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A Refutation of "Common Ownership Does Not Have Anti-Competitive Effects in the Airline Industry"

Abstract

We show that the main claim in Dennis, Gerardi, and Schenone (JF forthcoming) (DGS), namely "that the documented positive correlation between common ownership and ticket prices stems from the market share component of the common ownership measure, and not the ownership and control components," is factually incorrect. In particular, we show empirically that the placebo that according to DGS "keeps market shares fixed" is in fact highly negatively correlated with market shares. This correlation is mechanical and arises because the data set is an unbalanced panel, as we show analytically. We make a methodological contribution to the literature by showing how one can actually separate variation from market shares from variation in ownership. Contrary to DGS' claims, ownership changes do predict price changes once one constructs a valid placebo that actually separates the variation from market shares from the variation in ownership. AST's panel regressions in fact underestimated the price effect of common ownership, due to the endogeneity of market shares.

Keywords: common ownership, airlines, invalid placebos.

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1 Introduction

Dennis, Gerardi and Schenone (Forthcoming) (henceforth DGS) claim that "common ownership does not have anti-competitive effects in the airline industry" and, therefore, earlier findings to the contrary by Azar, Schmalz and Tecu (2018) (henceforth AST) should not be used to inform policy. The supposed factual basis for DGS's conclusion are "placebo" tests that claim to show that the panel correlation between common ownership and airline ticket prices documented by AST is driven solely by the association of price changes with changes in market shares, and not by the association between price changes with changes in ownership.[1] Rather than challenging the logic of DGS's argument, we examine whether this empirical claim is true as a matter of fact. We find that DGS's claim that changes in ownership are not associated with changes in prices is factually incorrect, and therefore their conclusions are unsubstantiated.

We start by showing empirically that DGS's "fixed-market shares placebos" are in fact highly negatively correlated with market shares (controlling for market and time fixed effects). The reason for this, as we show analytically, is that applying their placebo formula to an unbalanced panel introduces a *mechanical* correlation between the supposed placebo and the number of firms in a market. Their placebo formula *would* hold market shares fixed, but *only if* it were applied to a balanced panel. The panel DGS apply their "placebo" to, however, is unbalanced because U.S. airline markets feature entry and exit of airlines. DGS's "placebo" analysis thus does not in fact separate variation driven by market shares from variation driven by changes in ownership. Consequently, their analysis cannot support the claim that the panel correlations AST present "stem[s] from the market share component of the common ownership measure, and not the ownership and control components."

Furthermore, we show how to construct a *valid* placebo that in fact uses *only* variation in ownership over time and does not suffer from mechanical (or incidental) correlation with market shares. We show that when using such a valid placebo that isolates changes in ownership, ownership changes are in fact strongly positively and significantly associated with changes in prices – even more so than in the original AST analysis.

[1] AST explicitly disclaim a causal interpretation of the panel correlation they observe. Thus, even if DGS's claim that this panel correlation is driven solely by changes in market shares were correct, which this paper shows it is not, the conclusion that common ownership does not have anti-competitive effects is not supported by DGS's empirical evidence.

2 DGS's supposed "placebo that holds market shares fixed" is in fact highly correlated with market shares

DGS construct a "fixed-market shares placebo" that seeks to mute the time-series variation in the MHHI delta that stems from variation in market shares. Using DGS's replication package, this section shows that DGS's "fixed-market shares placebo" in fact exhibits a strong negative time-series correlation with market shares. Thus the allegedly "fixed-market shares placebo" that DGS construct is not a valid placebo, and consequently no conclusions can be drawn from the lack of correlation between this "placebo" and prices.

