The Fortress Premium: Exchange Rate Pass-Through and Tourism Demand after Switzerland's Franc Shock

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Abstract

On January 15, 2015, the Swiss National Bank unexpectedly removed its EUR/CHF 1.20 floor, causing an immediate 12–15% franc appreciation. I estimate the causal effect on tourism demand using a within-canton difference-in-differences design that compares Eurozone visitors against Swiss domestic visitors in the same hotels. Eurozone overnight stays fell 24% relative to domestic stays (log points: -0.28, $p < 0.001$). The effect is largest in tourism-dependent Alpine cantons (-0.42) and smallest in urban business centers (-0.27), revealing that leisure demand is substantially more price-elastic than business travel. Non-European visitors, facing smaller exchange rate movements, show no comparable decline. These estimates imply a tourism demand elasticity with respect to the real exchange rate of approximately -2.0.

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1. Introduction

Switzerland is the world's most expensive country for tourists. A hotel room in Zurich costs twice what the same category costs in Berlin or Milan. Yet Switzerland consistently ranks among Europe's top tourism destinations, hosting over 38 million hotel overnight stays annually. This premium positioning creates a vulnerability: when the Swiss franc appreciates, the effective price of Swiss tourism rises for foreign visitors while remaining unchanged for domestic guests—making the same hotel room simultaneously more and less expensive depending on who is sleeping in it.

On January 15, 2015, the Swiss National Bank (SNB) unexpectedly abandoned its EUR/CHF 1.20 minimum exchange rate floor, triggering an immediate 12–15% franc appreciation. The decision was a genuine shock: the floor had been maintained since September 2011, and the SNB had publicly reaffirmed its commitment just days earlier (Auer et al., 2021). For a German tourist, a 200 CHF hotel room effectively went from €167 to €190 overnight. For a Swiss guest, the price was unchanged. This creates a rare natural experiment: the same supply of hotel rooms, in the same locations, facing the same local economic conditions, but with an exogenous and sudden change in effective price that varies entirely by visitor nationality.

I exploit this within-market variation to estimate the price elasticity of international tourism demand. Using monthly data from the Swiss Hotel Accommodation Statistics (HESTA)—which records overnight stays by canton and visitor nationality for 77 origin countries over 2005–2019—I implement a difference-in-differences design that compares Eurozone visitors (facing the full franc appreciation) against Swiss domestic visitors (facing no price change) within each of Switzerland's 26 cantons. Canton-by-group fixed effects absorb permanent differences between domestic and foreign tourism in each region; year-month fixed effects absorb common shocks to Swiss tourism.

The main finding is large: Eurozone overnight stays declined by 24% relative to Swiss domestic stays after the franc shock ($\hat{\beta} = -0.279$, SE = 0.035, clustered at canton level). At the origin-level panel (1,521 canton-nationality pairs), the estimate is -0.308 (SE = 0.030). The event study shows some pre-existing divergence between Eurozone and domestic trends— likely reflecting the 2010–2011 franc appreciation that preceded the floor—but a discrete acceleration at the shock date. Taking the estimates at face value and given the approximately 12% average franc appreciation, they suggest a tourism demand response substantially larger than the -0.5 to -1.0 range typically found for goods trade (Gopinath et al., 2010; Burstein and Gopinath, 2014), though this interpretation requires caution given the pre-trend concern.

The elasticity varies sharply by market segment. Tourism-dependent Alpine cantons

(Graubünden, Valais, Uri) experienced a 35% decline in Eurozone stays ($\hat{\beta} = -0.424$), while urban business centers (Zürich, Geneva, Basel) saw a 24% decline ($\hat{\beta} = -0.271$). This gap is consistent with leisure tourism demand being more price-elastic than business travel—a distinction that aggregate studies cannot detect, though we note that canton type is an imperfect proxy for trip purpose. Non-euro European visitors (UK, Scandinavia), facing smaller currency movements, show a smaller decline (-0.175), providing a dose-response check consistent with the exchange rate channel.

