When Neighbors Stop Knocking: The Impact of Canada's 2025 Tourism Decline on U.S. Local Labor Markets*

André Kurmann[†]
Drexel University

Etienne Lalé[‡]
York University
CIRANO and IZA

Julien Martin[§]
Université du Québec à Montréal
CEPR and CIRANO

Abstract

We provide the first systematic evidence on the labor market consequences of the 25% decline in Canadian visits to the United States in 2025. We combine smartphone foot-traffic data measuring Canadian visitor presence at the ZIP code × industry level with real-time establishment-level employment records. Using a difference-in-differences design, we find that establishments in highly exposed markets experienced employment declines of about 6%, implying a loss of 13,900 to 42,100 jobs. These effects are spatially concentrated and should be interpreted as lower bounds, as our analysis focuses on small and medium establishments and abstracts from spillover effects.

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[†]Address: Drexel University, LeBow College of Business, School of Economics, 3220 Market Street, Philadelphia, PA 19104 – Email: kurmann.andre@drexel.edu.

[‡]Address: Department of Economics, York University, 4700 Keele Street, Toronto (ON) M3J 1P3, Canada – Email: elale@yorku.ca.

[§]Address: Department of Economics, Université du Québec à Montréal, C.P. 8888, Succ. centre ville, Montréal, QC H3C 3P8, Canada – Email: martin.julien@uqam.ca.

1 Introduction

A distinctive feature of the ongoing geopolitical tensions between the United States and Canada is that, beyond disrupting goods trade and supply chains, they have also caused a sharp decline in Canadian residents' visits to the U.S., about 25% lower in 2025 than in 2023-2024 (Figure 1).[1] This represents a sizable shock for the U.S. tourism industry, as Canada accounts for almost a third of all international visits and roughly 10% of visitor spending. And while tourism makes up about 3% of overall U.S. GDP, it is highly geographically concentrated, which may imply meaningful local effects.[2] In this paper, we provide the first systematic evidence on how this shock affected U.S. local labor markets.

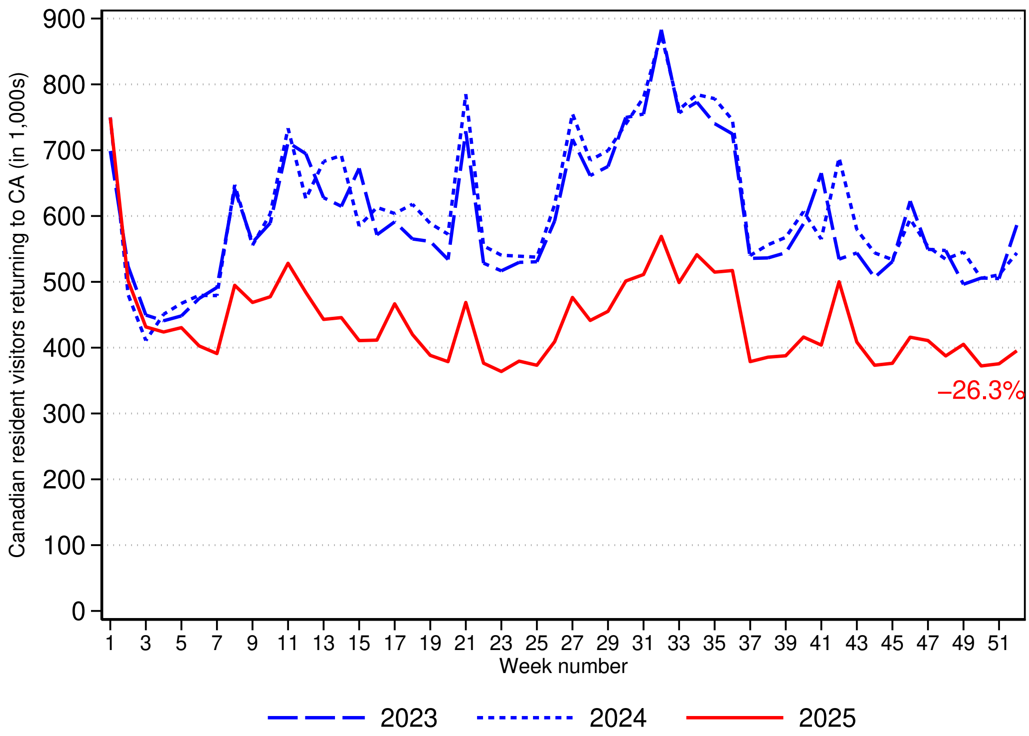


Figure 1: Canadian resident visitors to the United States

NOTES: The figure shows the number of Canadian resident visitors returning to Canada from the United States in each week of 2023, 2024, and 2025. Figures are in thousands of visitors. The percentage figure represents the change in 2025 relative to the average of 2023 and 2024. Source: Statistics Canada, Frontier Counts.

Measuring the economic impact of this shock poses several empirical challenges. First, the effects are highly localized: international visitors concentrate in specific destinations and

[1]In contrast, entries to the U.S. from non-Canadian visitors have remained stable in 2025 relative to 2024 (see Supplemental Appendix B.1).

