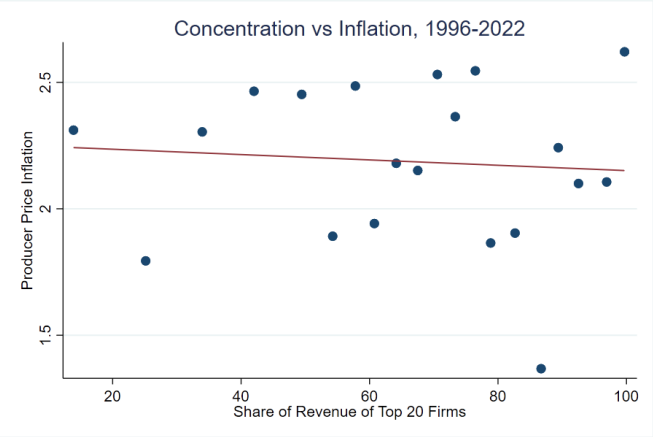
	(1) infl	(2) infl	(3) infl	(4) infl
SalesShare	-0.00422	-0.000614	-0.00277	-0.000432
	(0.00324)	(0.000533)	(0.00327)	(0.000530)
Freq	0.00320	0.000971	0.00664	0.00140**
	(0.00438)	(0.000717)	(0.00436)	(0.000704)
ExposuretoAgriculture	-0.0618***	-0.00637**		
	(0.0163)	(0.00257)		
ExposuretoMiningExtraction	0.0617***	0.00827***		
	(0.0163)	(0.00258)		
ValueAddedShare	-0.0143	-0.00152	-0.0487***	-0.00593**
	(0.0192)	(0.00314)	(0.0175)	(0.00280)
L.infl		0.889***		0.889***
		(0.00141)		(0.00141)
CommodityExposure			-0.000149	0.000947
			(0.00624)	(0.00102)
_cons	2.501***	0.298***	2.657***	0.319***
	(0.232)	(0.0395)	(0.232)	(0.0390)
N	112250	111729	112250	111729

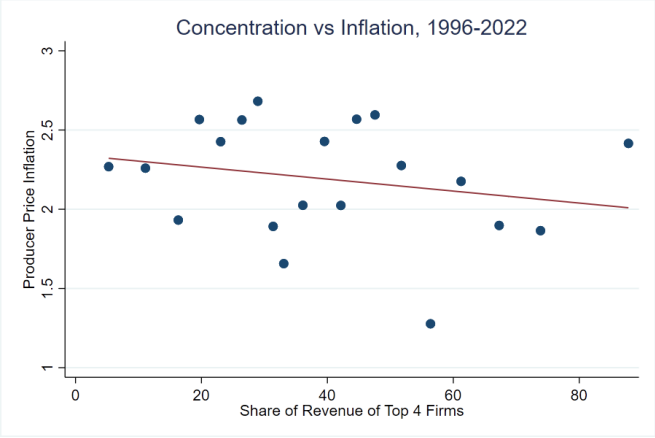
Standard errors in parentheses

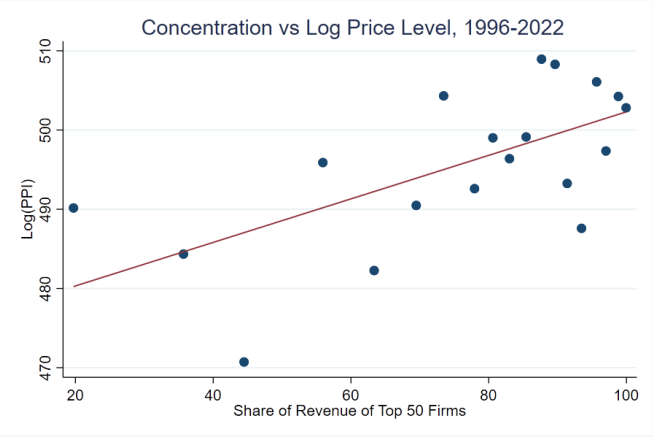
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