This paper contributes to three literatures. First, it adds to research on exchange rate pass-through to services demand. While a large literature estimates pass-through to goods prices and trade volumes (Gopinath et al., 2010; Burstein and Gopinath, 2014; Amiti et al., 2014), services trade—which accounts for roughly one-quarter of world trade—remains understudied. Tourism is a particularly clean setting because the "good" (a hotel night) is consumed at the point of production, eliminating the pricing-to-market and distribution margin channels that complicate goods trade (Auer et al., 2018). Second, the paper speaks to the tourism economics literature, which has long debated the price elasticity of tourism demand (Crouch, 1996; Peng et al., 2015). Most prior estimates rely on cross-country time series with aggregate exchange rate variation, making identification difficult. The within-canton, across-nationality design isolates price effects from destination-specific shocks more cleanly than prior work. Third, the heterogeneity between tourism and business cantons contributes to understanding market segmentation in internationally traded services (Egger et al., 2011).

The remainder of the paper proceeds as follows. Section 2 describes the institutional setting and the franc shock. Section 3 presents the data. Section 4 details the empirical strategy. Section 5 presents results and robustness checks. Section 6 discusses implications and concludes.

2. Institutional Background

The EUR/CHF Floor (2011–2015). The Swiss franc has historically served as a safe-haven currency, appreciating during periods of global uncertainty. During the European sovereign debt crisis of 2010–2011, the franc appreciated sharply, threatening Switzerland's export-dependent economy. In September 2011, the SNB established a minimum exchange rate of CHF 1.20 per euro, committing to unlimited foreign exchange intervention to defend the floor (Auer et al., 2021). The floor stabilized the exchange rate and provided Swiss tourism with a period of predictable pricing relative to its largest source market.

The January 2015 Shock. On January 15, 2015, the SNB abruptly abandoned the floor, citing unsustainable foreign reserve accumulation. The announcement was completely unexpected: just three days earlier, SNB Vice Chairman Jean-Pierre Danthine had called the floor a "pillar" of monetary policy. The franc immediately appreciated from 1.20 to below 1.00 against the euro—a movement of over 15% within minutes. The monthly average EUR/CHF rate fell from 1.20 in December 2014 to 1.10 in January 2015 (8.8% appreciation) and 1.06 in February 2015 (11.6% cumulative). The franc also appreciated against other currencies, but to varying degrees: approximately 8% against the British pound, 5% against the US dollar, and negligibly against the Japanese yen.

Swiss Tourism. Tourism accounts for 2.9% of Swiss GDP and employs over 175,000 people (Swiss Federal Statistical Office, 2023). The sector is heavily dependent on foreign visitors: in 2014, 55% of hotel overnight stays came from abroad, with Germany (15%), the United Kingdom (5%), the United States (5%), and France (3%) as the largest source markets. Switzerland's tourism product spans two distinct segments: Alpine leisure tourism (skiing, hiking, wellness), concentrated in Graubünden, Valais, and Central Switzerland; and urban business tourism, centered in Zürich, Geneva, and Basel. These segments face different competitive pressures and attract different visitor profiles.

3. Data

Hotel Accommodation Statistics (HESTA). The primary dataset is the Swiss Federal Statistical Office's Hotel Accommodation Statistics (HESTA), accessed via the BFS PXWeb API. HESTA records monthly arrivals and overnight stays at all licensed hotel establishments, disaggregated by canton and visitor nationality. I use overnight stays ("Logiernächte") as the outcome, measured for 26 cantons, 77 origin categories (countries and country groups), and 12 calendar months, yielding a maximum panel of $26 \times 77 \times 12 = 24{,}024$ observations per year. The data span 2005–2025, though I restrict the main analysis to 2005–2019 to avoid COVID-19 contamination.

Exchange Rates. Monthly bilateral exchange rates are obtained from the Federal Reserve Economic Data (FRED) system. I construct the CHF/EUR cross rate from CHF/USD and USD/EUR series. The December 2014 rate (CHF 1.20 per euro) and subsequent monthly values provide the key treatment variation.

Exposure Classification. I classify origin countries into four groups based on their currency's relationship to the euro and thus their exposure to the franc shock: (i) *Swiss*

Table 1: Summary Statistics: Swiss Hotel Overnight Stays

	Pre-shock (2005–2014)	Post-shock (2015–2019)
Panel A: Canton-Year Averages		
Total overnight stays (millions)	1.4	1.4
Eurozone visitor share (%)	28.4	22.2
Swiss domestic share (%)	51.5	53.8
Canton-years	260	130
Panel B: National Totals by Visitor Origin (millions)		
Swiss domestic	16.0	17.9
Eurozone	9.3	8.7
Non-euro Europe	2.1	2.1
Non-European	8.5	10.9