[2]See U.S. Department of Commerce, International Trade Administration, National Travel and Tourism Office [2026]. There were 72 million international visitors to the U.S. in 2024 (20 million from Canada) with total spending of $256 billion U.S. dollars. The U.S. tourism industry accounted for 10 million jobs in 2024; and travel and tourism exports represented 22% of all U.S. service exports.

consume specific services, requiring granular measures of geographic and sectoral exposure to Canadian visitors. Second, the shock is recent and ongoing, necessitating timely, high-frequency data on economic outcomes. Third, the decline in Canadian visits likely affects consumer-facing services such as restaurants, hotels, entertainment venues, and retail, rather than the broader economy, making sector-specific outcome data essential.

The first contribution of this paper is to combine two novel datasets that together provide unprecedented granularity in measuring both the exposure to the shock and its consequences on labor outcomes. To measure the presence of Canadian visitors, we exploit a distinctive feature of the Canada-U.S. case: the two countries share a relatively integrated mobile device ecosystem, enabling foot-traffic data from Advan Research to trace mobile devices to home country locations.[3] This allows us to construct a measure of exposure to Canadian visitors at the ZIP code level and 6-digit NAICS level. These data are combined with high-frequency establishment-level employment, hours worked, and wage data from Homebase, a scheduling and payroll-reporting software used by over 150,000 mostly small businesses in the United States, primarily in service sectors. The Homebase data allow us to observe labor market outcomes at a highly granular level and with minimal reporting lag.

The second contribution is to assess, for the first time, the impact of the drop in Canadian visits to the U.S. on local labor markets. Our empirical strategy exploits the heterogeneity in exposure of U.S. establishments to Canadian tourists to identify the causal impact of the tourism decline. We define exposure at the ZIP code $\times$ industry level based on the share of foot traffic attributable to Canadian visitors in 2024, before the escalation of tensions between the two countries. We then estimate difference-in-differences specifications comparing employment outcomes of establishments in highly exposed markets to outcomes of establishments in less exposed markets before and after January 2025. This approach allows us to control for confounding factors through a rich set of fixed effects: establishment fixed effects absorb time-invariant establishment characteristics; ZIP code $\times$ time fixed effects control for local economic conditions and shocks; and industry $\times$ time fixed effects account for sector-specific shocks.

One potential concern with our empirical approach is that the decline in Canadian visitors may have coincided with a broader decline in international tourism, which would make it hard to interpret the results. As shown in Supplemental Appendix B.1, visitor arrivals to the United States from overseas and Mexico remained broadly stable in 2025 compared with 2024, increasing by about 1%. The shock has thus been specific to Canadian visitors.

[3]While Advan can assign home locations to mobile devices in the U.S. and Canada, it cannot do so for other countries due to less extensive network integration.

Our main result is that the top 1% local × industry markets exposed to Canadian visitors experienced significant employment declines relative to other markets. On average, exposed establishments in our sample reduced employment by 0.6 jobs by mid-2025 relative to less exposed establishments. This effect, which persists through the end of 2025, represents approximately 6% of their workforce. We also find that the weekly hours worked per employee and hourly wages were not significantly impacted, suggesting substantial rigidity at the intensive margin and wage setting.

The estimates are robust and if anything larger when we allow for varying exposure thresholds or when we restrict the analysis to U.S. states bordering Canada. This last result is particularly informative because in border states, most international visitors are Canadian, confirming that our results reflect the decline in Canadian visitors specifically rather than a broader downturn in international tourism.

The aggregate employment impact implied by our estimates ranges from 13,900 to 42,100 fewer workers employed depending on the specification. While modest relative to the roughly 17 million workers employed at small retail and leisure & hospitality establishments nationwide, these effects are extremely concentrated. For our baseline specification that treats the top 1% markets by Canadian visitor share as exposed, the affected markets comprise only 1,505 ZIP codes with a combined population of 9 million residents. There, the estimated job losses represent a 6% contraction in local service-sector employment at small establishments and a 0.5% decline in overall private-sector employment – sizable effects, especially if they persist as our estimates suggest.

These numbers are likely conservative estimates for two reasons. First, the establishments covered in our Homebase sample are disproportionally small. If hotels, entertainment venues and other larger businesses are also affected, the direct negative employment effects in retail and leisure & hospitality are larger. Second, our analysis abstracts from negative demand spillover effects on other sectors that, according to recent research, may be substantial [Faber and Gaubert, 2019, Allen et al., 2020, Hidalgo, 2024].

Related literature. Our paper is related to several strands of the literature. A series of papers examines the economic impacts of consumers' reactions to political conflicts [Chavis and Leslie, 2009, Michaels and Zhi, 2010, Clerides et al., 2015, Heilmann, 2016]. Whereas these papers focus on imports of *consumer goods*, we examine changes in *exported services* to foreign visitors. In this respect, our paper is close to Ahn et al. [2022] and Greaney and Kiyota [2025], who study the impact on exports of accommodation services of the boycott of Japan by Korean and Chinese tourists, respectively.

Similarly, the paper contributes to the literature on the economic consequences of trade tensions [see, e.g., Fajgelbaum and Khandelwal, 2022] and on the recent changes in U.S. government trade policy [Ignatenko et al., 2025, Rodríguez-Clare et al., 2025]. We show that such tensions may have unintended consequences for "non-tradable sectors" through the behavioral responses of foreign visitors.

Our work also relates to a growing literature on the local effects of tourism [Faber and Gaubert, 2019, Allen et al., 2020, Hidalgo, 2024, Almagro and Dominguez-Iino, 2025]. Existing work focuses predominantly on the effects of tourism *expansions*. We instead provide causal evidence on the *reverse* channel: the employment consequences of an abrupt decline in foreign tourism, where adjustment need not be symmetric.

