## **Appendix: Demand and Marginal Cost Analysis**

In this online appendix, we investigate why tacit collusion is unlikely to occur in Southwest markets by estimating a demand equation using OLS and 2SLS as in Gayle (2013). Market miles flown and the interaction between jet fuel price and market miles flown are used as instruments for airfare since the price of a product (e.g. a flight) is typically influenced by changes in its marginal cost. Table B.1 presents the regression results for the demand estimations. As expected, the coefficient estimate on *lnFare* is negative, implying that higher prices are associated with lower levels of utility. In other words, passengers prefer cheaper air travel products, all else equal.

	(1)	(2)
VARIABLES	OLS	2SLS
ÎnFare	-0.465***	-3.024***
	(0.014)	(0.281)
Networksize	0.776***	0.976***
	(0.052)	(0.071)
Roundtrip	2.431***	1.238***
	(0.013)	(0.129)
Hub	0.310***	0.391***
	(0.039)	(0.046)
Under-id		90.734
		(0.000)
Over-id		0.211
		(0.646)
Observations	405,201	405,201

Table B.1:	Demand	Estimation
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Notes: (i) The Kleibergen-Paap rk LM statistic is used for under-identification test while the Hansen's J statistic is used for over-identification test. (ii) *lnFare* is instrumented by market miles flown and the interaction between jet fuel price and market miles flown. (iii) Carrier-route and carrier-time fixed effects are included in all regressions. (iv) Route-specific clustered standard errors in parentheses. (v) \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Following Gayle (2013), we then impute the average marginal costs for eight airlines (listed in alphabetical order by IATA code). Table B.2 reports that Southwest has the lowest average marginal cost compared to major airlines. This is consistent with the calculations in the existing literature; for example, Gayle (2013) estimates that Southwest's average marginal cost is \$117.95.

Since Scherer (1980) explains that a collusive agreement is more likely to break down if the  $p\bar{a}0$  ticipating firms have different marginal costs, it makes sense that tacit collusion could occur in non-Southwest markets since the major airlines have similar average marginal costs. However, it would be difficult to maintain tacit collusion in Southwest markets given the stark contrast in Southwest's marginal cost compared to the major airlines.

Carrier	Code	MC (\$)
American Airlines	AA	218.698
<b>Continental Airlines</b>	CO	250.434
Delta Air Lines	DL	209.179
Northwest Airlines	NW	240.825
Trans World Airlines	TW	213.644
US Airways	US	215.254
United Airlines	UA	227.558
Southwest Airlines	WN	137.179

Table B.2: Average Marginal Costs