Trade Protection, Industrial Policy, and the Shaping of Local Preferences

Eugenio J. Miravete[1] María J. Moral[2]

[1]University of Texas at Austin & CEPR

[2]UNED & GRiEE

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Motivation

- The Washington Consensus is dead (fiscal discipline, deregulation, competition, free trade).
- The Biden administration continued the Trump administration trade war with China despite its documented negative effects on prices and earnings of industrial workers.
- Passage of the *CHIPS and Science Act* in August of 2022 marked the clearest shift in American trade policy in decades.
- *CHIPS* was America's stark response to supply chain disruptions after the Covid-19 pandemic, allocating a budget of $280bn in new funding for research and manufacturing of semiconductors in the United States with the explicit goal of countering China's dominance in this strategic industry (but it has also antagonized allies because of "Made in America" requirements).

Motivation

- The end of globalization and the rise of protectionism has given way to an increased interest in long forgotten industrial policy as a mean to develop strategic economic sectors.

- Industrial policy might enhance welfare in non-competitive industries or if dynamic effects (demand or supply) are important.
    - Juhász, Lane and Rodrik (2023) liken it to little more than Pigouvian taxation.

- Policymakers frequently argue that their interventions can booster economies of scale and/or consumer learning and favor domestic production and employment.
    - They frequently fail to recognize policy failures or its unintended consequences and they rarely stop pouring more funds because of lobbies and pressure groups.

Relevant Papers

- Most economists still remain skeptical about industrial policy in general and perhaps for that reason do not study the subject enough.

- Exceptions:
  - Choi and Levchenko (2023): temporary policy of loan guarantees to South Korea's chemical industry in the 1970s led to long term effects, with subsidized firms growing faster 30 years after the policy ended.
  - Jia Barwick, Kalouptsidi and Bin Zahur (2023): study the effectiveness of different policy tools to develop China's shipbuilding industry – Production and investment decisions helped increase worldwide market penetration but entry subsidies (60% of budget) were mostly wasteful as they mostly induced inefficient entry.

This Paper – Goals

- Study a textbook case of industrial policy sustained for decades, identifying the effects of its different policy components (*e.g.*, state-sponsored manufacturers *vs.* tariff protection).
- This is a peculiar case of industrial policy where some of its components are not enforced in spcific regions of Spain, thus allowing to evaluate the contemporaneous effect of autarky.
- Exploit a unique automobile registration data by brands and (50) provinces in Spain going back to the dawn of the Spanish automobile industry, from 1961 to 2015 to evaluate the impact that entry of automakers have in the preferences for automobiles of Spaniards.
- Combine it with detailed automobile registration from 2009 to 2015 to evaluate long-term effects of a coherent industrial policy no longer enforced on the competition effects of taste formation.

This Paper – Focus

- We show that the industrial policy sustained for decades changed the consumer perception (preferences) and that they persist in the long run, distorting the Spanish automobile market today due to induced *home bias*.

- Home Bias:
  - National: Consumer's premium on an automobile brand with a production facility in Spain (regardless of nationality of the owner or parent company).
  - Regional: Consumer's additional premium on an automobile brand with a production facility in the region of residence.

- We cannot identify the precise channel generating this well-known feature of demand for automobiles leading to long-term loyalty to local brands (Verboven, 1996; Coşar, Grieco and Tintelnot, 2018), but we measure its neglected economic consequences.

This Paper – Findings

- Document timing and duration of induced dynamic demand effects:
  - Immediate national home bias effect after entry, particularly for early entrants during the protective phase of the market.
  - Accounting for inertia (sales, imports) strengthens domestic home bias effects.
  - Regional home bias is smaller but permanent in the long run.
  - Home market advantage disappears with trade liberalization.
  - Regions exposed to free trade never developed a particular loyalty for domestic brands.
- Long-term effects of industrial policy shape preferences of consumers resulting in a less competitive and regionally segmented Spanish automobile market.
  - Regional home bias is worth the equivalent of a 5.5% tariff — Avoiding a 1% reduction in the market share of domestically produced vehicles due to weaker preferences for local brands requires an additional $2.8\% - 5.3\%$ tariff — SEAT is still the largest beneficiary of preferences favoring local brands.

Outline

1. Why Spain?
2. Franco's little known autarky experiment.
3. Components and duration of the automobile industrial policy.
4. Manufacturers with production facilities in Spain.
5. Uniform pricing and regional segmentation of the Spanish automobile market.
6. Short Run: entry, trade liberalization and home bias.
7. Long Run (BLP): long-term protection effects of home bias.

1. Why Spain?

Spanish Automobile Industry

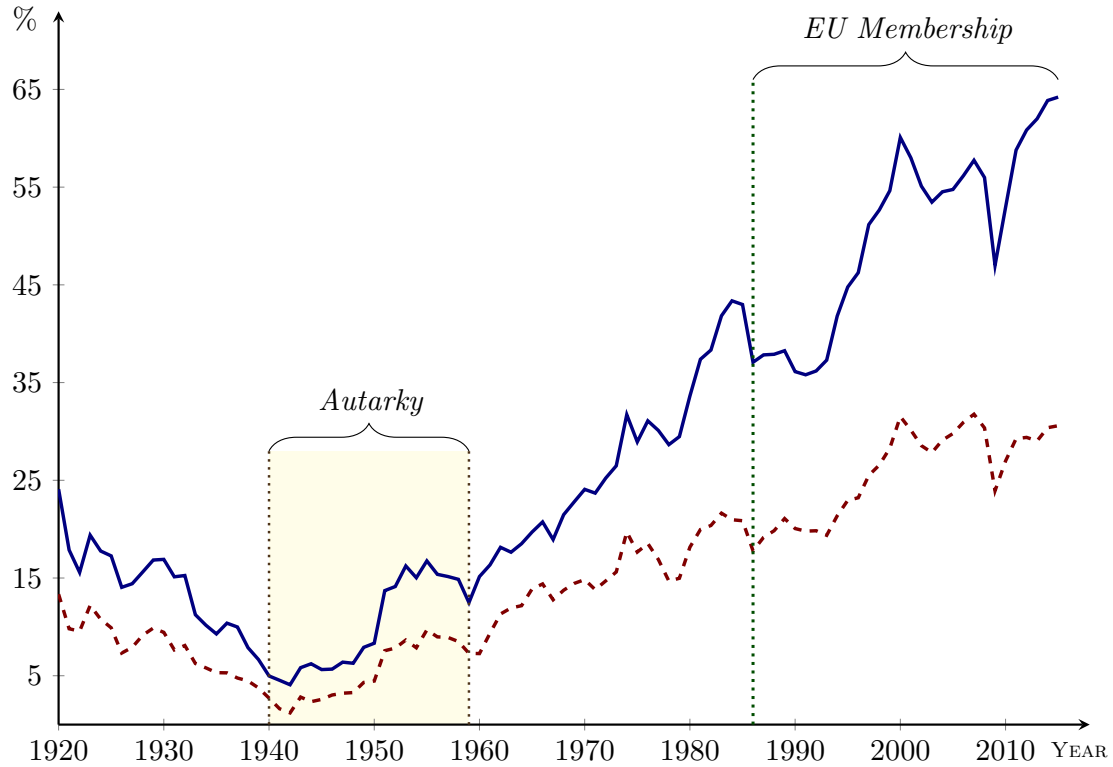
- Many automobile manufacturers located in Spain.
- Fifth largest in the world by the end of the 1990s.
- Second largest in the EU after Germany (about 3 million cars produced a year).
- Spain produces 60 vehicles per 1,000 people *vs.* 34 in the U.S.
- Combined with automobile parts, it amounts to 9% of GDP and manufacturing jobs; 10% of exports and 20% of manufacturing exports.
    - There is a lot at stake as the EU pushes for electrification!
- Uniform national pricing with regionally segmented markets and automobile manufacturers that have been producing domestically for decades – ideal to identify home bias effects!