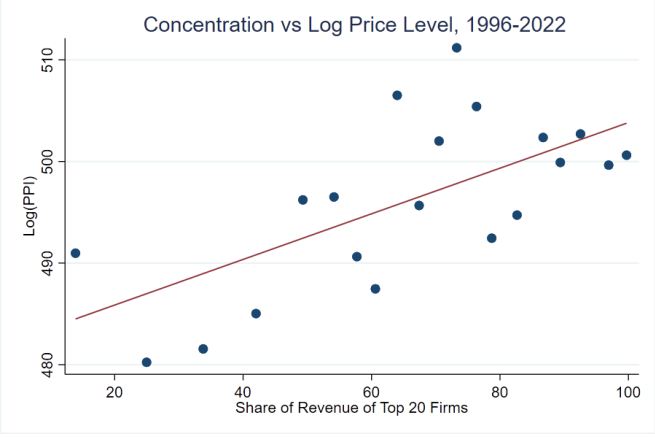
Figures

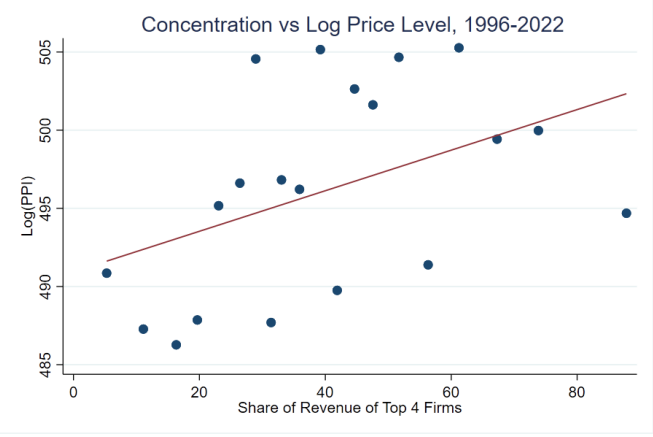

Concentration vs Inflation, 1996-2022
Producer Price Inflation
1
1.5
2
2.5
3
20
40
60
80
100
Share of Revenue of Top 20 Firms

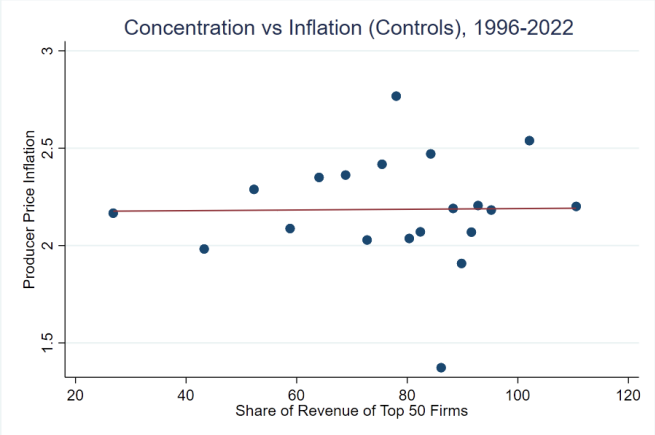

Concentration vs Inflation, 1996-2022
Producer Price Inflation
1.5
2
2.5
20
40
60
80
100
Share of Revenue of Top 20 Firms

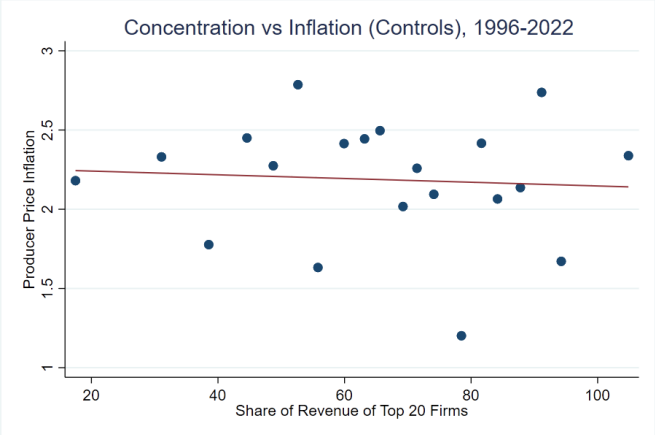

Concentration vs Inflation, 1996-2022
Producer Price Inflation
1
1.5
2
2.5
3
0
20
40
60
80
Share of Revenue of Top 4 Firms