Finally, our paper contributes to a growing literature exploiting smartphone data to measure otherwise difficult-to-observe economic phenomena [Couture et al., 2021, Atkin et al., 2024, Lafrogne-Joussier and Rollet, 2024, Miyauchi et al., 2025]. Smartphone foot-traffic data can identify the origin of visitors to specific locations – a capability that, combined with real-time employment data, enables rapid assessment of how shocks to international visitor flows propagate to local labor markets. This addresses a long-standing challenge: traditional data sources either lack geographic granularity (national visitor surveys), timeliness (administrative records), or the ability to link visitors to specific businesses and sectors. Hence, our methodology can serve as a template for future research on tourism disruptions.[4]

2 Data and measurement

2.1 Advan Research foot traffic data

Advan Research provides foot traffic data covering more than 8 million points of interest (POIs) across the United States. A POI is defined as any location where individuals can spend time or money, including retail stores, restaurants, hotels, entertainment venues, and service establishments. Each POI is geolocated and assigned a 6-digit North American Industry Classification System (NAICS) code indicating its primary business activity.

The data derive from a panel of approximately 45 million U.S. devices and 20 million international devices. Because many Canadians use U.S.-based mobile carriers or have roaming agreements that allow their devices to be tracked in the U.S., and because U.S. and Canadian

[4]See Ahas et al. [2021] or Nyns and Schmitz [2022] for papers using smartphone data to measure international tourism flows.

wireless networks are highly interoperable, Advan can identify devices with home locations in Canada that visit POIs in the U.S.[5] This allows us to construct geographically precise measures of Canadian tourist activity at specific U.S. locations – a level of detail unavailable from traditional sources such as border crossing statistics or survey data.

We aggregate the Advan POI visitor counts to the ZIP-5 geographic × NAICS-6 industry level. As discussed in Sections 3 and 4, this geographic and industry granularity is crucial for our identification strategy and results.

2.2 Homebase data on labor outcomes

Homebase is an online scheduling and payroll software platform used by over 150,000 predominantly small establishments in the U.S. (typically fewer than 50 employees) to manage employee schedules and process payroll. Kurmann et al. [2025] conduct a comprehensive analysis of the Homebase data and find it to be highly representative for studying employment dynamics of small businesses and in-person service sectors more generally. In the Supplemental Appendix, we provide extensive statistics similar to those in Kurmann et al. [2025] regarding the representativeness of our sample.

The Homebase data contain daily employee-level records of hours worked and hourly wage rates, linked longitudinally to the establishments where the employees work. Each establishment comes with detailed geographic location and NAICS-6 industry classification. The data are recorded in real-time as employees clock in and out, providing observation of employment outcomes with minimal measurement error, and are made available for research purposes within a few days.

The combination of quality, representativeness, geographic × industry detail, and timeliness represents an important advantage of the Homebase data for analyzing the 2025 Canadian tourism decline. In particular, while administrative government statistics provide broader coverage, they are published by geography × industry only with a lag ranging from several quarters to several years, and the geographic granularity we require is typically not publicly available.

We focus on establishments in seven industries that are likely among the most affected by tourism, aggregated to maintain reasonable sample sizes (see the Supplemental Appendix):

- Retail trade, excluding food and beverage stores (NAICS 44, excluding 445)
- Food and beverage stores (NAICS 445)

[5]A "home location" is where the device typically spends nighttime hours. Advan identifies a home location for approximately 80% of devices in the panel. Note that while Advan can assign home locations throughout the U.S. and Canada, it does not do so for other countries due to less extensive network integration.

- Leisure and hospitality, excluding restaurants and bars (NAICS 71-72, excluding 722)
- Drinking places serving alcoholic beverages (NAICS 722410)
- Full-service restaurants (NAICS 722511)
- Limited-service restaurants (NAICS 722513)
- Snack and nonalcoholic beverage bars (NAICS 722515)

For our analysis, we aggregate the employee-day observations to the establishment-week level, constructing three main outcome variables: (1) the number of employees working at the establishment during the week, (2) the average hours worked per employee during the week, and (3) the average hourly wage. The resulting dataset is an establishment-week panel spanning January 2023 through December 2025.

Table B3 in Supplemental Appendix presents summary statistics for the three outcome variables. In 2024, the average establishment in the sample employed 9.1 workers per week who worked an average of 24.1 hours per week and earned an average wage of $14.6 per hour. These statistics reflect typical service-sector employment patterns, characterized by part-time scheduling and modest hourly wages.[6]

2.3 Measuring exposure to Canadian visitors

Our measure of exposure to Canadian visitors is constructed using the Advan data. For each ZIP code z and industry s, we calculate the share of visits to POIs in that market attributable to Canadian visitors during 2024 (the pre-decline period) as:

$$\text{Share}_{s,z} = \frac{1}{52} \sum_{t \in 2024} \frac{\text{visitors(CA)}_{s,z,t}}{\text{visitors(CA)}_{s,z,t} + \text{visitors(US)}_{s,z,t}} \tag{1}$$

where s, z, t index industries, ZIP codes, and weeks, and visitors(CA) and visitors(US) denote the counts of Canadian and U.S. visitors, respectively. Hence, $\text{Share}_{s,z}$ captures the typical intensity of Canadian visitor presence in each market prior to the tourism decline. Note that visitors(US) includes local residents, since the data does not distinguish between local foot traffic and out-of-area visitors for U.S. devices – Canadian visitors, by definition, are always out-of-area.