2. Spanish Autarky

Historical Background

- 1936-1939: Spanish Civil War.
- 1939-1959: Adoption of autarkic economic model at the outbreak of WWII.
- 1941: INI (*Instituto Nacional de Industria*).
  - 1950 SEAT (INI 51% $\simeq$ €$2bn$, FIAT 7%, local banks 42%).
  - 1951 RENAULT.
  - 1957 CITROËN.
- 1959: Collapse of the autarkic economic model.
  - Near default.
  - IMF + WB led liberalization plan is adopted.
  - Spanish GDP grew at a 6.2% yearly average between 1958 and 1973 (automobiles at 21%).
  - Fleet: 359,000 registered passenger cars in 1961 (*vs.* 24.7 million in 2020).

A Long and Extreme Autarky



Notes: Trade Intensity, i.e., exports plus imports over GDP (solid blue) and share of imports over GDP (dashed red) in Spain between 1920 and 2015. Source: Prados de la Escosura (2017).

(A) Trade (blue) and Import (red) Intensity

- Isolation did not start with official autarkic policy but it is likely responsible for the gap in per capita income with other European countries until recently.
- Accession to the EU increased the integration of Spain in the world economy significantly.

3. Automobile Industrial Policy

Industrial Policy

- Industrial policies are frequently implemented in an incoherent manner over long periods of time.
- This generally makes difficult to identify and evaluate the effectiveness of specific policy decisions – not for Spain.
- Elements of the Spanish automobile industrial policy:
  - Government sponsored creation of SEAT (1950–1986).
  - Minimum (90%) national production components and maximum foreign (25%) capital ownership (1939–1972).
  - High import tariffs and strict import quotas (1939–1986).
- The Canary Islands are excluded from these trade barriers.
  - Differentiated taxation regime going back to 1487.
  - (Almost) free ports in exchange for self-sufficient funding of local administration.
  - Politically in Spain (or the EU today), but outside its borders.

4. Automobile Manufacturers

Current Local Automakers

Manufacturers					National		Regional		
Group	Brands	Sales	Production	Location	Share	Year	Share	Year	Region
DAIMLER	MERCEDES	1961 –	1981 –	PV	4.57	2015	9.81	1967	CT
GM	OPEL	1961 –	1982 –	AR	14.49	1986	26.94	1993	AR
FORD	FORD	1961 –	1976 –	VC	15.29	1982	22.37	1982	PV
NISSAN	NISSAN	1973 –	1984 –	CT	5.16	2015	8.20	2013	CT
PSA	CITROËN	1961 –	1958 –	GA	11.68	1977	30.85	1965	EX
	PEUGEOT	1961 –	1978 –	MD	11.04	2003	20.39	1996	NC
RENAULT	RENAULT	1961 –	1953 –	CL	35.58	1980	62.72	1963	CL
VW	AUDI	1972 –	2011 –	CT	4.94	2012	6.26	2015	CB
	SEAT	1961 –	1953 –	CT	60.25	1961	68.49	1969	AS
	VW	1961 –	1984 –	NC	9.19	2014	16.33	2006	CT

- Larger domestic share of earlier entrants.
- Even larger market share in the region of production.