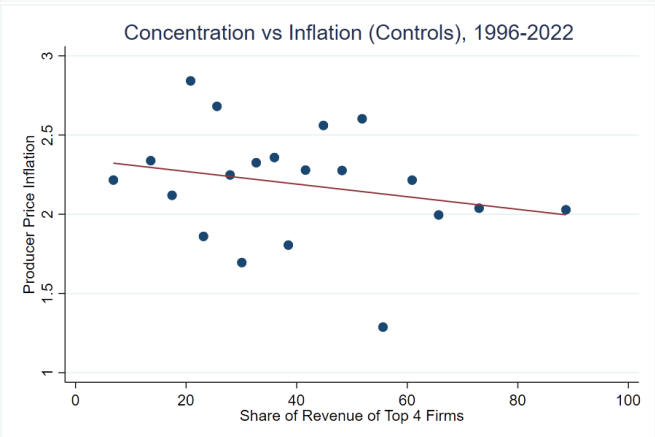

Concentration vs Log Price Level, 1996-2022
Log(PPI)
470
480
490
500
510
20
40
60
80
100
Share of Revenue of Top 50 Firms

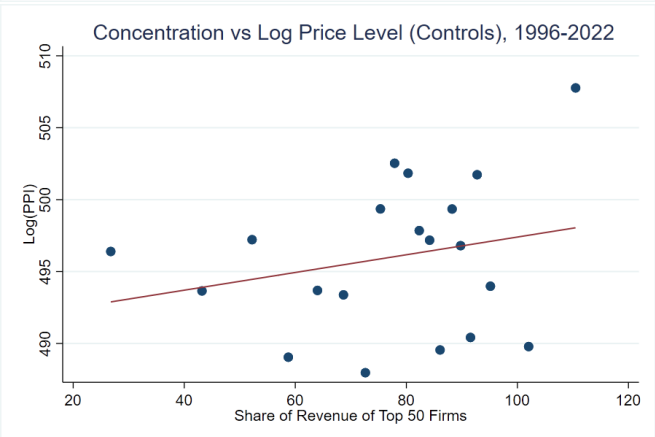

Concentration vs Log Price Level, 1996-2022
Log(PPI)
480
490
500
510
20
40
60
80
100
Share of Revenue of Top 20 Firms

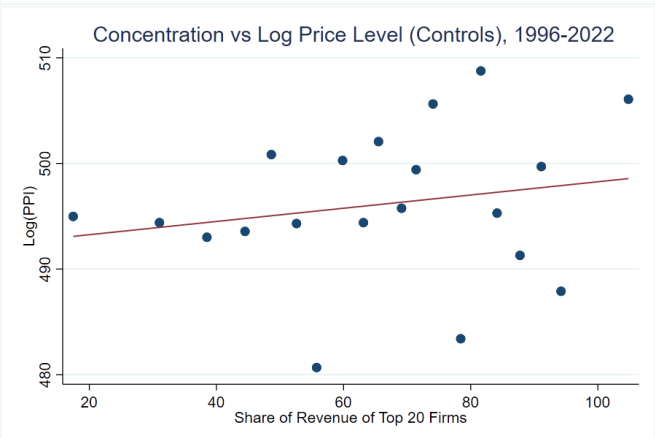

Concentration vs Log Price Level, 1996-2022
Log(PPI)
485
490
495
500
505
0
20
40
60
80
Share of Revenue of Top 4 Firms