[6]Because the staffing structure relies heavily on part-time workers whose schedules rarely overlap, weekly employment counts are lower than they would be when measured over longer periods such as biweekly or monthly intervals.

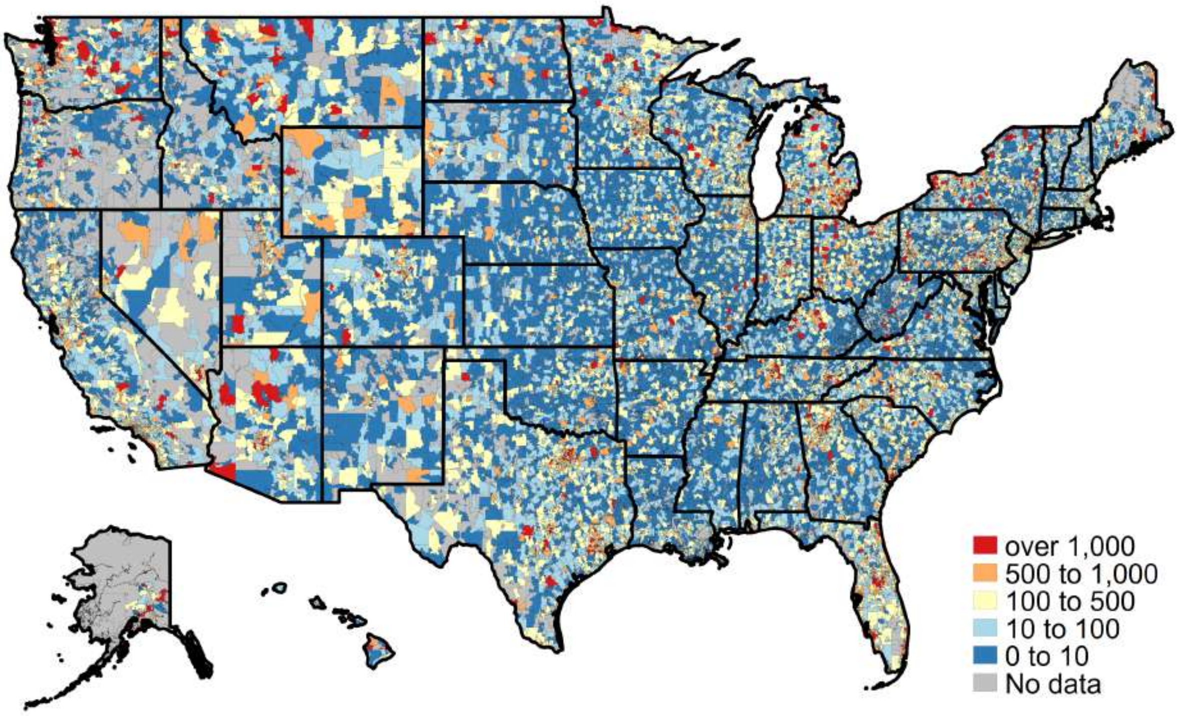
Figure 2 displays the geographic distribution of Canadian visitors across the United States by ZIP code in 2024 to POIs in retail and leisure & hospitality (the establishments covered by our Homebase sample). Panel (a) shows Canadian visitor counts are concentrated in major tourist destinations (Las Vegas, Orlando, and Miami), border regions (Washington State through Maine), and selected metropolitan areas (New York, Los Angeles, and San Francisco), while also revealing widespread presence throughout the country. Panel (b) shows the share of Canadian visitors, our exposure measure, aggregated across industries. This measure highlights the particular importance of Canadian tourism for border communities. Locations within driving distance of Canadian population centers have Canadian visitor shares exceeding 5%, and in some cases exceeding 10%.

Table B1 in the Supplemental Appendix provides additional detail on the most visited destinations by Canadian visitors, emphasizing the role of industries for the dispersion of our exposure variable. Several patterns emerge. First, theme parks in Florida (Disney World, Universal Orlando) and California (Disneyland) attract a substantial share of Canadian visitors in the amusement and theme park category. Second, border tourist destinations such as Bellingham, WA and Niagara Falls, NY show high Canadian visitor shares despite modest absolute visitor count. Third, full-service restaurants in Manhattan and Miami Beach attract significant Canadian traffic. Fourth, Las Vegas features across multiple categories, reflecting its status as a major destination for Canadian leisure travelers.

These cases are reassuring and suggest that our foot-traffic data provide accurate information on the geographic distribution of Canadian visitors. As an additional check, we estimate a regression in which the share of Canadian visitors in a ZIP code $\times$ industry cell is explained by gravity variables, controlling for industry fixed effects. The results, presented in Table B2 in the Supplemental Appendix, show that Canadian visits are governed by gravity forces: the number of Canadian visitors declines with distance from Canadian metropolitan areas and increases with local touristic amenities, such as natural appeal (based on climate and landscape characteristics) and cultural and recreational activities (e.g., museums and amusement parks).