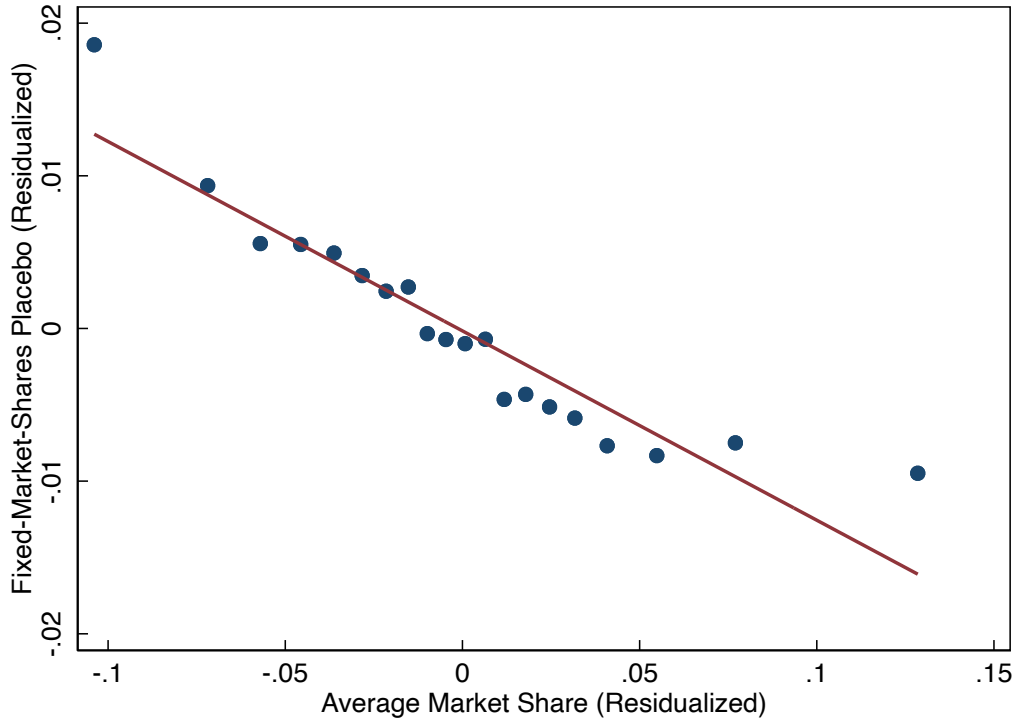


Figure 1. Correlation Between DGS's "Fixed-Market Shares Placebo" and Average Market Share. Results are based on the 2001q1 DGS "fixed-market shares placebo". Each variable is residualized by regressing it on market and time fixed effects and using the residuals from that regression.

First, Figure 1 shows a binned scatter plot of one of DGS's "fixed-market shares placebos", namely with market shares fixed in 2001q1, and the average market share across airlines in a market, where both variables have been residualized on market fixed effects and time period fixed effects to isolate the variation within the same market over time. If the DGS "fixed-market shares placebo" truly muted time-