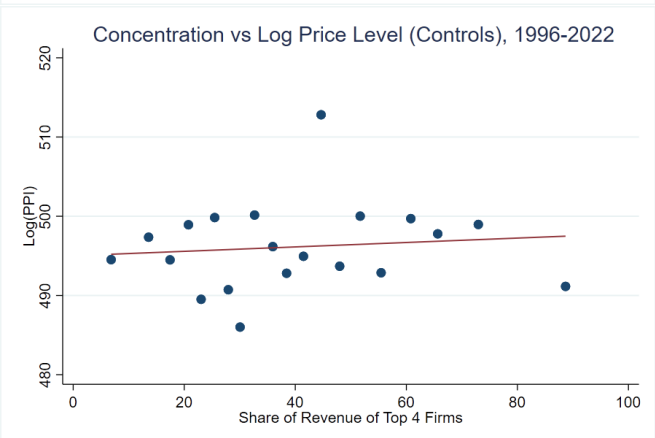

Concentration vs Inflation (Controls), 1996-2022
Producer Price Inflation
1.5
2
2.5
3
20
40
60
80
100
120
Share of Revenue of Top 50 Firms

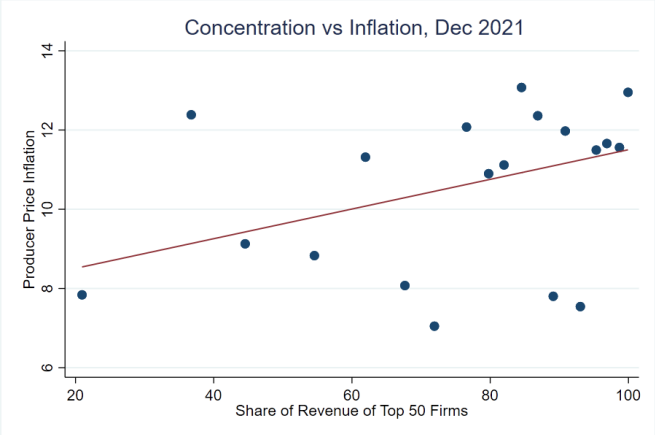

Concentration vs Inflation (Controls), 1996-2022
Producer Price Inflation
1
1.5
2
2.5
3
20
40
60
80
100
Share of Revenue of Top 20 Firms

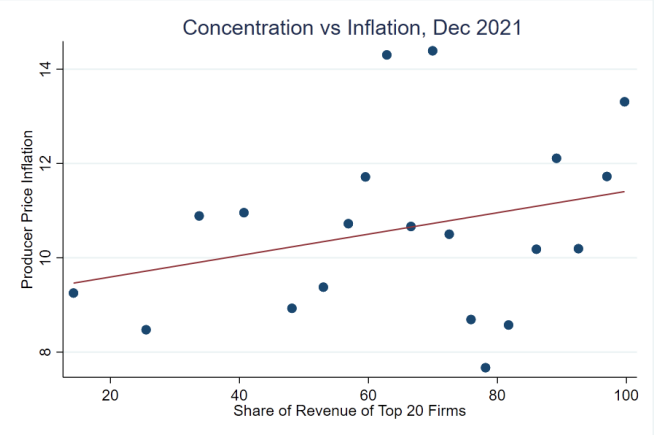

Concentration vs Inflation (Controls), 1996-2022
Producer Price Inflation
1
1.5
2
2.5
3
0
20
40
60
80
100
Share of Revenue of Top 4 Firms