The concentration of Canadian tourism in a relatively small number of locations is evident in the distribution of our exposure measure. Supplemental Appendix Figure B3 plots the exposure measure across all ZIP code $\times$ industry pairs in our sample. The vast majority of markets have exposure measures very close to zero. However, there is a long right tail, with approximately 1% of markets having Canadian visitor shares exceeding 1%, and a handful of markets with shares exceeding 5%. Given this, our baseline empirical specification relies on a binary treatment of exposure, defining an establishment as “highly exposed” if it is located

(a) Average weekly visitors from Canada



(b) Canadian Share of Combined U.S. and Canadian Visitors

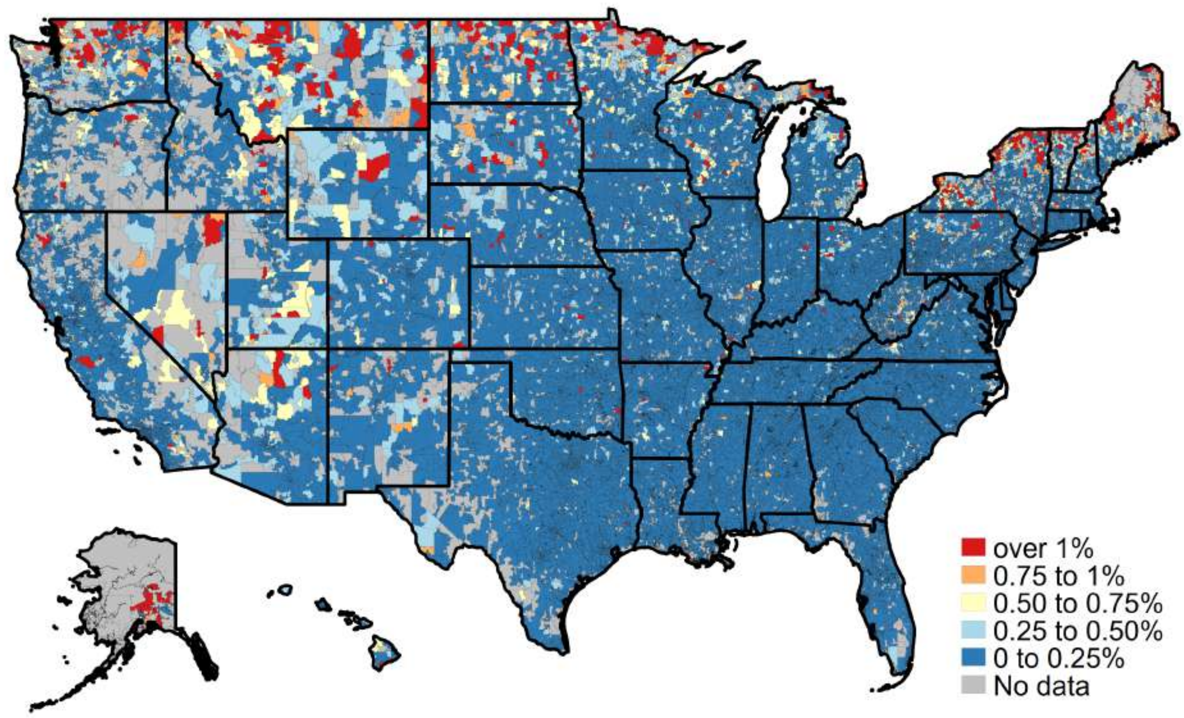


Figure 2: Exposure to Canadian tourism

NOTES: The figure shows the average weekly number of Canadian visitors (Panel (a)) and the Canadian visitor share relative to combined Canadian and U.S. visitors (Panel (b)) across ZIP codes in 2024, for Retail Trade and Leisure and Hospitality. Source: Authors' calculations using Advan Data.

in a ZIP × industry market in the top 1% of the distribution, corresponding to a Canadian visitor share of approximately 1% or higher. We then assess the robustness of our results to alternative definitions of high exposure.

2.4 Final sample and descriptive statistics

Our final dataset merges the Homebase establishments to the Advan exposure measure by ZIP code and industry. This yields approximately 105,000 establishments observed weekly before and after January 2025, for a total of approximately 12.3 million establishment-week observations. [7]

The establishments in our sample are geographically dispersed across the United States, though with higher representation in populous states and urban areas. Approximately one third of observations are in retail trade, with the remaining two thirds in leisure & hospitality.

An important question is whether businesses in more exposed markets differ systematically from those in less exposed markets. In our empirical specifications, we address this through establishment fixed effects, which absorb all time-invariant differences between businesses. However, it is informative to examine descriptive statistics. Comparing businesses located in markets in the top quartile of the exposure variable ($\text{Share}_{s,z}$) to those in markets from the bottom quartile, we find that the former are slightly larger on average (9.7 weekly employees versus 9.4), with slightly more hours per worker (24.0 weekly hours vs. 23.8 hours) and pay slightly higher wages ($15.8 versus $13.5 per hour), but these differences are modest. Moreover, pre-2025 trends in employment appear parallel across exposure groups, supporting our identification strategy (we formally test this in Section 4).

3 Empirical strategy

Our baseline is a difference-in-differences specification estimated at the establishment-week level:

$$y_{j,s,z,t} = \beta \text{Expo}_{s,z} \times \text{Post}_t + \gamma_j + \delta_{s,t} + \theta_{z,t} + \varepsilon_{j,s,z,t}, \tag{2}$$

where $y_{j,s,z,t}$ is an outcome variable (weekly employment, average hours per employee, or hourly wage) for business j in industry s, ZIP code z, and week t; $\text{Expo}_{s,z}$ is a dummy equal to 1 if business j is located in a local-industry market (s, z) with Canadian visitor share $\text{Share}_{s,z}$ in

[7] This is an unbalanced panel, as establishments enter and exit the Homebase sample at different times. Some establishments appear in 2024 but not throughout the entire year, while others are present in 2025 but exit before year-end.

the top 1%; and Post_t is an indicator equal to one for weeks in 2025 and zero for weeks in 2023-2024. The coefficient of interest, β, captures the differential change in outcomes for businesses in highly exposed local-industry markets relative to less exposed markets after January 2025. A negative value indicates that exposed businesses experienced worse outcomes following the tourism decline.