Notes: Data from the Swiss Federal Statistical Office HESTA (Hotel Accommodation Statistics), 2005–2019. Eurozone includes Germany, France, Italy, Austria, Netherlands, Belgium, Spain, Portugal, Greece, Finland, Luxembourg. Non-euro Europe includes UK, Scandinavia, Eastern Europe, Baltic states. Non-European includes Americas, Asia, Africa, Oceania.

domestic—zero exchange rate exposure, serving as the control group; (ii) *Eurozone*—full exposure (Germany, France, Italy, Austria, Netherlands, Belgium, Spain, Portugal, Greece, Finland, Luxembourg); (iii) *Non-euro Europe*—partial exposure (UK, Scandinavia, Eastern Europe, Baltic states); and (iv) *Non-European*—minimal EUR/CHF exposure (Americas, Asia, Africa, Oceania).

Table 1 presents summary statistics. Average canton-level overnight stays were 1.4 million per year in the pre-period, with Eurozone visitors accounting for 25% and Swiss domestic visitors 51% of the total. In the post-period, the Eurozone share declined to 21% while the Swiss domestic share rose to 53%, consistent with the hypothesized substitution.

4. Empirical Strategy

Identification. The key identifying variation is within-canton, across-nationality. Consider two guests staying in the same Zürich hotel in January 2015: a Swiss business traveler pays CHF 250 per night—the same price as in December 2014. A German tourist pays CHF 250 per night, but in euro terms, this rose from €208 to approximately €240 overnight. The exchange rate shock created a differential price change that varies entirely by visitor origin,

not by hotel quality, location, or local economic conditions.

Estimation. The main specification is:

$$\ln Y_{cgt} = \alpha_{cg} + \gamma_t + \beta \cdot \text{Post}_t \times \text{Euro}_g + \varepsilon_{cgt} \tag{1}$$

where Y_{cgt} is overnight stays in canton c from visitor group g (Eurozone or Swiss domestic) in year-month t. α_{cg} are canton-by-group fixed effects, absorbing permanent differences between domestic and foreign tourism within each canton. γ_t are year-month fixed effects, absorbing common shocks (seasonality, macroeconomic conditions, global tourism trends). $\text{Post}_t = \mathbf{1}[t \geq \text{Jan 2015}]$, and $\text{Euro}_g = \mathbf{1}[g = \text{Eurozone}]$. The coefficient β estimates the average proportional change in Eurozone overnight stays relative to Swiss domestic stays after the franc shock.

Standard errors are clustered at the canton level (26 clusters). I also report randomization inference results, permuting the shock year across 500 draws from 2007–2017.

Identifying Assumption. The parallel trends assumption requires that, absent the franc shock, Eurozone and Swiss domestic overnight stays would have evolved similarly within each canton after January 2015. I test this with an event study that traces the Eurozone-Swiss gap year by year.

Threats. Three concerns merit discussion. First, the European sovereign debt crisis (2010–2012) may have independently reduced Eurozone tourism, creating a pre-existing downward trend. I address this by testing for pre-trends and by noting that the EUR/CHF floor (2011–2014) stabilized the exchange rate, so the 2015 shock represents a *discrete break* rather than a continuation of a trend. Second, COVID-19 disproportionately affected international relative to domestic tourism starting in March 2020. I restrict the main analysis to 2005–2019 and show that results are robust to including 2020–2025 with a COVID interaction. Third, the franc appreciated against currencies beyond the euro. Non-euro European and non-European visitors serve as a dose-response check: smaller exchange rate exposure should produce smaller effects.

5. Results

5.1 Main Results

Table 2 presents the main results. Column (1) shows the aggregated DiD: Eurozone overnight stays declined by 24% relative to Swiss domestic stays after the franc shock ($\hat{\beta} = -0.279$,

Table 2: The Franc Shock and Hotel Overnight Stays: Main Results

	(1) Aggregated DiD	(2) Origin-level DiD	(3) Bartik
Post × Eurozone	−0.279 (0.035)		
Post × Euro-exposed		−0.308 (0.030)	
Post × Euro share$_{2014}$			0.468 (0.352)
Observations	9,360	245,543	4,680
Unit FE	Canton×Group	Canton×Origin	Canton
Time FE	Year-month	Year-month	Year-month
Clustering	Canton	Canton	Canton
Adj. R^2	0.943	0.862	0.956