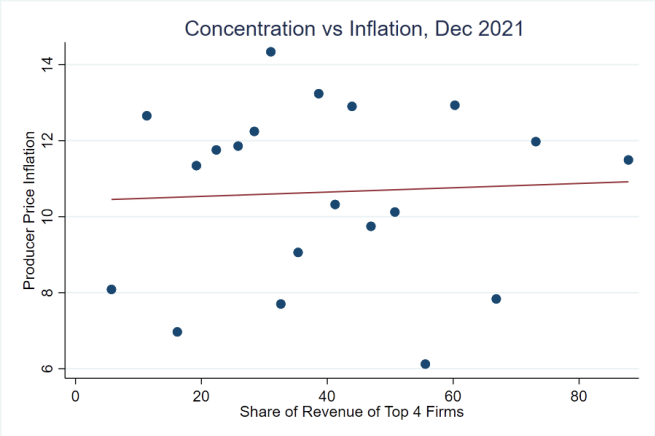

Concentration vs Log Price Level (Controls), 1996-2022
Log(PPI)
490
495
500
505
510
20
40
60
80
100
120
Share of Revenue of Top 50 Firms

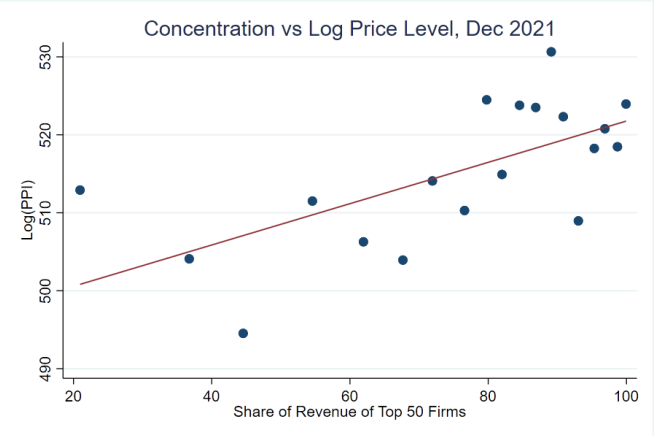

Concentration vs Log Price Level (Controls), 1996-2022
Log(PPI)
480
490
500
510
20
40
60
80
100
Share of Revenue of Top 20 Firms

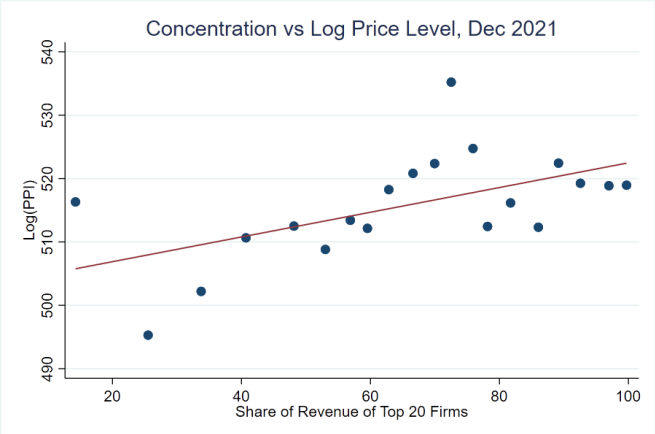

Concentration vs Log Price Level (Controls), 1996-2022
Log(PPI)
480
490
500
510
520
0
20
40
60
80
100
Share of Revenue of Top 4 Firms

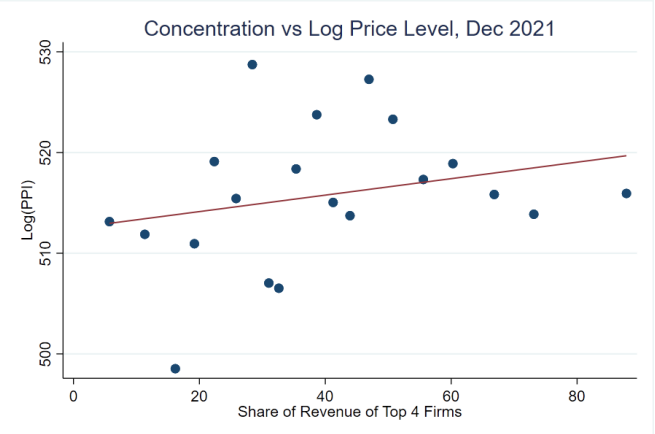

Concentration vs Inflation, Dec 2021
Producer Price Inflation
6
8
10
12
14
20
40
60
80
100
Share of Revenue of Top 50 Firms