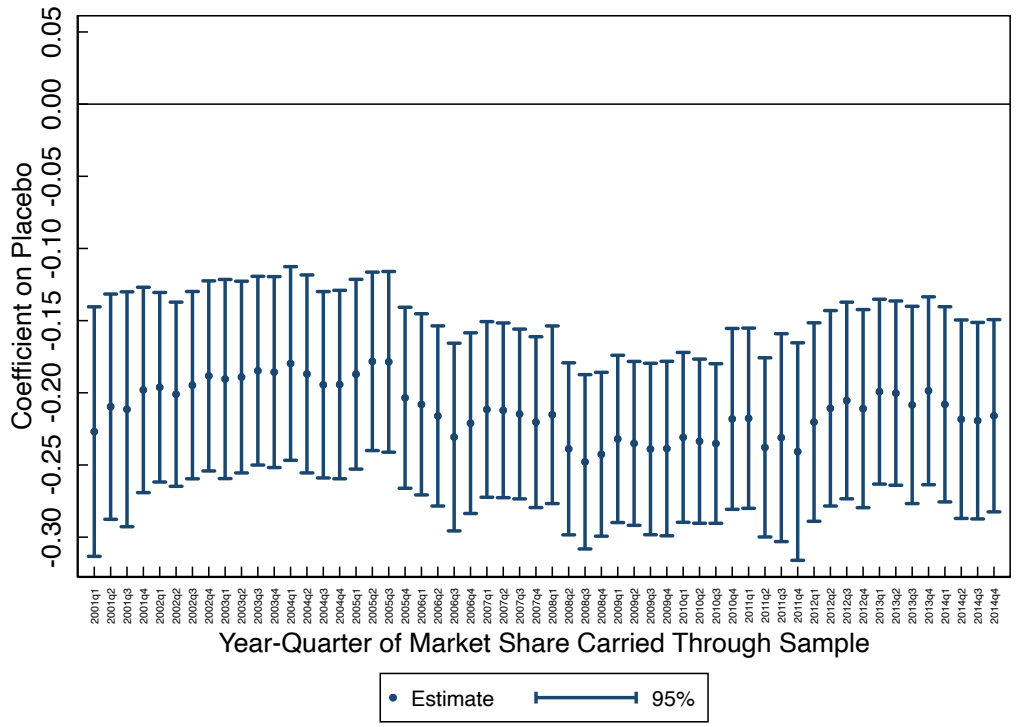


Figure 2. Correlation Between DGS's "Fixed-Market Shares Placebo" and Average Market Share. Results are based on separate regressions of the average market share in a market on each of the DGS "fixed-market shares placebos." We include market and time fixed effects. Standard errors are clustered two-ways by market and time.

series variation stemming from market shares, we would expect no correlation between the "placebo" and average market shares in this chart. Figure 1, however, shows a clear negative correlation between these variables, suggesting that the "placebo" is not valid.

Figure 2 shows that the negative correlation observed in Figure 1 holds true for all of the DGS "fixed-market shares placebos", regardless of the quarter for which the placebo market shares are fixed. In particular, the figure plots the coefficients on the "placebo" in regressions of the average market share on the "placebo" with market and year-quarter fixed effects, across all of DGS "fixed-market shares placebos". As can be seen, the negative association between the "placebos" and market shares is large in absolute terms and highly statistically significant, not just for the "placebo" that uses market shares in 2001q1, but for all the "placebos", using market shares from *any* period.

Thus, we find empirically that the DGS "fixed-market shares placebos" that supposedly mute the time-series variation in market shares do not do so; rather, changes in the placebos over time are very highly correlated with changes in market shares in their data. In the next section we show that once one

actually inspects the way these "placebos" are calculated, it is clear that they do not in fact use fixed market shares when applied to an unbalanced panel.

3 The correlation of DGS's supposed "placebo" with market shares is mechanical

In the previous section, we showed empirically from DGS's replication package that DGS's supposed "fixed-market shares placebo" is not a valid placebo, because it does not in fact isolate variation in the MMHI delta that stems from ownership from the variation that stems from market shares. In this section, we show analytically that this is a mechanical feature of DGS's approach for constructing their "placebos". We do so by first explaining the idea behind their placebo, and then demonstrating why it fails to do what DGS claim it does.

As AST explain, the measure of common ownership they use (MHHI delta) is a function of both ownership and market shares. DGS seek to investigate the question whether the panel correlations in AST are in fact driven by variation in ownership or variation in market shares. They try to answer this by using "placebos" in AST's panel regressions in lieu of the original MHHI delta, whereby their "placebo" $MHHI\Delta$ measures seek to either hold market shares fixed and let ownership vary, or alternatively seek to hold ownership fixed and let market shares vary. If a placebo that holds market shares fixed and only uses the variation in common ownership does not exhibit a statistically significant relationship with prices, so DGS's logic, then AST's panel regression results are not driven by ownership. This is precisely what DGS claim to find.

DGS explain how they construct their "fixed-market shares placebo" as follows: "For all year-quarter observations when airline j serves market m, we replace j's market share by the market share observed in the selected time period t^*: $ms_{ctm} = ms_{jt^*m} \forall t$. If carrier j does not serve market m during a specific year-quarter t, then for that period t we keep carrier j's market share equal to zero." This approach yields a valid placebo for a balanced panel, in which there is no entry or exit of firms from any given market.[2]

For an unbalanced panel, as is the case for U.S. airlines markets, however, the general approach of

[2]Even in this case, a major concern with this approach would be that the market shares in 2001q1 become less relevant as time passes, and may not reflect the reality of a market in 2014q4. But at least with a balanced panel it would be true that the variation would be coming solely from changes in ownership.