The estimate of β in (2) represents the average treatment effect across all of 2025. To examine how the effects vary over time and to test for pre-trends, we also consider the following event-study specification:

$$y_{j,s,z,t} = \text{Expo}_{s,z} \times \sum_{\tau} \beta_\tau \mathbb{1}_{\tau=t} + \gamma_j + \delta_{s,t} + \theta_{z,t} + \varepsilon_{j,s,z,t}, \tag{3}$$

where the β_τ represent the average treatment effect for month τ.[8] This specification is particularly relevant for stock variables such as employment for which the effects may materialize only with a delay.

Both the baseline and the event-study specification include three sets of controls for potential confounding factors: (i) establishment fixed effects γ_j that absorb time-invariant establishment characteristics, including baseline size, productivity, and other business attributes (e.g., location or product differentiation); (ii) industry × week fixed effects $\delta_{s,t}$ that account for differences in trends and shocks that affect all establishments in an industry equally (e.g., changes in consumer preferences, input prices, or regulation)[9]; (iii) ZIP code × week fixed effects $\theta_{z,t}$ that difference out changes in economic conditions affecting all establishments in the same ZIP code equally (e.g., local policy shocks, large events, or weather shocks).

The key identifying assumption is that – conditional on these fixed effects – establishments in highly exposed local-industry markets would have experienced similar outcomes in 2025 as establishments in less exposed markets in the absence of the decline in Canadian visits. This parallel trends assumption allows us to interpret β, respectively the β_τ, as the causal effect of the Canadian visitor shock rather than as reflecting pre-existing differential trends or other confounding factors. We test this assumption in Section 4.2 with the event-study specification.

Before continuing, it is worth highlighting three features of our baseline specification that likely result in the estimates to be a lower bound of the overall labor market impact of the Canadian visitor shock. First, our baseline specification compares outcomes in the top 1% of

[8]We estimate the average treatment effects at the monthly frequency to reduce uncertainty. Specifically, $\mathbb{1}_{\tau=t}$ equals one for all weeks t belonging to the same month τ, but the equation is estimated with weekly data so that as in the difference-in-differences baseline, the fixed effects vary at the weekly frequency.

[9]For instance, results in Goolsbee et al. [2025] suggest that online delivery apps boosted productivity in food services. Such industry-specific changes are captured by $\delta_{s,t}$.

exposed local-industry markets to outcomes in all other markets. Our estimates therefore only measure the *differential* effects of the decline in Canadian visitors between the top 1% and these other markets.

Second, while the inclusion of ZIP code × week fixed effects absorbs any shocks common to all establishments in the same ZIP code, our estimates abstract from demand spillover effects to non-exposed establishments in the same location. If these spillovers are negative — as recent studies suggest (e.g., Faber and Gaubert 2019; Allen et al. 2020; Hidalgo 2024) — our estimates represent conservative estimates.

Third, when establishments exit the sample, we cannot distinguish true business closures from businesses that continue operating without using the Homebase service. We effectively deal with this sample churn issue by estimating (2) at the establishment level instead of local-industry aggregate level and coding post-exit employment of establishments that do not reappear by the end of the estimation period as missing instead of zero.[10] This means that permanent exits do not contribute to measured employment declines (as they implicitly would if we aggregated outcomes at the local-industry level), which is a conservative approach: if the shock increases closure rates in exposed local-industry markets, then these effects are not captured in our estimates.

We return to discussing these features at the end of Section 4 when we consider various robustness extensions.

4 Results

4.1 Difference-in-difference estimates

Table 1 presents the baseline difference-in-differences estimates for employment (Panel A); average weekly hours worked per employee (Panel B); and average hourly wages (Panel C). Each panel reports results for different samples (full sample, counties that contain at least one high exposure market, states bordering Canadian) and for both OLS and Poisson Pseudo-Maximum Likelihood (PPML) as originally popularized in international trade by Santos Silva and Tenreyro [2006].[11] The main results are presented in columns (1) and (2).

[10] Establishments that exit but reappear before the end of the sample are treated as temporarily closed and their employment is set to zero during the out-of-sample weeks. See Kurmann et al. [2025] for details on the issue of sample churn and the treatment of temporarily closed establishments.

[11] PPML estimates the conditional expectation of the outcome as an exponential function of explanatory variables: $\mathrm{E}[y_i|X_i] = \exp(X_i\beta)$, so the coefficients β have a semi-elasticity interpretation. Unlike log-linear OLS, PPML is consistent under heteroskedasticity and accommodates zero values in the outcome, a useful feature since temporarily closed establishments have zero employment in our data.