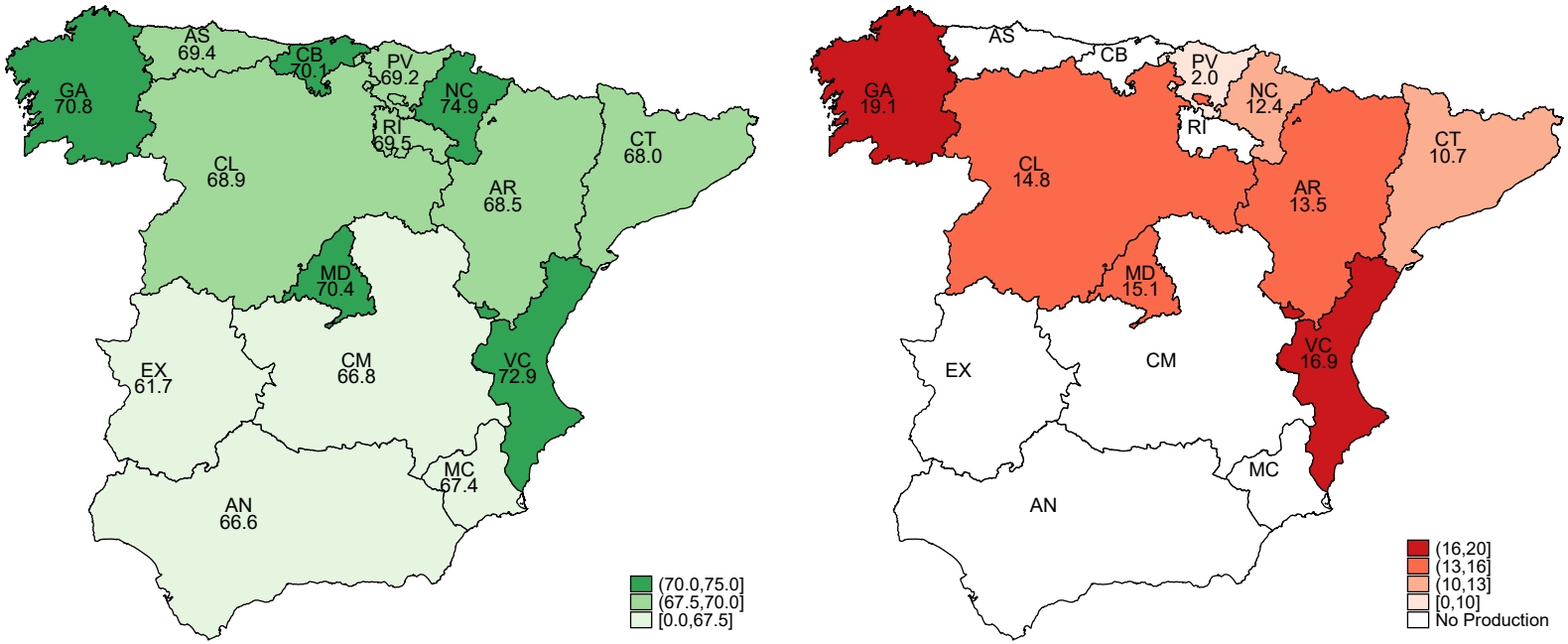
Old Local Automakers

Manufacturers					National		Regional		
Group	Brands	Sales	Production	Location	Share	Year	Share	Year	Region
AUTHI	AUSTIN, MORRIS	1961 – 1995	1963 – 1975	NC	6.84	1971	22.62	1971	NC
	MG	1961 – 2005	1961 – 1972	NC	2.42	1968	3.22	1968	CT
BARREIROS	CHRYSLER	1972 –	1975 – 1981	MD	6.77	1978	8.64	1978	MD
	DODGE	1965 – 2011	1965 – 1971	MD	2.70	1966	3.77	1966	MD
	SIMCA	1961 – 1984	1966 – 1980	MD	14.65	1966	17.74	1966	GA
	TALBOT	1979 – 1992	1979 – 1992	MD	10.60	1981	12.95	1981	CL
LAND ROVER	LAND ROVER	1961 –	1961 – 1994	AN	1.46	1961	7.18	1961	CM
SUZUKI	SUZUKI	1982 –	1985 – 2001	AN	0.74	2007	3.43	1982	CT

- Some inefficient entrants had a sizable market share.
- Their regional presence was remarkably large in some cases.

5. Regional Segmentation

Intranational Home Bias (2009–2015)



(A) Domestic Dominance

(B) Regional Dominance

- Panel (a) illustrates the regional market penetration of brands with some domestic production in Spain.
- Panel (b) shows market penetration of brands with local production facilities in each region.

Connection to Trade

▸ Uniform Pricing

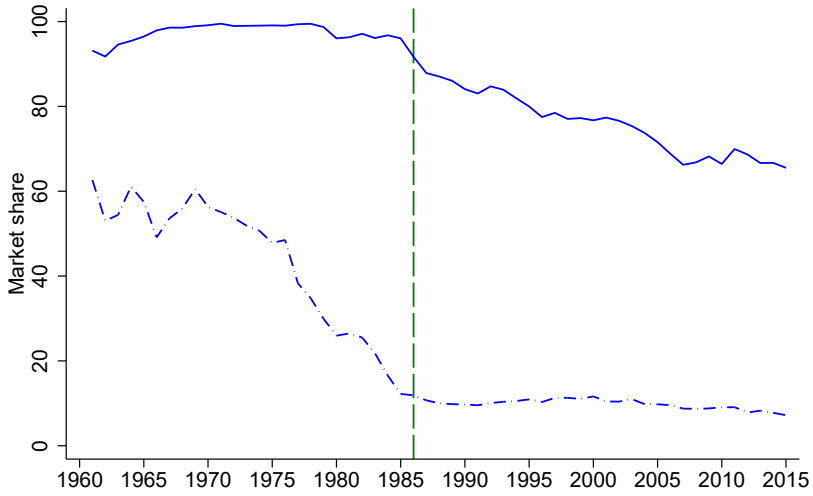
- Documented regional market segmentation in an institutionally homogeneous market where local governments cannot award subsidies or set any differentiated industrial policy.
- On top, automakers follow a policy of uniform national pricing (despite obvious heterogeneous regional differences).
- This is at odds with the gravity equations literature that assumes homogeneous institutions and market features within countries but heterogeneous across countries.
- Spain might be the ideal institutional friction-free setup to estimate a pure intranational or regional home bias effect.
- References on gravity models and border frictions: Anderson and Wincoop (2003); Balistreri and Hillberry (2007); Coşar, Grieco, and Tintelnot (2015); McCallum (1995); Wolf (2000).

6. Short Run

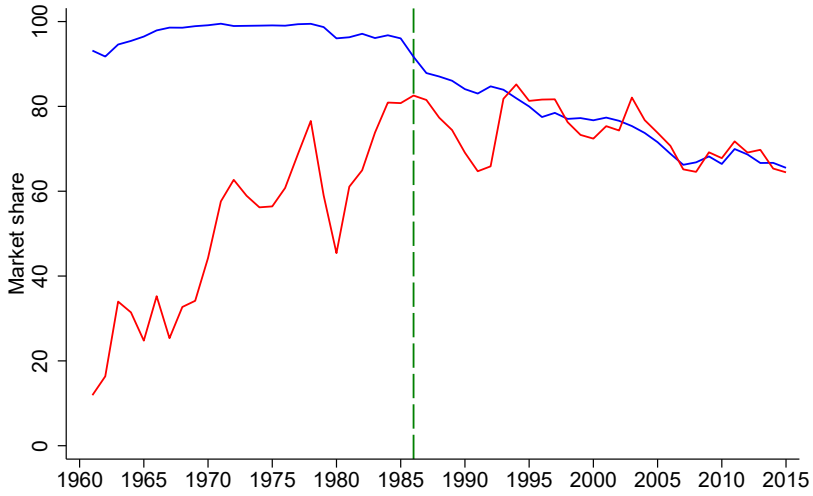
Entry, Trade and Home Bias

- Early Market (DGT: 1961-2015):
  - Yearly sales by automaker and (52) provinces and territories.
  - Software + hand coded data.
  - Unbalanced panel of 22,438 region-year-automaker observations.
- Descriptive time series:
- Reduced form regressions to identify home bias.