using market shares from a fixed quarter cannot handle the entry and exit of firms. DGS resort to setting market shares for firms that exit a given market to zero, but this is problematic because it introduces a mechanical correlation between their "placebo" and the number of firms in the market. For example, consider the case of a market with two airlines in 2001q1 with each holding 50% of the market, and assume one of the airlines exits in 2001q2. DGS's "placebo" approach sets the market share of the exiting airline to zero in 2001q2, while maintaining the market share of the remaining airline at 50%. Consequently, the "fixed" 2001q1 market shares for the 2001q2 value of the "placebo" add up to only 50% instead of 100%. At the same time, the number of firms in the market goes down from two to one. As this example illustrates, setting the market shares of exiting airlines to zero, without adjusting the market shares of the remaining airlines, introduces a mechanical correlation between the "fixed-market shares placebo" and the number of airlines in a market. Since the average market share is the inverse of the number of firms in a market, it also introduces mechanical correlation between the "fixed-market shares placebo" and market shares. In what follows we formalize this intuition.

Consider the formula for the DGS "fixed-market shares placebo" with market shares fixed in a base period b. Denoting the set of firms in a market in period b as J^b, then their "placebo" at time t is calculated as

$$Placebo^b_{jk,t} = \sum_{j \in J^b} \sum_{k \in J^b \setminus j} s^b_j s^b_k \lambda_{jk,t}, \tag{3.1}$$

where s^b_j is the market share of firm j in the base period b and $\lambda_{jk,t}$ is the weight that firm j puts on the profits of firm k relative to its own profits due to common ownership.

With a balanced panel, when the set of firms present in the market is the same over time, the change in the "placebo" from time $t-1$ to time t would be

$$\Delta Placebo^b_{jk,t} = \sum_{j \in J^b} \sum_{k \in J^b \setminus j} s^b_j s^b_k \Delta\lambda_{jk,t}, \tag{3.2}$$

where $\Delta\lambda_{jk,t} = \lambda_{jk,t} - \lambda_{jk,t-1}$ and $\Delta Placebo^b_{jk,t} = Placebo^b_{jk,t} - Placebo^b_{jk,t-1}$. Thus, if the panel were balanced, then the DGS "placebo" would be an actual placebo, in the sense that it would keep market shares constant over time, and the change in the placebo would be driven only by changes in the ownership structure, through the change in $\lambda_{jk,t}$.

However, because of entry and exit of firms from and to the market, this is not in fact the case.

Suppose, for example, that all the firms present in the market in the base period b are present in the market period $t-1$, but there is a firm l that exits the market in period t. In this case, the change over time in the "placebo" becomes

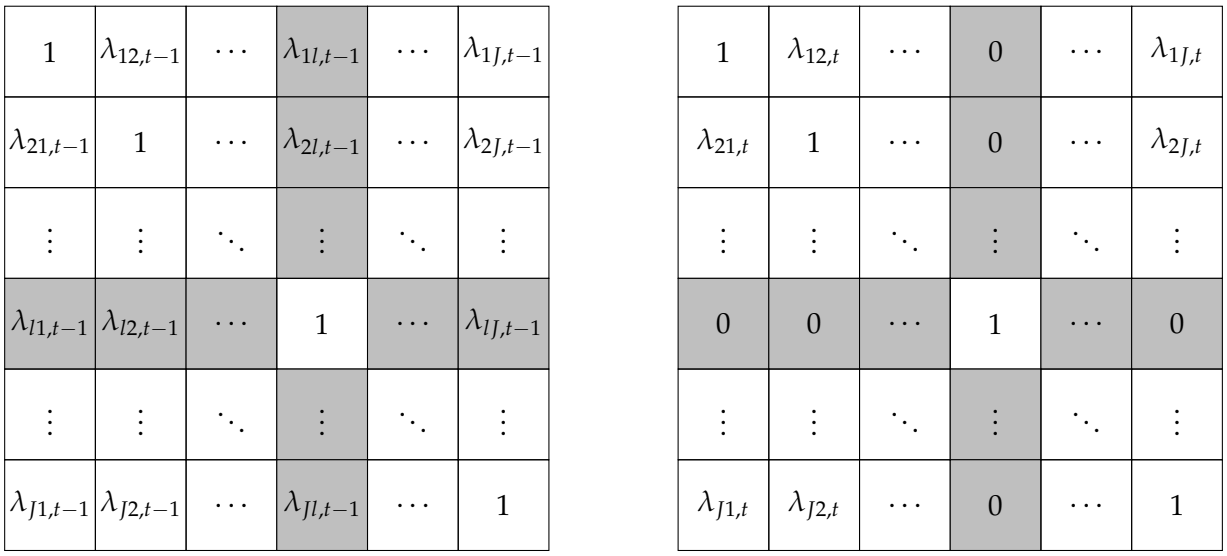
$$\Delta Placebo^b_{jk,t} = \sum_{j \in J^b \setminus l} \sum_{k \in J^b \setminus \{l,j\}} s^b_j s^b_k \lambda_{jk,t} - \sum_{j \in J^b} \sum_{k \in J^b \setminus j} s^b_j s^b_k \lambda_{jk,t-1} \tag{3.3}$$