Table 1: Impact of decline in Canadian visitors on U.S. local labor market outcomes

	Full sample		High exposure counties		CAN border states	
	OLS	PPML	OLS	PPML	OLS	PPML
	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A: Employment			
Expo × Post	−0.391***	−0.028**	−0.415***	−0.030**	−0.571***	−0.046***
	(0.148)	(0.014)	(0.148)	(0.014)	(0.171)	(0.016)
Observations	11,756,536	11,748,046	3,107,749	3,105,287	1,660,447	1,656,666
			Panel B: Hours per worker			
Expo × Post	−0.315*	−0.013*	−0.339*	−0.015*	−0.241	−0.010
	(0.185)	(0.007)	(0.184)	(0.008)	(0.200)	(0.008)
Observations	11,101,885	11,101,885	2,947,149	2,947,149	1,542,568	1,542,568
			Panel C: Hourly Wage			
Expo × Post	0.035	0.001	0.035	0.001	−0.009	−0.000
	(0.097)	(0.005)	(0.095)	(0.005)	(0.114)	(0.006)
Observations	5,918,474	5,918,474	1,604,427	1,604,427	791,599	791,599
Establishment FE	Yes	Yes	Yes	Yes	Yes	Yes
ZIP code × Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry × Time FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The table reports difference-in-differences estimates of the impact of the decline in Canadian visitors on local business outcomes. The dependent variables are the number of employees (Panel A), hours worked per employee (Panel B), and hourly wage (Panel C) measured at a weekly frequency. Expo is a dummy variable equal to 1 if the business is located in a ZIP code × industry pair with Canadian visitor share in the top 1%. Post is a dummy equal to 1 for weeks after January 2025. Uneven columns report OLS regressions. Even columns report Poisson pseudo-maximum likelihood (PPML) estimates. Estimation are performed on the full sample in columns (1) and (2), on the sample of counties where at least one market is exposed to Canadian visitors in columns (3) and (4), and on the sample of states bordering Canada. All specifications include establishment, ZIP code × time, and industry × time fixed effects. Standard errors (in parentheses) are clustered at ZIP code × industry level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. Source: Authors' calculations based on Advan and Homebase data.

Panel A shows consistent evidence of negative employment effects in establishments highly exposed to Canadian visitors. The OLS estimate in column (1) indicates that highly exposed establishments employed 0.39 fewer workers relative to less exposed establishments after January 2025, and the PPML estimate of −0.028 in column (2) indicates that highly exposed establishments experienced a 2.8% decline in employment relative to less exposed establishments. Given that the average establishment employs about nine workers (Table B3 in Supplemental Appendix), the 2.8% decline equals roughly 0.25 workers – somewhat smaller than the OLS estimate of 0.39, but in the same ballpark.[12]

As noted in Section 3, these estimates represent the average treatment effect over all of

[12]The difference could reflect heterogeneity: if larger establishments react more strongly (e.g., because employment is indivisible), then OLS (which weights all establishments equally in levels) will show larger effects than PPML (which effectively estimates proportional effects).

2025. If the shock occurred later or if employment adjusts only gradually, then the full effect may be larger. We return to this point in Section 4.2.

In columns (3) and (4), we restrict the sample to local-industry markets within counties where at least one market is highly exposed to Canadian visitors. This restriction reduces the number of observations but does not affect the main findings. Columns (5) and (6), in turn, report the estimates for the sample of markets in states that share a border with Canada. We thus abstract from popular global tourism destinations such as California, Florida, or Nevada, and instead focus on places where international visitors are mainly from Canada. The estimates are stronger for this sample, suggesting that our baseline results pick up the decline in Canadian visitors and not an overall decline in touristic areas in the U.S.

Panel B examines the effect on average weekly hours per worker.[13] We find a small reduction of about 20 minutes (1 to 1.5 percent) in average weekly hours at highly exposed establishments, although these estimates are surrounded by considerable uncertainty. Establishments thus responded to the reduction in Canadian visitors primarily by reducing employment rather than by cutting average hours per worker. This finding is consistent with evidence from other shocks affecting service-industry establishments (e.g., Kurmann et al. 2025, Goolsbee et al. 2025).

Panel C presents results for hourly wages.[14] We find no systematic effects, which could reflect compositional effects (if the employment reduction primarily affects lower-wage workers) but is also consistent with short-term wage rigidity, and rules out a labor supply explanation for the employment decline.

4.2 Event-study estimates

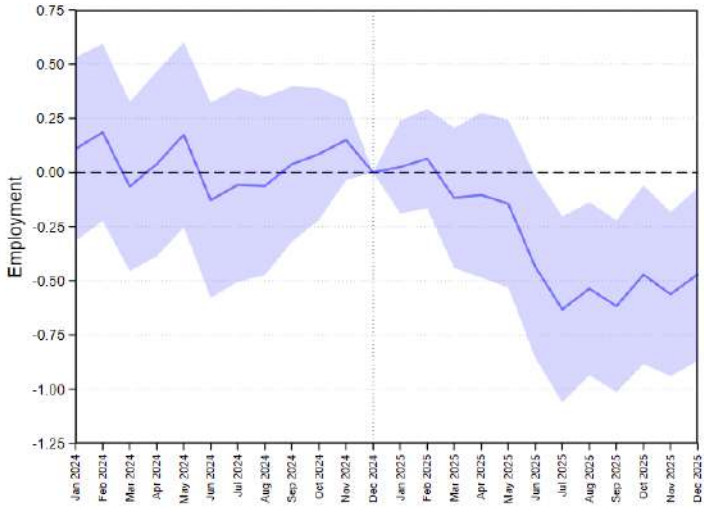
Figure 3 reports the event-study estimates for employment (top row), average weekly hours per worker (middle row), and hourly wages (bottom row). The estimates are very similar for OLS and PPML in both timing and implied magnitudes (see Figure B4 in Supplemental Appendix). We therefore only report the OLS estimates.