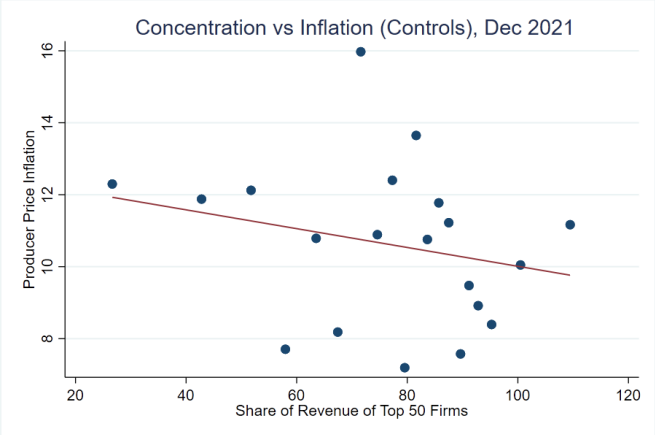

Concentration vs Inflation, Dec 2021
Producer Price Inflation
8
10
12
14
20
40
60
80
100
Share of Revenue of Top 20 Firms

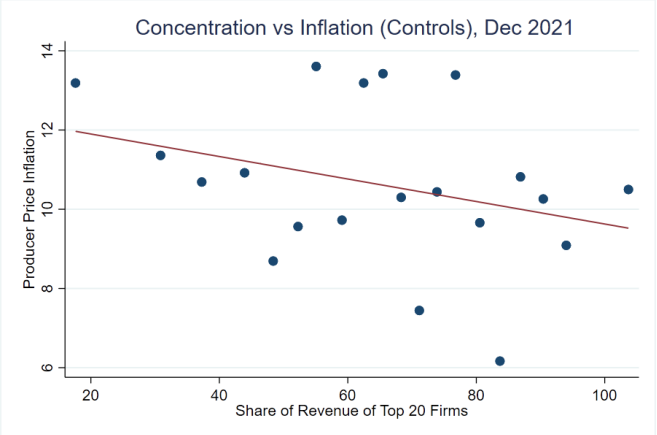

Concentration vs Inflation, Dec 2021
Producer Price Inflation
6
8
10
12
14
0
20
40
60
80
Share of Revenue of Top 4 Firms


Concentration vs Log Price Level, Dec 2021
Log(PPI)
490
500
510
520
530
20
40
60
80
100
Share of Revenue of Top 50 Firms


Concentration vs Log Price Level, Dec 2021
Log(PPI)
490
500
510
520
530
540
20
40
60
80
100
Share of Revenue of Top 20 Firms


Concentration vs Log Price Level, Dec 2021
Log(PPI)
500
510
520
530
0
20
40
60
80
Share of Revenue of Top 4 Firms


Concentration vs Inflation (Controls), Dec 2021
Producer Price Inflation
8
10
12
14
16
20
40
60
80
100
120
Share of Revenue of Top 50 Firms