Autarky and Free Trade: SEAT & Domestic



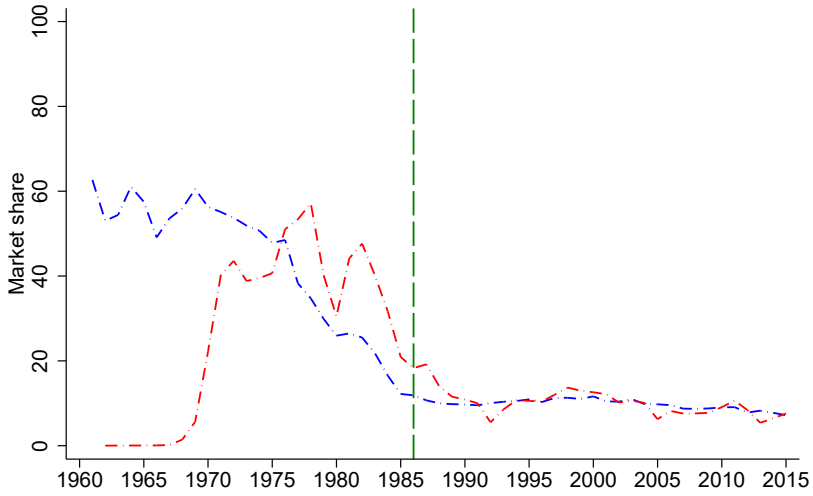
(A) SEAT and Domestic Brands



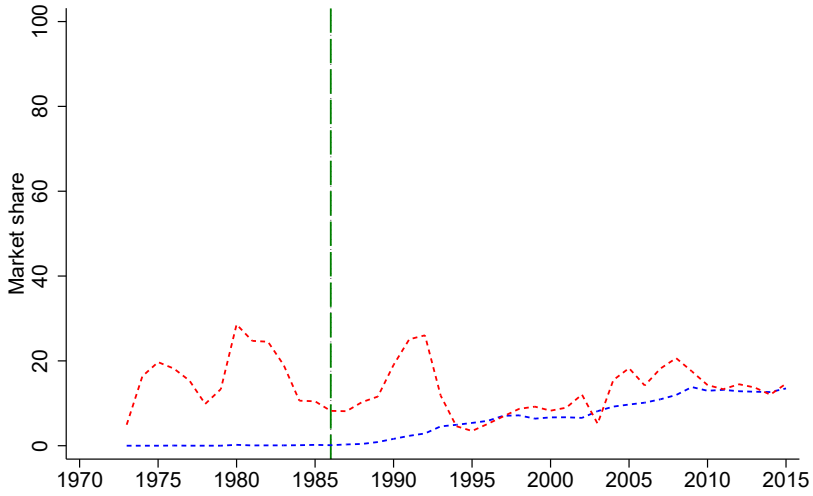
(B) Domestic Brands

- Panel (a): Secular decline of domestic brands; fast decline of SEAT after 1976 (FORD).
- Panel (b): Share of domestic vehicles in mainland Spain and Canarias only converges after joining the EU.

Autarky and Free Trade: SEAT & Japanese Brands



(A) SEAT



(B) Japanese Brands

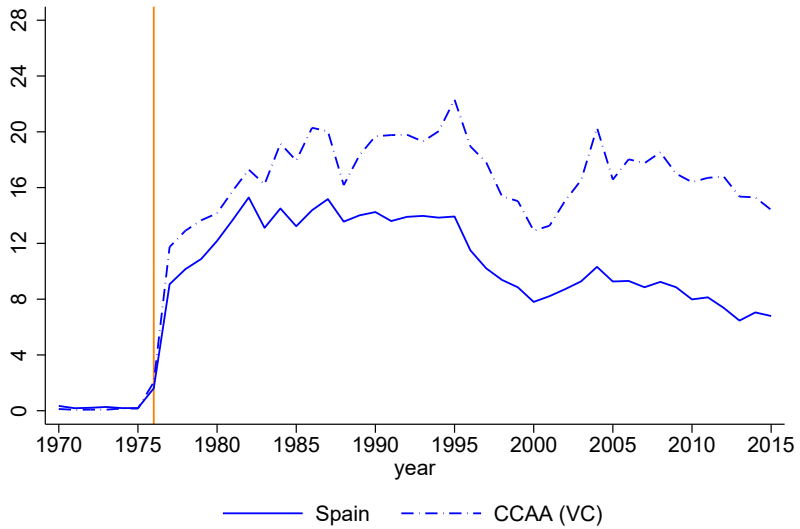
- Panel (a): Market share of SEAT in mainland Spain and Canarias converges faster, in 1976.
- Panel (b): Japanese brands popular in Canarias much earlier than in most European countries, but it converges to shares in mainland Spain for period 2009–2015.

Econometric Analysis of Entry

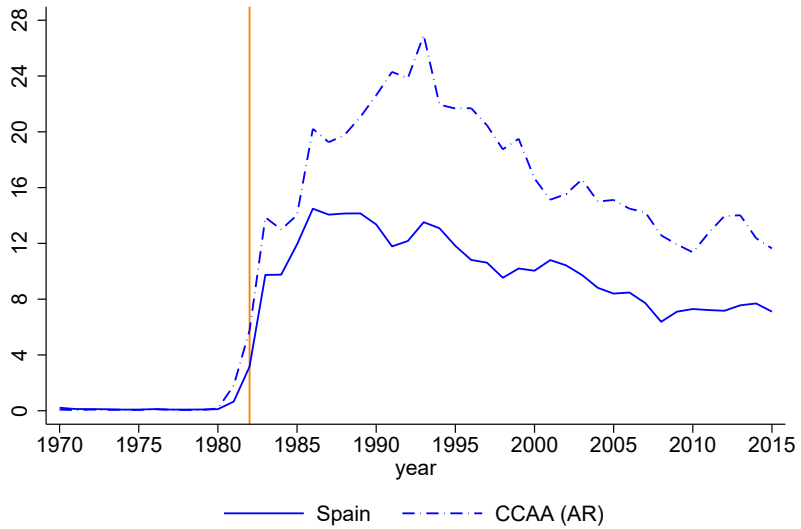
▸ Results

- Heterogeneous home bias varies with identity of automakers and timing of entry.
- A firm with a production facility in Spain increases its market share substantially relative to foreign automakers.
- On average, Canarians always dislike national brands.
- Consumers appear to prefer free trade to autarky. The industrial policy results in inferior automobiles that are purchased only because imports are not available.
- A local production plant generates an additional average home market advantage in the regional market relative to the rest of Spain.
- This regional advantage is stronger for early entrants in the heavily protected Spanish market.

Regional/Domestic Overshooting: Two Examples



(A) FORD: Valencia *vs.* Spain



(B) OPEL: Aragón *vs.* Spain

- Panel (a) shows that FORD enjoys a substantial and increasing market presence in Valencia, the location of its second largest production plant by number of employees (first outside the U.S.).
- Panel (b) illustrates the more typical case of OPEL.
- The incremental regional effect is stable over time.

Econometric Analysis of Inertia

Results

- Domestic market advantage is somewhat larger and robust to past purchases/imports.
- As before, domestic market advantage is more important for early entrants.
- Canarians "dislike" domestic brands is heavily driven by past experiences – It is now smaller but always significantly negative.
- Regional home bias of early entrants is almost identical after controlling for state dependence.
- Inertia is mostly driven by recent sales.

Econometric Analysis of Trade Liberalization

▸ Results

- Domestic market advantage increases for early entrant brands. Why? Better domestic cars?
- Domestic market advantage increases for early entrant brands. Why? Better domestic cars?
- Domestic premium of late entrants is not significant after 1986.
- Canarians to change their views on domestically produced vehicles by the turn of the century when Canarian and the rest of the Spanish automobile market have become more alike).
- For early entrants, regional market advantage remains unchanged.
- Late entrants only develop some regional market advantage.

7. Long Run

Long Term Trade Distortions

- Does the industrial policy designed in the 1950s still affect the market outcome?
- How protected is the Spanish automobile market today because of home bias induced by a defunct industrial policy?
    - Evaluate domestic market advantage in the long run, 2009-2015, once the Spanish automobile market has matured and the share of domestic vehicles has stabilized (after 2005).
- BLP: Equilibrium oligopoly model (demand + supply) allowing for national/regional home biased preferences.