$$= \underbrace{\sum_{j \in J^b \setminus l} \sum_{k \in J^b \setminus \{l,j\}} s^b_j s^b_k \Delta\lambda_{jk,t}}_{\Delta \text{ within}} - \underbrace{\sum_{j \in J^b \setminus l} s^b_j s^b_l (\lambda_{jl,t-1} + \lambda_{lj,t-1})}_{\text{Effect from exit of firm } l}. \tag{3.4}$$

Because the sets over which the "placebo" formula is summing are different in t than in $t-1$, a clean decomposition is no longer possible. The second term in equation (3.4) is what introduces (positive) correlation between the changes over time in the number of firms and changes over time in the "fixed-market shares placebo", since the term appears only when firms enter and exit the market. This positive correlation with the number of firms generates the observed negative correlation between the "fixed-market shares placebo" and market shares.

This is illustrated in Figure 3. Panel (a) shows a matrix of the lambdas for all firm pairs in period $t-1$, in which all firms are present (we denote J the number of firms in the market in the base period). The DGS "fixed-market shares placebo" is a weighted sum of these lambdas, with the weights being equal to the product of the market shares of the pair of firms in the base period b for firm pairs outside the diagonal, and zero for the diagonal terms. Panel (b) shows a matrix of the lambdas for all firm pairs in period t, in which firm l is no longer present. Since firm l is no longer in the market and any lambdas involving it are no longer well defined, the DGS "fixed-market shares placebo" in period t assigns a zero to the terms of the weighted sum corresponding to any firm pairs containing firm l. These are represented by the shaded cells in the matrix. The change over time in the placebo therefore is a weighted sum of changes in the lambdas for the firms that are present in both periods, minus a weighted sum of the lambdas of the firm pairs that contain firm l in period $t-1$, which corresponds to the second term in equation (3.4). It is this extra term, represented by the shaded area in the figure, that introduces mechanical correlation with the number of firms in the market when the DGS "fixed-market shares placebo" is applied to an unbalanced panel.

As an example, consider the special case in which all firms are symmetric in terms of market shares,



1	$\lambda_{12,t-1}$	$\cdots$	$\lambda_{1l,t-1}$	$\cdots$	$\lambda_{1J,t-1}$
$\lambda_{21,t-1}$	1	$\cdots$	$\lambda_{2l,t-1}$	$\cdots$	$\lambda_{2J,t-1}$
$\vdots$	$\vdots$	$\ddots$	$\vdots$	$\ddots$	$\vdots$
$\lambda_{l1,t-1}$	$\lambda_{l2,t-1}$	$\cdots$	1	$\cdots$	$\lambda_{lJ,t-1}$
$\vdots$	$\vdots$	$\ddots$	$\vdots$	$\ddots$	$\vdots$
$\lambda_{J1,t-1}$	$\lambda_{J2,t-1}$	$\cdots$	$\lambda_{Jl,t-1}$	$\cdots$	1