Concentration vs Inflation (Controls), Dec 2021
Producer Price Inflation
6
8
10
12
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20
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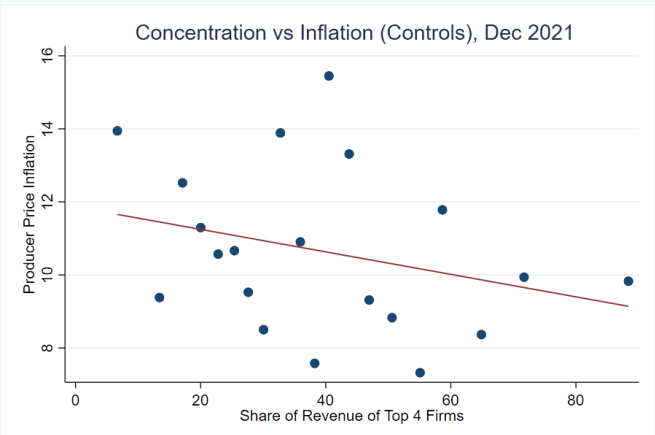
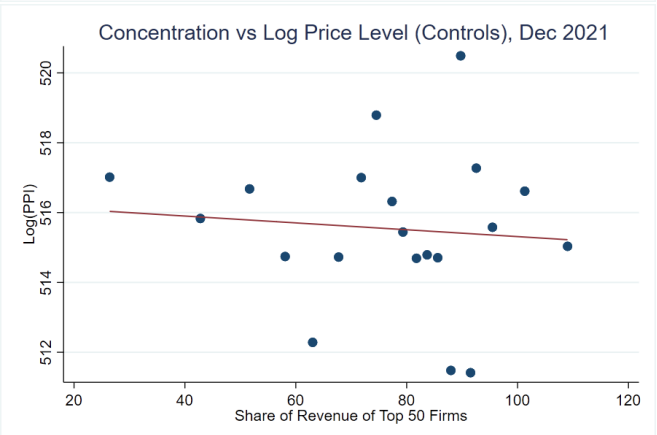
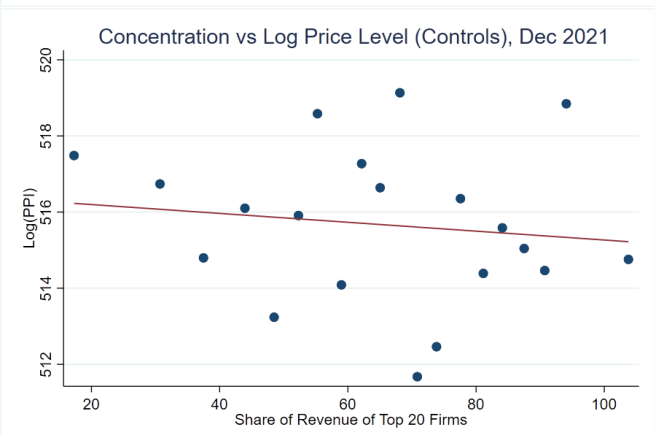
100
Share of Revenue of Top 20 Firms


Concentration vs Inflation (Controls), Dec 2021
Producer Price Inflation
8
10
12
14
16
0
20
40
60
80
Share of Revenue of Top 4 Firms


Concentration vs Log Price Level (Controls), Dec 2021
Log(PPI)
512
514
516
518
520
20
40
60
80
100
120
Share of Revenue of Top 50 Firms


Concentration vs Log Price Level (Controls), Dec 2021
Log(PPI)
512
514
516
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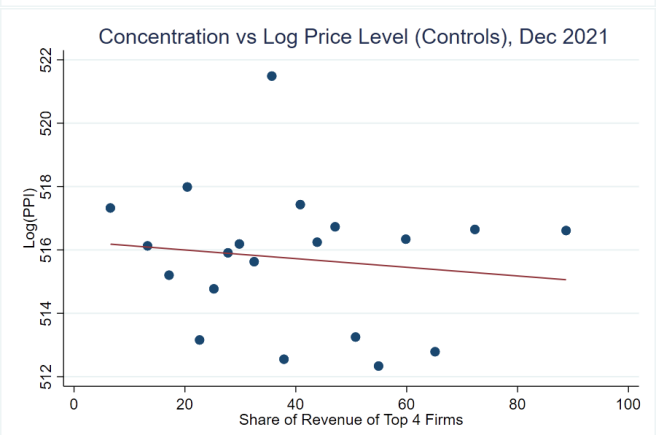
100
Share of Revenue of Top 20 Firms


Concentration vs Log Price Level (Controls), Dec 2021
Log(PPI)
512
514
516
518
520
522
0
20
40
60
80
100
Share of Revenue of Top 4 Firms