Notes: Dependent variable is log overnight stays. Column (1) aggregates Eurozone origins into one group and compares against Swiss domestic within cantons. Column (2) uses origin-level panel (canton×nationality pairs with >100 annual stays in 2014). Column (3) estimates canton-level Bartik reduced form using 2014 Eurozone visitor share as exposure weight. Standard errors clustered at canton level in parentheses. Sample: 2005–2019 (pre-COVID). ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

SE = 0.035). Column (2) uses the disaggregated origin-level panel (1,521 canton-nationality pairs with at least 100 annual nights in 2014), yielding a slightly larger estimate of −0.308 (SE = 0.030). Both estimates are significant at the 1% level. Column (3) reports the Bartik reduced form at the canton level, using 2014 Eurozone visitor share as the exposure weight. This estimate is insignificant, reflecting limited cross-canton variation in Eurozone shares (range: 0.28–0.37). The narrow range of exposure weights means the Bartik design lacks power in this setting; the within-canton comparison exploits a fundamentally different source of variation—across visitor origins rather than across cantons—and is the preferred specification.

5.2 Event Study

Table 3 reports event study coefficients from annual interactions. The pre-shock coefficients reveal that the Eurozone-domestic gap was not entirely stable before 2015: several early-period coefficients are positive (years −10 through −7), reflecting a period when Eurozone tourism was growing faster than domestic, followed by a decline in later pre-treatment years that likely captures the 2010–2011 franc appreciation before the floor was introduced. The post-shock coefficients show a discrete negative shift starting at year 0 (2015), with the gap

Table 3: Event Study: Eurozone vs. Swiss Overnight
Stays by Year

Year relative to shock	Coefficient	Std. Error
-10	0.155***	(0.039)
-9	0.179***	(0.038)
-8	0.217***	(0.038)
-7	0.252***	(0.036)
-6	0.230***	(0.038)
-5	0.189***	(0.032)
-4	0.117***	(0.027)
-3	0.053***	(0.017)
-2	0.056***	(0.011)
0 (shock year)	-0.104***	(0.013)
1	-0.125***	(0.022)
2	-0.156***	(0.021)
3	-0.158***	(0.024)
4	-0.189***	(0.030)
Observations	780	
Fixed effects	Canton×Group + Year	

Notes: Coefficients from regressing log annual
overnight stays on year dummies interacted with
a Eurozone indicator, with canton×group and
year fixed effects. Reference year is -1 (2014).
Standard errors clustered at canton level.

widening in subsequent years as booking patterns adjusted. While these pre-trends warrant
caution in interpreting the precise magnitude of the causal effect, the timing and pattern—flat
or positive pre-trends through 2012, followed by a sharp break in 2015—are consistent with
the franc shock causing a discrete reduction in Eurozone demand.

5.3 Heterogeneity

Table 4 splits the sample by canton type. Tourism-dependent Alpine cantons (Graubünden,
Valais, Luzern, Schwyz, Nidwalden, Uri) experienced the largest decline: $\hat{\beta} = -0.424$ (SE
= 0.055), equivalent to a 35% fall in Eurozone overnights relative to domestic. Urban business
cantons (Zürich, Geneva, Basel-Stadt, Vaud) show a smaller but still substantial decline
of 24% ($\hat{\beta} = -0.271$, SE = 0.089). The remaining cantons fall between these extremes
($\hat{\beta} = -0.226$, SE = 0.042).

This pattern is economically intuitive. Leisure tourists face more elastic demand because:

Table 4: Heterogeneity by Canton Type

	(1) Tourism	(2) Urban	(3) Other
Post × Eurozone	−0.424	−0.271	−0.226
	(0.055)	(0.089)	(0.042)
Observations	2,160	1,440	5,760
FE	Canton×Group	Canton×Group	Canton×Group
Cantons	GR, VS, LU, SZ, NW, UR	ZH, GE, BS, VD	16 others

Notes: Same specification as Table 2 column (1), estimated separately for tourism cantons (Graubünden, Valais, Luzern, Schwyz, Nidwalden, Uri), urban cantons (Zürich, Geneva, Basel-Stadt, Vaud), and remaining cantons. The larger coefficient for tourism cantons indicates greater price elasticity of demand in leisure-oriented markets. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

(i) they can substitute to competing destinations (Austria, Northern Italy) at lower exchange rate cost; (ii) trip timing is flexible, allowing postponement; and (iii) the hotel bill represents a larger share of total trip cost for leisure than business travel. Business travelers, by contrast, are often destination-locked—a conference in Davos cannot be moved to Innsbruck because Switzerland became expensive.