Data (2009-2015)

	SHARE		PRICE		DIESEL		HPW		KPE		C90		CO_2	
	2009	2015	2009	2015	2009	2015	2009	2015	2009	2015	2009	2015	2009	2015
SPAIN	70.95	67.23	21.55	22.96	76.36	68.82	0.80	0.87	19.40	21.11	5.41	4.40	138.25	111.12
EU	14.22	16.81	26.99	22.31	71.97	68.51	0.93	0.87	18.98	19.97	5.48	4.63	139.42	117.18
EURASIAN	10.30	13.45	22.25	22.13	61.70	58.47	0.86	0.82	17.63	18.51	5.86	4.97	147.21	123.81
NON-EU	4.53	2.51	21.18	26.14	56.92	72.87	0.86	0.95	15.95	18.28	6.40	5.10	160.84	130.07
All Models	100.00	100.00	22.38	22.82	73.35	67.48	0.83	0.86	19.00	20.49	5.51	4.53	140.36	114.32

- We do not observe individual data transactions but rather aggregate annual market shares in each 50 provinces that we aggregate into the 15 mainland regions of Spain.
- We know several automobile characteristics of each model sold, as well as the list price of each year-model.
- We collect several regional demographics from the Spanish Statistical Agency to account for idiosyncratic preferences – We use a representative 1,000 random draws for each region/year.

Model

- Consumers choose what automobile to purchase to maximize their utility:

$$u_{ijrt} = x_{jt}\beta_i^* + \alpha \times \frac{p_{jt}}{y_{it}} + \xi_{jrt} + \epsilon_{ijrt}\,,$$

- Home bias is part of the unobserved product features – a common average consumer perception of how much more a automobile is worth (in practice a domestic brand fixed effect):

$$\xi_{jrt} = z_{jr}\zeta_j + \varepsilon_{jrt}\,,$$

- Price-income interaction (α) accounts for less elastic demands for high income households.
- Individual preference heterogeneity over automobile attributes (β) may vary with demographics (π) or be purely random (σ):

$$\beta_i^* = \beta + \Pi D_{irt} + \Sigma\,\nu_{irt}\,, \qquad \nu_{irt} \sim N(0, I_n)\,,$$

Mean Utility – Attributes

Variable	Description	Estimate	Std.Err
Mean Utility – Product Characteristics (β)			
CONSTANT		−15.0580	(0.5717)***
HPW	Horsepower per ton	3.9303	(0.1666)***
KPE	Kilometers per euro	0.2579	(0.0190)***
KPE × DIESEL	Kilometers per euro × diesel indicator	−0.3485	(0.0205)***
TREND × DIESEL	Time trend × diesel indicator	−0.0591	(0.0133)***
CITY	Segment A: FIAT *500*, RENAULT *Twingo*	−4.1514	(0.7372)***
COMPACT	Segment C: FORD *Focus*, VW *Golf*	0.0783	(0.0465)*
LARGE	Segment D: AUDI *A5*, VW *Passat*	−0.7928	(0.1411)***
MINIVAN	Segment M: FORD *S-Max*, VW *Touran*	−1.2180	(0.1427)***
SUV	Segment J: NISSAN *Pathfinder*, TOYOTA *Rav4*	−0.8639	(0.3523)**
SUV × TREND	SUV × time trend	0.0696	(0.0166)***

- Consumers favor powerful, fuel efficient, and not too big (neither tiny) vehicles.
- Diesel models are losing its well-established appeal during the sample years.

Mean Utility – Home Bias

Variable	Description			Estimate	Std.Err
Mean Utility – Home Bias (ζ)					
REGHBMODEL	Regional preference for model produced locally			0.6956	$(0.0721)^{***}$
REGHBBRAND	Regional preference for brand producing locally			0.1755	$(0.0628)^{***}$
OPEL	3.1131	$(0.2925)^{***}$	FORD	2.7495	$(0.2892)^{***}$
SEAT	3.0592	$(0.2893)^{***}$	RENAULT	2.6776	$(0.2912)^{***}$
AUDI	2.9282	$(0.2796)^{***}$	MERCEDES	2.6776	$(0.2837)^{***}$
VW	2.7659	$(0.2823)^{***}$	NISSAN	2.3486	$(0.2891)^{***}$
PSA	2.7513	$(0.2895)^{***}$	NON-EU	-0.8301	$(0.2967)^{***}$

- Home bias is stronger for models produced locally but it extends to other models produced in Europe.
- SEAT still has some of the highest loyalty rates.
- Asian imports are less valued than domestic and European produced models.

Idiosyncratic Preferences

Variable	Description	Estimate	Std.Err
Standard Deviations (σ)			
CITY	Segment A: FIAT *500*, RENAULT *Twingo*	2.5983	(0.6467)***
LUXURY	Expensive D, M, J: MERCEDES *Classe C*	1.6155	(1.3065)
SMALL-SUV	Small J: FORD *Kuga*, BMW *X1*	1.9252	(0.4871)***
SPAIN	Segment A: FIAT *500*, RENAULT *Twingo*	0.1797	(3.8534)
EU	Europeans not producing in Spain: BMW	3.3664	(0.3369)***
EURASIAN	Asians producing in Europe: HONDA *Civic*	5.1212	(0.1493)***
Interactions (π)			
PRICE/INCOME	MSRP divided by income	−4.1700	(0.1083)***
LUXURY × AGE	Log(age$_{hh}$) × luxury indicator	0.5916	(0.2099)***
DIESEL × COLLEGE	College education × diesel indicator	7.7094	(0.3245)***
CHEAP × CHILD	Household with a minor × inexpensive	1.6685	(0.1562)***

- Consumers are most heterogeneous regarding their preference for the smallest vehicles, including SUVs.
- There is also heterogeneity regarding the historical origin of imports from the EU.

Idiosyncratic Preferences

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Standard Deviations (σ)			
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CHEAP $\times$ CHILD	Household with a minor $\times$ inexpensive	1.6685	$(0.1562)^{***}$

- Higher income households are less responsive to price.
- Older individuals favor luxurious vehicles while families with kids prefer inexpensive ones.
- Interestingly, educated drivers prefer diesel vehicles.

