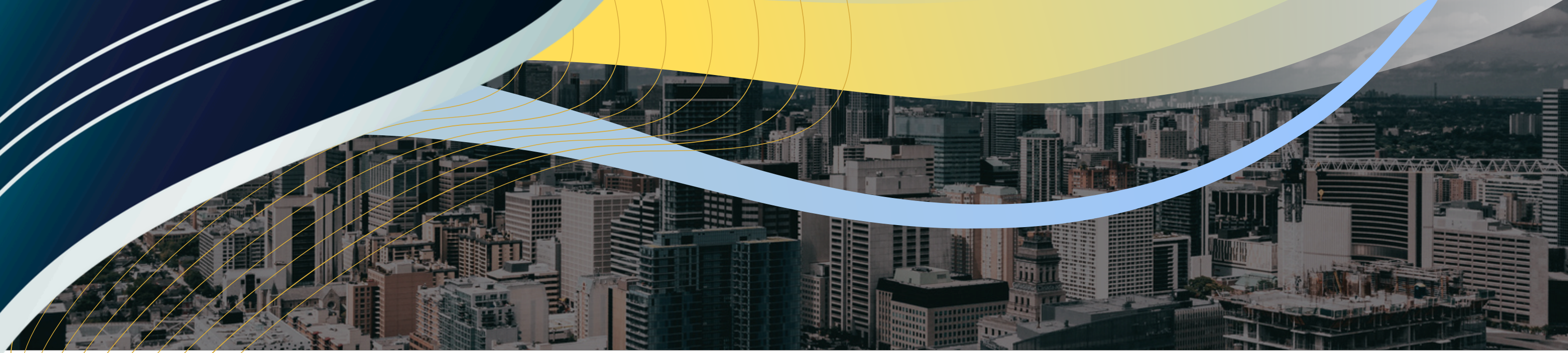

Measuring Tax Pass-Through

Project: Causal Impact of the "Impuesto PAIS" Reduction on Retail Prices
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Methodology: Difference-in-Differences (DiD) with Fixed Effects

Overview

In September 2024, the Argentine government implemented a significant fiscal change, reducing the Impuesto PAIS on imported goods from 17.5% to 7.5%. This study leverages Causal Inference to determine the "pass-through" rate of this tax cut—specifically, whether the reduction reached the end consumer or was absorbed by supply chain intermediaries.

The Business Challenge

In high-inflation environments, isolating the effect of a single policy change is notoriously difficult. To provide actionable insights, this project answers:

1. Did imported products see a statistically significant price drop compared to domestic goods?
2. How did the impact vary across different product categories?
3. Are the findings robust against market noise and external shocks (e.g., currency devaluation)?

Data & Strategic Methodology

The analysis was conducted using a granular dataset of 15,800 observations from a major national retailer.

- The Framework: A Difference-in-Differences (DiD) model was implemented to compare "Treated" (Imported) vs. "Control" (National) groups.
- The Decision Analytics Approach: Unlike a standard descriptive analysis, this project prioritized data integrity. I validated the Parallel Trends Assumption and performed a rigorous data curation process, excluding categories (such as Cookies and Canned Goods) that did not meet econometric standards to ensure an unbiased result.
- Modeling: Using R, I applied a Log-Linear Fixed Effects model, allowing for a percentage-based interpretation of the coefficients while controlling for product-specific unobservables and currency fluctuations.

Key Results

- Net Impact: The reduction in the Impuesto PAIS led to a 2.11% greater decrease in the prices of imported products relative to national ones.
- Heterogeneity: The pass-through was not uniform. Results suggest that factors such as inventory turnover and market competition play a critical role in how fast tax changes reach the shelf.
- Validated Robustness: The findings were confirmed through Placebo Tests (both in timing and group assignment), ensuring that the observed price drop was a direct result of the policy change and not a coincidence.

Conclusion

This project demonstrates that fiscal policy can effectively influence consumer prices, even in volatile markets. For decision-makers, it highlights that the success of a tax reduction depends heavily on category-specific dynamics. This analysis moves beyond "fancy charts" to provide a statistically sound foundation for understanding market behavior.