

Online Supplementary Material

Measuring market power with a regional competitive fringe

This file contains supplementary tables referenced in the main text: instrument validity diagnostics for the diesel and gasoline demand specifications (Tables S1–S2), and the full set of regional demand estimates from the Swamy (1970) random coefficients model for diesel and gasoline (Tables S3–S4).

Table S1: Instrument validity diagnostics: Diesel.

	General	Cuyo	Patagonia	Northeast	Northwest	Pampeana
KP rk Wald F	1,797.25	233.19	508.89	273.64	639.20	402.65

Notes: Kleibergen–Paap rk Wald F statistic (robust standard errors). Excluded instrument: maximum competitor price in the marketing channel within the region. Diesel is exactly identified ($q = 0$); the Hansen J overidentification test is not applicable. All F -statistics exceed the conventional threshold of 10 and the threshold of 104.7 proposed by Lee et al. (2022).

Table S2: Instrument validity diagnostics: Gasoline.

	General	Cuyo	Patagonia	Northeast	Northwest	Pampeana
KP rk Wald F	359.25	50.78	69.31	250.45	42.86	357.71
Hansen J	10.395	0.004	3.575	—	—	—
p -value (J)	0.001	0.947	0.059	—	—	—
Combined J (3 regions): 21.72 $\sim \chi^2(3)$ under H_0 p -value: < 0.001						

Notes: Kleibergen–Paap rk Wald F statistic (robust standard errors). Excluded instruments for regions 1–4: average flag price in other channels (`promedio_otros_canales`) and refinery indicator (`refineria`). Pampeana uses `promedio_otros_canales` only (exact identification) as `refineria` was found endogenous in that region. Northeast: `refineria` has no within-region variation; overidentification test not applicable (—). Combined J distributed $\chi^2(3)$ under H_0 (Hansen, 1982). General-level rejection ($p = 0.001$) is driven by Pampeana; the preferred model uses the corrected single-instrument specification for that region.

Table S3: Results of the random coefficients model by region: Diesel.

	Price	Premium	Reward Card	Wholesale competitors	Flagged outlets	Urbanization	Log vehicle fleet	Cons.
Cuyo	-0.08***	0.77***	-0.50***	-0.58***	1.88***	-6.62***	-0.31***	16.31***
Patagonia	-0.10***	0.64***	-0.66***	-0.60***	1.46***	-4.95***	0.08	11.53***
Northeast	-0.10***	1.00***	-0.03	-0.59***	2.78***	2.78***	0.01	4.94***
Northwest	-0.12***	0.87***	-0.66***	-0.55***	3.02***	-3.79***	-0.17***	13.37***
Pampeana	-0.16***	1.09***	0.51***	-0.30***	2.42***	2.64***	-0.20***	9.14***

Notes: Results from the Swamy (1970) random coefficients model, instrumented for price. Dependent variable: $\ln(s_j) - \ln(s_0)$. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table S4: Results of the random coefficients model by region: Gasoline.

	Price	Premium	Reward Card	Wholesale competitors	Flagged outlets	Urbanization	Log vehicle fleet	Cons.
Cuyo	-0.34***	1.49***	1.35***	-0.93***	-0.64	-18.00***	-0.68***	40.25***
Patagonia	-0.08***	0.56***	-0.12	-0.77***	1.50***	-6.82***	0.12**	11.81***
Northeast	-0.12***	0.53***	0.48***	-0.74***	1.31***	0.94	0.27***	3.75
Northwest	-0.21***	0.79***	1.07***	-1.25***	3.20***	-4.94***	-0.09*	17.50***
Pampeana	-0.11***	0.32***	0.72***	-0.42***	1.19***	-2.67***	0.10***	8.75***

Notes: Results from the Swamy (1970) random coefficients model, instrumented for price. Dependent variable: $\ln(s_j) - \ln(s_0)$. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The estimation sample is restricted to strictly positive mean utility ($\delta_j = \ln(s_j) - \ln(s_0) > 0$), yielding 16,218 diesel and 10,333 gasoline observations out of a pre-restriction eligible sample of 20,777 and 12,529, respectively (pre-restriction eligibility applies all other estimation filters but no mean-utility restriction). Observations with $\delta_j \leq 0$ arise when the observed market share of a product-firm-market cell falls at or below the outside option share, which is inconsistent with rational market participation under the discrete choice framework (Berry, 1994): a firm whose product is weakly dominated by the no-purchase alternative cannot be rationalised as an equilibrium participant. Excluded observations represent 21.6% of eligible rows (7,183 of 33,306) but only 6.8% of total wholesale volume (2.3 of 34.3 million m³); diesel exclusions are somewhat more pronounced (24.0% of rows, 8.4% of volume) than gasoline (17.5%, 4.4%). This asymmetry reflects the marginal nature of excluded transactions: their mean market share is 7.8% versus 46.6% for included observations, and mean volume 324 m³ versus 1,223 m³. By region, exclusion rates range from 14.7% of rows in Patagonia to 26.3% in Pampeana, consistent with Pampeana's larger number of firms with marginal, intermittent presence in specific province-channel combinations. These patterns hold across all products and regions, confirming that excluded observations are operationally marginal rather than systematically different market participants.

References

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- Hansen, L. P. (1982). Large sample properties of generalized method of moments estimators. *Econometrica*, 50(4):1029–1054.
- Lee, J., McCrary, J., Moreira, M. J., and Porter, J. R. (2022). Valid t -ratio inference for IV. *American Economic Review*, 112(10):3260–3290.
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