Supply – MC

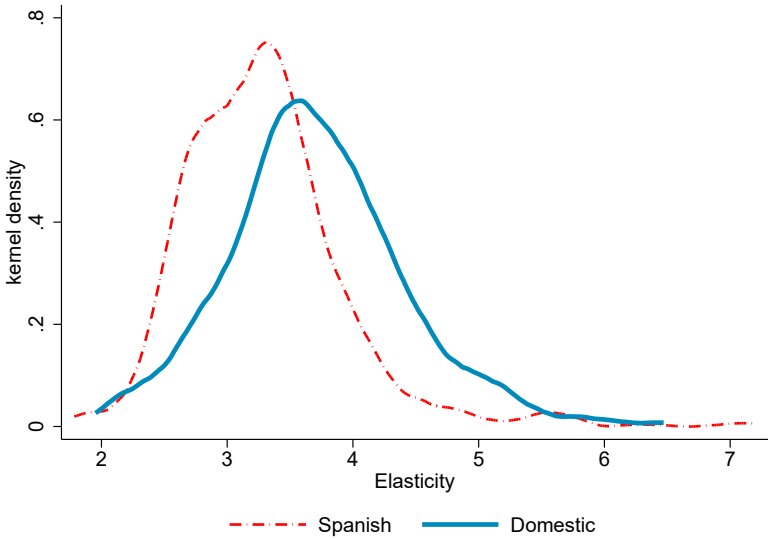
Variable	Description	Estimate	Std.Err
Cost (γ)			
$\ln(\text{HP} \times \text{SPI})$	$\ln(\text{HP})$ × automobile raw material index	0.8801	$(0.0165)^{***}$
$\ln(\text{WEIGHT} \times \text{SPI})$	$\ln(\text{WEIGHT})$ × automobile raw material index	0.9153	$(0.0357)^{***}$
$\ln(CO_2)$	Log of CO_2 emissions in g/km	−0.3095	$(0.0250)^{***}$
DIESEL	Diesel engine	0.0548	$(0.0069)^{***}$
COMPACT	Segment C: FORD *Focus*, VW *Golf*	0.0704	$(0.0049)^{***}$
LUXURY	Expensive D, M: RENAULT *Scenic*	0.1401	$(0.0110)^{***}$
NON-LUXURY	Inexpensive D, M & SMALL-SUV: SEAT *Toledo*	0.0955	$(0.0059)^{***}$

- We do not observe global sales of automobiles – we assume a constant return to scale technology where marginal costs mc_{jt} depend on the observed automobile attributes:

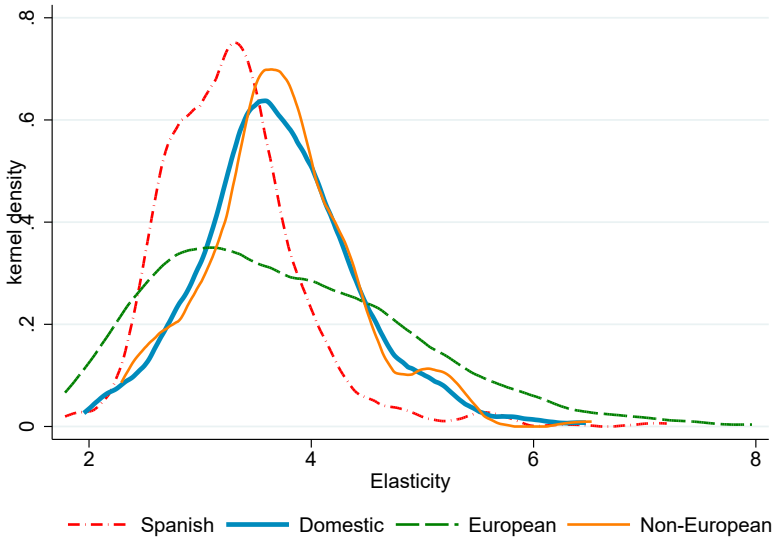
$$\log mc_{jt} = W_{jt}\gamma + \omega_{jt} \,,$$

- Diesel, more powerful, larger, and less polluting vehicles are more costly to produce.

Sanity Check – Distribution of Estimates



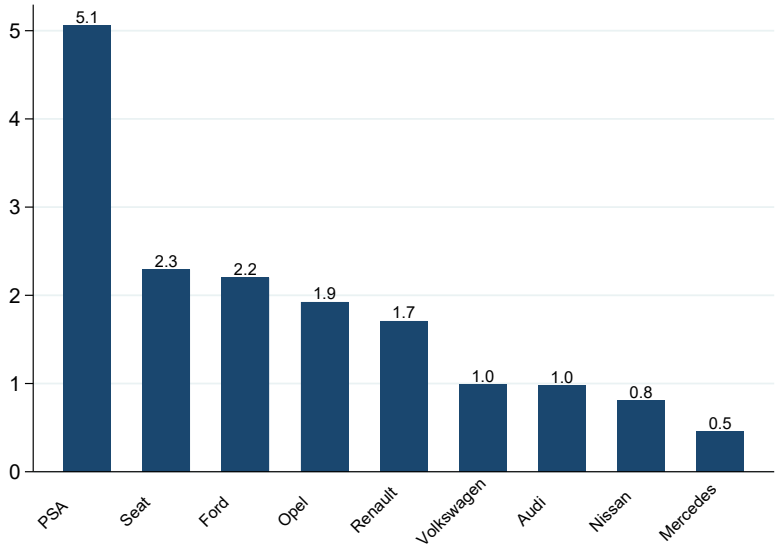
(A) Own-Price Elasticities



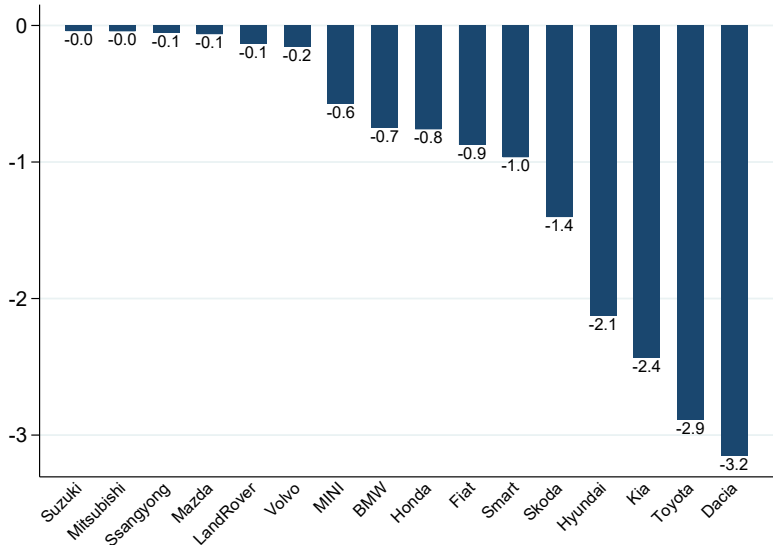
(B) Marginal Costs

- Panel (a) shows that, among European automakers, demand is generally less elastic for models assembled in Spain than for models built in other European countries, which generally are more expensive and powerful.
- Panel (b) shows that the distribution of marginal costs of automobile models produced in Spain stochastically dominates any other imported models, regardless of their geographical origin.