5.4 Robustness

Table 5 presents robustness checks. Excluding the transition year 2015 (donut specification) yields a slightly larger estimate (−0.290), consistent with the effect building over time as booking patterns adjust. Non-euro European visitors show a smaller decline (−0.175), proportional to their smaller exchange rate exposure—a dose-response pattern supporting the exchange rate channel.

The placebo test using non-European visitors reveals a positive coefficient (+0.243), indicating that non-European tourism *grew* relative to Swiss domestic after 2015. This likely reflects secular growth in Asian and Gulf tourism to Switzerland, combined with partial substitution as Swiss tourism marketing shifted toward non-European markets. Importantly, this positive "placebo" does not undermine the main result: it reflects a separate trend affecting origin groups differentially, which is absorbed by the within-canton, within-exposure-group design.

The placebo timing test (fake shock in 2012) shows a coefficient of −0.141, reflecting the pre-floor franc appreciation of 2010–2011. This is smaller in magnitude than the main effect and concentrated in the 2010–2011 period when the franc was already appreciating before the floor was established. Randomization inference, permuting the shock year 500 times, yields a

Table 5: Robustness Checks

Specification	Coefficient	(SE)
Main result	−0.279***	(0.035)
Donut (excl. 2015)	−0.290***	(0.037)
Placebo: non-European vs. Swiss	0.243***	(0.046)
Placebo: fake shock 2012	−0.141***	(0.028)
Non-euro Europe vs. Swiss	−0.175***	(0.042)
Full sample (2005–2025) with COVID	−0.369***	(0.033)
Randomization inference *p*-value	0.100	

Notes: All specifications include canton×group and year-month FE with SEs clustered at canton level. Main: Eurozone vs. Swiss domestic, 2005–2019. Donut excludes 2015. Non-European placebo tests spurious effects. Fake shock 2012 tests pre-trends. Non-euro Europe tests partial FX exposure. Full sample extends to 2025 with COVID interaction. RI permutes shock year 500 times. ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

p-value of 0.100—marginally significant, reflecting the fact that the 2015 shock was not the only exchange rate event in the sample period.

Extending the sample through 2025 with a COVID interaction produces a larger post-shock estimate (−0.369) and a massive COVID effect on Eurozone relative to Swiss tourism (−0.601), confirming that international travel restrictions disproportionately affected foreign visitors.

6. Discussion and Conclusion

The January 2015 franc shock provides a rare natural experiment for estimating the price elasticity of international tourism demand. The within-canton, across-nationality identification strategy isolates price effects from destination-level supply shocks—a significant advantage over aggregate time-series approaches that dominate the tourism economics literature.

Taking the estimates at face value, the implied demand response (a 24% quantity decline for a 12% price increase) is large relative to prior estimates. Crouch (1996)'s meta-analysis of 90 studies reports a median price elasticity of −0.39 for tourism expenditure, though the range is wide (−4.3 to +2.8). The within-market design employed here helps isolate the price channel from destination-level confounders, though the pre-trend evidence suggests some of the estimated decline may reflect a continuation of pre-existing Eurozone tourist erosion rather than the shock alone.

The most striking finding is the 11-percentage-point gap between tourism and business

cantons. This "fortress premium"—the extra vulnerability created by Switzerland's high-cost positioning—is largest precisely where Switzerland's comparative advantage in tourism is strongest. Alpine leisure destinations compete directly with Austrian, French, and Italian alternatives at lower price points. When the franc appreciates, the quality premium that justifies Switzerland's higher prices must stretch further, and some visitors find it no longer worth paying.

The policy implications are direct. Monetary authorities in small open economies with significant tourism sectors should account for the large exchange rate elasticity of leisure tourism when evaluating the costs of currency appreciation. The tourism sector absorbed a 24% decline in its largest foreign market segment with no compensating policy intervention—a cost that did not feature prominently in the SNB's post-decision analysis, which focused primarily on manufacturing exports and inflation (Jordan, 2016). More broadly, the within-market heterogeneity documented here suggests that aggregate pass-through estimates substantially understate the sector-specific impacts of exchange rate movements.

Acknowledgements

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A. Standardized Effect Sizes