(a) Period $t-1$

1	$\lambda_{12,t}$	$\cdots$	0	$\cdots$	$\lambda_{1J,t}$
$\lambda_{21,t}$	1	$\cdots$	0	$\cdots$	$\lambda_{2J,t}$
$\vdots$	$\vdots$	$\ddots$	$\vdots$	$\ddots$	$\vdots$
0	0	$\cdots$	1	$\cdots$	0
$\vdots$	$\vdots$	$\ddots$	$\vdots$	$\ddots$	$\vdots$
$\lambda_{J1,t}$	$\lambda_{J2,t}$	$\cdots$	0	$\cdots$	1

(b) Period t

Figure 3. Illustration of the Effect of Exit of a Firm l on DGS's "Fixed-Market Shares Placebo"

and all lambdas are equal to λ both in $t-1$ and in t. In this case, the DGS "fixed-market shares placebo" is equal to $\lambda(J-1)/J$ in period $t-1$, and equal to $\lambda(J-1)(J-2)/J^2$ in period t (when firm l has exited the market). Even though common ownership among the firms in the market has not changed, the DGS "placebo" does change, because the number of firms is lower. The change in the DGS "placebo" in the symmetric case when common ownership does not change but a firm exits the market is

$$\Delta Placebo = \frac{\lambda(J-1)(J-2)}{J^2} - \frac{\lambda(J-1)}{J} = -2\lambda\frac{J-1}{J^2}. \tag{3.5}$$

This negative change in the DGS "placebo" is driven by the (negative) change in the number of firms, and not by changes in ownership. This effect mechanically generates correlation between the DGS "fixed-market shares placebo" and the number of firms, and therefore also with market shares.[3]

[3]DGS also construct what they call a "model-free" measure of common ownership by replacing a carrier's market share with 1 if the carrier serves the market in a particular quarter and 0 otherwise. It is easy to see that the issue outlined here also applies to that measure. In particular, the DGS "model-free HHIΔ" measure mechanically increases with firm entry and decreases with firm exit, introducing a positive correlation between this measure and the number of firms in the market, and thus a negative correlation between this measure and actual market shares.

4 Estimates with a valid placebo strategy that actually holds market shares fixed show that common ownership is in fact positively associated with prices

This section shows that a valid version of DGS's placebo analysis finds that a true market shares placebo is positively correlated with prices in the relevant sample, and that AST's panel estimates are in fact *under*estimates of the true effect of common ownership, due to the endogeneity of market shares.

We do so by, first, explaining how to construct a valid placebo. We then show that the valid placebo is correlated with prices in OLS regressions. Finally, we show that instrumenting the MHHI delta with the valid placebo, which means using only variation in MHHI delta that's driven by variation in ownership, results in higher coefficients than those reported in AST's original paper. In sum, AST's panel estimates indeed suffered from bias due to the endogeneity of market shares – but estimates that remove this bias are *higher* than those reported by AST rather than lower.

To construct a placebo that is based only on changes in ownership from period to period and not on changes in market shares, even when the panel is unbalanced, we proceed as follows. We start with the average change in the common ownership λ weights in the market from period $t-1$ to period t:

$$\Delta Placebo_{jk,t} = \sum_{j \in J^{t-1} \cap J^t} \sum_{k \in J^{t-1} \cap J^t \setminus j} w_{j,t-1} w_{k,t-1} \Delta\lambda_{jk,t}, \tag{4.1}$$

where $w_{j,t-1}$ is a weight that is proportional to the market share of firm j in period $t-1$. The weights add up to one. Note that, in contrast to the formula for DGS's invalid "placebo", in the formula for the valid placebo the double sum is taken only over the pairs of firms that are present in both period $t-1$ and period t, because otherwise we cannot calculate the change in λ for that pair of firms. DGS's failure to do this is what introduces mechanical correlation between their "fixed-market shares placebo" and market shares.

The sum is calculated over the intersection of the sets of firms in $t-1$ and t, because it is not possible to calculate the change in the common ownership profit weights $\lambda_{jk,t}$ for pairs of firms that are not present in both periods. This is logically the case when there is an unbalanced panel. The best we can do is calculate an average of the changes in ownership for the firm pairs that are present in both periods.