Home Market Advantage – Sales/Imports



(A) Percent Excess Sales by Automaker



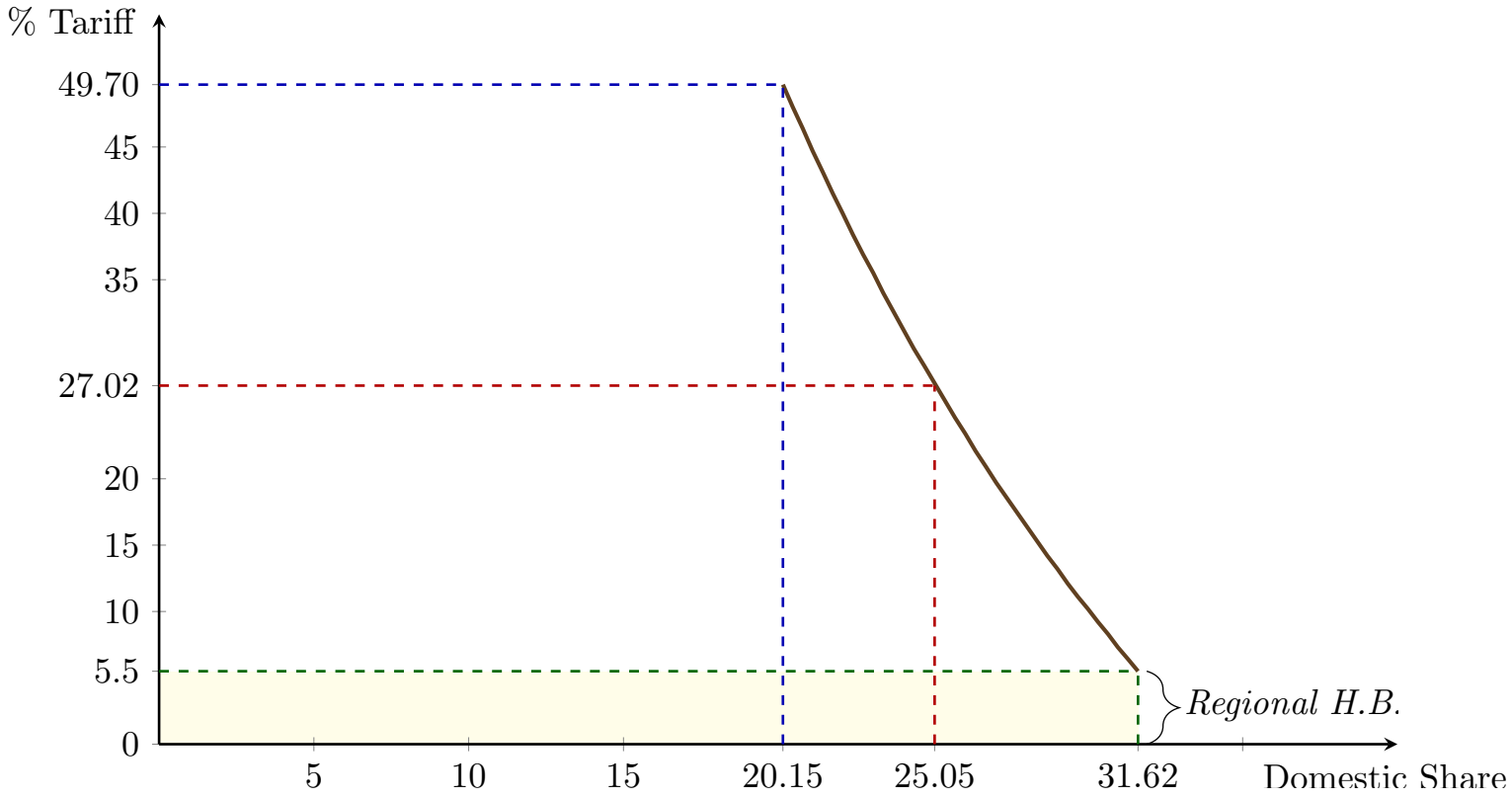
(B) Percent Suppressed Import by Automaker

- Reduce home bias estimates by 25% so that the domestic market share falls from 62.96% to 46.54%.
- Panel (a) shows the excess market share of sales of domestic automakers.
- Panel (b) shows the reduction in market shares of imports for automakers not located in Spain.

Tariff Equivalence – Regional Preference

- How distortive is Spaniards' current preferences for local brands induced by the industrial policy of the autarky?
  - Shut down regional preference for local brands and obtain the shadow tariff that ensures the same market share of domestically produced vehicles.
  - In addition, reduce the preference for domestic brands up to 50% and then, set the tariff that achieves any given market share for domestic vehicles.
- The nominal automobile import tax into the EU is **10.50%**.
- Counterfactual 1:
  - Set a tariff on imports from outside Spain of 5.5% to keep the market share of Spanish produced automobiles at their current 31.62% level.

Tariff Equivalence – Protecting Domestic Production



(A) Shadow Tariff Protection of Domestic Sales

- Counterfactual 2: To ensure a minimum 25% market share for domestic vehicles, Spain needs a 27% tariff in the absence of any preference for domestic brands.
- Larger tariffs increases are needed to protect declining sales when preferences for domestic brands evaporate – from a 3% tariff per 1% market share reduction at a domestic penetration of 30% to a 5% tariff per 1% market share reduction at a domestic penetration of 20%.

Contribution

- We present the first evidence that home bias linked to the local production of a product is nearly immediate.
- We also show that this domestic market advantage dissipates only for late entrants after trade liberalization.
- Intranational home bias of the region where the assembly plant is located is not only immediate, but permanent, surviving trade liberalization.
- Industrial policy influences local preferences in the long run.
- Long-term effects of the industrial policy is to protect local manufacturers against European and non-European imports.
- We do not *kneejerk oppose* industrial policy (Juhász, Lane and Rodrik, 2023), but we highlight and quantify some of the inefficiencies of this policy long after being phased out.

Thank you!

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Appendix

Uniform Pricing

Return

	Model 1		Model 2		Model 3		Model 4	
CONSTANT	0.332	$(0.002)^{***}$	-0.520	(0.785)	-0.489	(0.730)	-0.485	(0.591)
GDP_{pc}			-0.009	$(0.005)^{*}$	-0.008	$(0.004)^{*}$	-0.010	$(0.004)^{***}$
DENSITY			0.010	(0.007)	0.009	(0.006)	0.009	$(0.005)^{*}$
DIESEL					0.062	$(0.003)^{***}$	0.031	$(0.002)^{***}$
$1200 \leq CC < 1400$					0.151	$(0.005)^{***}$	0.049	$(0.004)^{***}$
$1400 \leq CC < 1600$					0.013	$(0.004)^{***}$	0.006	$(0.003)^{*}$
$1600 \leq CC < 2000$					-0.069	$(0.004)^{***}$	-0.063	$(0.003)^{***}$
$2000 \leq CC < 2500$					-0.143	$(0.005)^{***}$	-0.074	$(0.005)^{***}$
$2500 \leq CC < max$					-0.113	$(0.014)^{***}$	0.006	(0.012)
$120 < CO2 < 160$					0.014	$(0.005)^{***}$	0.034	$(0.004)^{***}$
$160 \leq CO2 < 200$					-0.015	$(0.006)^{**}$	0.011	$(0.005)^{**}$
$200 \leq CO2$					0.037	$(0.013)^{***}$	-0.064	$(0.011)^{***}$
Province FE	Yes		Yes		Yes		Yes	
Make FE	No		No		No		Yes	
Uniform Pricing (95%)	39.70	(19)	0.0	(0)	0.0	(0)	6.4	(4)
Uniform Pricing (99%)	35.77	(15)	0.0	(0)	0.0	(0)	0.0	(0)
$Adj.\ R^2$	0.0121		0.0131		0.1389		0.4483	

OLS (15,726 market-time-cluster observations). To test for the null hypothesis of uniform national pricing, we report the total market share and number of province fixed effects (in parenthesis) that are significantly different from zero.

Entry – Stable Regional Effect

Return

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
CONSTANT	-6.1870***	-5.8700***	-5.8640***	-5.9742***	-5.9720***	-7.3090***
	(0.0146)	(0.0525)	(0.0887)	(0.0899)	(0.0898)	(0.1417)
NHB-EXIT	1.4651***	2.1303***	3.1872***	3.2605***	3.2411***	2.8185***
	(0.0642)	(0.0721)	(0.0794)	(0.0789)	(0.0802)	(0.1235)
NHB-EARLY	3.8520***	3.3957***	2.0149***	2.0630***	2.0465***	2.1610***
	(0.0195)	(0.0441)	(0.0544)	(0.0510)	(0.0511)	(0.1002)
NHB-LATE	2.2439***	2.3244***	1.4718***	1.5350***	1.5215***	1.7356***
	(0.0488)	(0.0817)	(0.0680)	(0.0635)	(0.0634)	(0.0843)
CANARIAN H.B.	-0.3225***	-0.3196***	-0.3237***	-1.3491***	-1.3314***	-1.0215***
	(0.0691)	(0.0615)	(0.0642)	(0.0838)	(0.0839)	(0.0861)
RHB-EXIT					0.2633	0.3722
					(0.2119)	(0.2650)
RHB-EARLY					0.2087***	0.2230***
					(0.0579)	(0.0599)
RHB-LATE					0.1741*	0.1599*
					(0.1056)	(0.0895)
Firm FE (47)		✓	✓	✓	✓	✓
Year FE (54)			✓	✓	✓	✓
Region FE (15)				✓	✓	✓
Leads/Lags (5/5)						✓
$Adj.\ R^2$	0.4326	0.5792	0.6560	0.6661	0.6662	0.6784

- OLS (log of region-year market share of sales of all models of an automaker between 1961 and 2015); 22,438 observations.

Inertia and Preferences for Local Brands

Return

	Model I	Model II	Model III	Model IV	Model V	Model VI
NHB-EARLY	1.1868***	1.5949***	1.6348***	1.6722***	1.6858***	1.6955***
	(0.0954)	(0.0990)	(0.0992)	(0.0998)	(0.1008)	(0.1015)
NHB-LATE	1.1733***	1.2509***	1.2820***	1.3231***	1.3656***	1.4310***
	(0.0792)	(0.0740)	(0.0745)	(0.0770)	(0.0807)	(0.0846)
CANARIAN H.B.	-0.6964***	-0.2899***	-0.2581***	-0.2306***	-0.2143***	-0.2125***
	(0.0816)	(0.0708)	(0.0715)	(0.0717)	(0.0717)	(0.0719)
RHB-EARLY	0.2544***	0.2077***	0.2275***	0.2463***	0.2615***	0.2767***
	(0.0547)	(0.0467)	(0.0458)	(0.0449)	(0.0441)	(0.0433)
RHB-LATE	0.1515	0.1654**	0.1248	0.1273	0.1276	0.1393*
	(0.1046)	(0.0824)	(0.0848)	(0.0822)	(0.0807)	(0.0724)
PAST DOMESTIC SALES		0.0026***	0.0018***	0.0012***	0.0007*	0.0002
		(0.0004)	(0.0004)	(0.0004)	(0.0003)	(0.0003)
PAST IMPORTS		0.0238***	0.0206***	0.0187***	0.0179***	0.0181***
		(0.0018)	(0.0019)	(0.0019)	(0.0020)	(0.0020)
Lagged Years Windows		[4–9]	[5–10]	[6–11]	[7–12]	[8–13]
Observations	20,682	16,879	16,419	15,947	15,468	14,979
$Adj.\ R^2$	0.6792	0.7226	0.7254	0.7281	0.7319	0.7362

- OLS (log of region-year market share of sales of all models of an automaker from 1975 to 2015) controlling for past cumulative sales or imports over given time windows. Includes firm (47), year (40) and regions (15) fixed effects.
- Only variables of interest reported.

Local Brands after Trade Liberalization

Return

	Model 5.1	Model 5.2	Model 5.3	Model 5.4	Model 5.5	Model 5.6
CONSTANT	-5.9720***	-7.4022***	-6.3994***	-5.6989***	-5.6470***	-5.4640***
	(0.0898)	(0.1212)	(0.1028)	(0.0989)	(0.0708)	(0.0628)
NHB-EXIT	3.2411***	3.5704***	1.4766***	0.4097***	-1.0565***	
	(0.0802)	(0.1061)	(0.1458)	(0.1374)	(0.1830)	
NHB-EARLY	2.0465***	1.8983***	0.7018***	2.7417***	2.9525***	2.8586***
	(0.0511)	(0.0715)	(0.1399)	(0.0504)	(0.0364)	(0.0428)
NHB-LATE	1.5215***	1.4624***	0.7035***	-0.0643	0.0146	0.0774
	(0.0634)	(0.0717)	(0.0820)	(0.0652)	(0.0587)	(0.0547)
CANARIAN H.B.	-1.3314***	-1.0721***	-0.3552***	-0.0454	0.0877	0.1507**
	(0.0839)	(0.0853)	(0.0746)	(0.0679)	(0.0608)	(0.0620)
RHB-EXIT	0.2633	0.3679	0.3649	0.6522*	1.3062***	
	(0.2119)	(0.2810)	(0.3754)	(0.3586)	(0.3409)	
RHB-EARLY	0.2087***	0.2210***	0.2392***	0.2588***	0.2742***	0.2774***
	(0.0579)	(0.0595)	(0.0460)	(0.0376)	(0.0339)	(0.0369)
RHB-LATE	0.1741*	0.1631	0.1237	0.0843	0.1752***	0.1388**
	(0.1056)	(0.1054)	(0.1036)	(0.0981)	(0.0452)	(0.0551)
Starting Year	1961	1970	1980	1986	1992	2000
Observations	24,696	22,312	19,419	16,991	13,996	9,630
$Adj.\ R^2$	0.6662	0.6680	0.7003	0.7220	0.7732	0.7969

- OLS (log of region-year market share of sales of all models of an automaker between different starting years and 2015).