We then construct the valid placebo time series by adding the changes $\Delta Placebo_{jk,t}$ over time. Note that, unlike the DGS supposed "placebo", the change in the valid placebo between $t-1$ and t is only driven by changes in ownership, and not by changes in market share. We test this by running the same regressions as in Figure 2, but using the valid placebo instead of the DGS "placebos". We find that the regression coefficient of a regression of the average market shares on the valid placebo is about 0.002, two orders of magnitude lower than the coefficients of analogous regressions using the DGS "placebos", for which the coefficients are all approximately -0.2. Moreover, the coefficient on the valid placebo has a p-value of 0.686, which implies that it is statistically insignificantly different from zero even at the 10% level (in contrast, all of the DGS "fixed-market shares placebos" were statistically significantly associated with market shares at the 1% level).

Table 1. Effect of Valid Placebo on Airline Ticket Prices: Panel Regressions.
Data are for the period 2001Q1-2014Q4. We exclude routes with less than 20 passengers per day on average. For the market-carrier-level regressions, we weight by average passengers for the market carrier over time and cluster standard errors two-ways at the market-carrier and year-quarter level.

	Dependent Variable: Log(Average Fare)					
	OLS			2SLS		
	(1)	(2)	(3)	(4)	(5)	(6)
Valid Placebo	0.0848***	0.0734***	0.0603**			
	(0.0268)	(0.0221)	(0.0242)			
MHHI delta (Instrumented with Valid Placebo)				0.331***	0.281***	0.235***
				(0.104)	(0.0858)	(0.0866)
HHI	0.171***	0.177***	0.125***	0.567***	0.550***	0.453***
	(0.0183)	(0.0182)	(0.0177)	(0.0619)	(0.0644)	(0.0770)
Number of Nonstop Carriers			-0.0107***			-0.000480
			(0.00274)			(0.00394)
Southwest Indicator			-0.116***			-0.104***
			(0.00961)			(0.0101)
Other LCC Indicator			-0.0668***			-0.0378***
			(0.00797)			(0.00818)
Share of Passengers Traveling Connect, Market-Level			0.131***			0.237***
			(0.0168)			(0.0435)
Share of Passengers Traveling Connect			0.103***			0.0915***
			(0.0137)			(0.0141)
Log(Population)			0.306**			0.308***
			(0.115)			(0.109)
Log(Income Per Capita)			0.327***			0.311***
			(0.110)			(0.113)
Log(Distance) × Year-Quarter FE		✓	✓		✓	✓
Year-quarter FE	✓	✓	✓	✓	✓	✓
Market-Carrier FE	✓	✓	✓	✓	✓	✓
Observations	1,220,326	1,220,326	1,134,108	1,157,146	1,157,146	1,134,108
Kleibergen-Paap F-Stat				94.65	103.5	83.57

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

Table 1 shows the results of regressions of airline prices on the valid placebo, as well as the control variables used in AST and DGS. Columns (1) to (3) show OLS specifications with the valid placebo used directly as a predictor of airline prices. The valid placebo is positively and significantly associated with prices in all specifications. Columns (4) to (6) show analogous 2SLS regressions in which the MHHI delta is instrumented with the valid placebo, and the HHI is instrumented with 1 over the number of firms in the market. The coefficients on the MHHI delta and the HHI in these instrumental variable regressions are higher than those in the AST non-instrumented regressions, suggesting that the endogeneity of market shares did in fact bias the results, but *towards zero*, and that reducing this endogeneity results in even higher coefficients.

The above estimates remove bias from endogenous market shares. They are still potentially affected by endogenous ownership. For this reason AST do not claim a causal interpretation of their panel regression estimates. The purpose of the above analysis is merely to show that DGS's claim that there is no robust correlation between ownership and prices once the endogeneity of market share is accounted for is factually incorrect.

5 Conclusions

The above analysis shows that DGS's main claim is factually incorrect. For that reason alone, their conclusions, as reflected in the title of their paper, have no substantiation.

Our analysis suggests that the negative correlation with market shares, which DGS's "placebo" construction implies, explains the lack of correlation between the DGS "placebo" and prices. Once one uses a valid placebo that is truly based only on changes in ownership, it becomes clear that there is, in fact, a strong positive correlation between changes in common ownership and changes in prices in airlines – even stronger than in the original AST analysis.

We agree with much of the remainder of DGS's analysis, although we would describe the results differently. For example, we agree that the association between prices and common ownership is lower in markets with fewer passengers, implying attenuated coefficients in unweighted regressions. Indeed, AST showed precisely that, but unfortunately, DGS do not acknowledge our prior contribution.[4] We

[4]See AST Internet Appendix Figure IA.6, showing smaller estimates for the effect of common ownership on ticket prices for lower market size percentile. It is thus unsurprising that DGS find that "[r]e-estimating these regressions without weights yields significantly lower conditional correlations between common ownership and average ticket prices." We note that un-

also agree that if one overwrites the SEC's official data on corporate control the panel estimates are biased towards zero. We contend that a likely reason is that the official data is more accurate than the alternative data DGS generate and use to overwrite the official data.

Finally, we agree that if one counter-factually assumes that cash flow or control rights *disappear* in the case of bankruptcy, then AST's panel estimates attenuate towards zero. This is in effect what DGS's analysis using "alternative assumptions" about ownership during bankruptcy episodes does, even though DGS acknowledge that the bankruptcy literature "has found that equity holders largely concede cash flow rights to creditors, as creditors become the residual claimants of bankrupt firms". Despite their own suggestion that these rights pass to creditors, DGS do not examine who actually holds control or cash flow rights of airlines in bankruptcy proceedings; they simply *assume* nobody holds these rights when equity holders do not. In our view this assumption is not a plausible approximation of control and cash flow rights during bankruptcies, and DGS's results on this point therefore do not constitute evidence of lack of robustness of AST's results. A thorough investigation of how joint ownership of equity and debt affects measures of common ownership and estimated common-ownership effects in bankruptcy remains an interesting area for future research.[5]

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Azar, José, Martin C Schmalz, and Isabel Tecu. 2018. "Anticompetitive effects of common ownership." *The Journal of Finance*, 73(4): 1513–1565.

weighted regressions do not allow for an interpretation of the results in the context of welfare losses due to anticompetitive effects of common ownership; thus, AST follow the practice of the literature to either not use at all or underweight small and thus economically less important routes.

[5]We note that DGS have retracted many of the claims they made in previous versions of their paper. For example, DGS no longer claim that AST's results were driven by only the largest 5% of routes. Compare February 2018 version of DGS Table VI to DGS Internet Appendix Table A.6. DGS now also show that AST's results are unaffected by what they consider more standard filters (if anything, they make AST's results stronger). Compare February 2018 version of DGS at p. 5 ("Using this alternatively constructed sample based on filters applied in the existing literature, together with our alternative definition of control rights, and the correction for ownership and control rights for shareholders of insolvent firms, we reexamine the main AST findings. We find no evidence of a positive correlation between ticket prices and common ownership in the airline industry.") to DGS Internet Appendix A.9 ("[A]pplying more standard filters to clean the raw airline data has virtually no effect on the AST results."). Finally, DGS now concede that AST's results are robust to the empirical choice of whether the empirical measure for control rights includes voting rights that are reported as "shared." Compare February 2018 version of DGS at p.18 ("[... F]urther adjust[ing] the $HHI\Delta$ measure so that control rights are associated with shares for which the institution holds 'sole' voting rights only [...] results in a further drop decline [sic] in the $HHI\Delta$ coefficient point estimate from 0.056 to 0.019.") to DGS at footnote 22 ("Based on the ambiguity of the 'shared' voting designation, one might be concerned about AST's assumption that shareholders who report shared voting rights exert control over the airline. To address this issue, we recomputed $HHI\Delta$ so that only shareholders who report having 'sole' voting rights exert control. We found that the AST results are robust to this alternative assumption.")

Dennis, Patrick J, Kristopher Gerardi, and Carola Schenone. Forthcoming. "Common ownership does not have anti-competitive effects in the airline industry." *Journal of Finance*.

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