The event-study results confirm the difference-in-difference estimates in Table 1: employment of establishments in highly exposed markets is more negatively affected than employment in less exposed markets while hours per worker and hourly wages are not significantly affected. Reassuringly, there are no obvious employment pre-trends before 2025, suggesting that, condi-

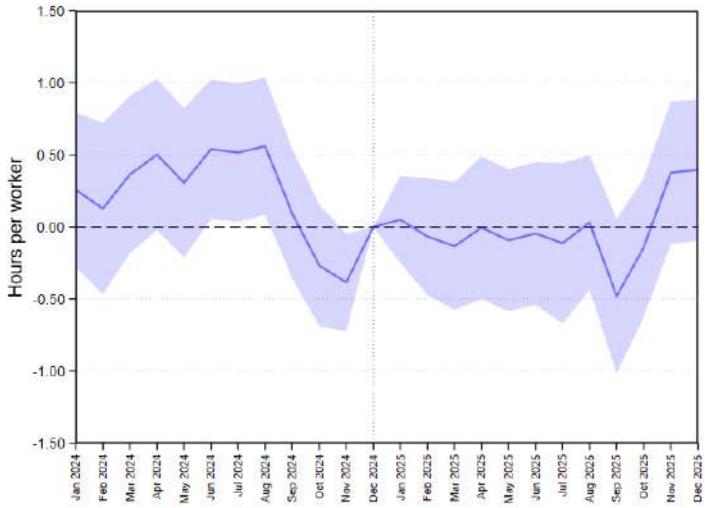
[13] The number of observations is lower than in Panel A because hours per worker is undefined for temporarily closed establishments with zero employment.

[14] Panel C has fewer observations than Panels A and B for two reasons: wages are undefined for temporarily closed establishment with zero employment, and only approximately 60% of establishments use Homebase for payroll processing.

(a) Employment (OLS)



(b) Hours per worker (OLS)



(c) Hourly wage (OLS)

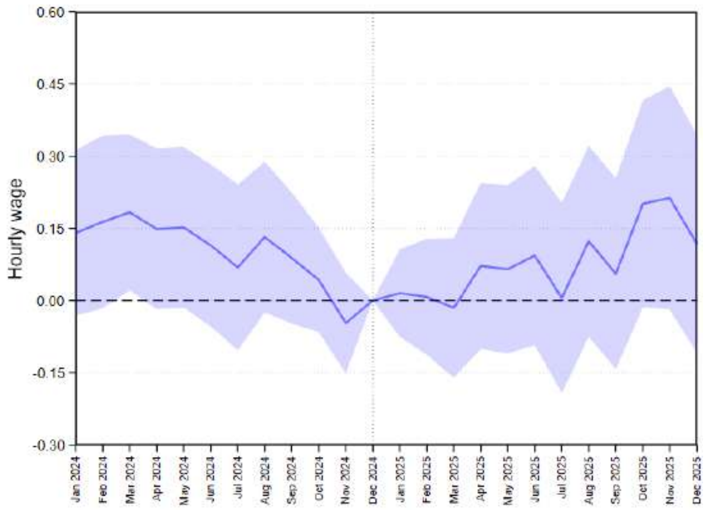


Figure 3: Canadian tourism decline and U.S. local business outcomes: Event-study

NOTES: The figure shows the (OLS) event-study estimates of the effects of Canadian visits on weekly employment (top row), average hours per worker (middle row) and hourly wages (bottom row). The left figures present the estimates of the OLS specification. 90% confidence intervals are in blue. Source: Authors' calculations based on Advan and Homebase data.

tional on the set of fixed effects, establishments in highly exposed local-industry markets and establishments in the other markets are similar pre-2025.

Importantly, however, the event-study estimates reveal that the negative employment effects begin to emerge in March-April, peak in July, and then persist through the end of the year. These dynamics, which are consistent with the gradual decline in Canadian visits in 2025 relative to 2023-2024 in Figure 1, suggest that Canadians took some time to adjust their travel plans. Once their U.S. visits declined noticeably, however, employment in highly exposed markets adjusted quickly.

Given the delayed employment effects, we estimate a variant of the difference-in-differences specification in (2) with $\text{Post}_t = 1$ for June–December 2025. For the full sample, the OLS estimate is -0.569, roughly 45% larger than the OLS estimate of -0.391 in column (1) of Table 1, which averages over all of 2025 and therefore understates the full effect. In Section 4.4, we report aggregate employment implications based on both the baseline and the variant with $\text{Post}_t = 1$ for June–December 2025.

4.3 Robustness

We evaluate the robustness of our baseline results along several dimensions. Here we summarize the main findings, with details provided in the Supplemental Appendix.

Exposure. As a first robustness check, we broaden the definition of high exposure ($\text{Expo}_{s,z} = 1$) from the top 1% to the top 5% of Canadian visitor exposure. As shown in Table B4, the estimates remain the same qualitatively but are smaller in magnitude and surrounded by more uncertainty. This should not come as a surprise given the strong concentration of Canadian visitor share in a small number of markets. Second, we replace the "high exposure" approach with a nonparametric dose-response approach with exposure bins $\text{Share}_{s,z} \in [0.5\%, 0.7\%)$, $[0.7\%, 0.85\%)$, $[0.85\%, 1\%)$ and $[1\%, 100\%]$, respectively. As shown in Figure B5 in Supplemental Appendix, the negative employment impact is largest in the most exposed markets and attenuates monotonically for less exposed markets.[15] This difference in estimates confirms that the estimates above represent a lower bound.

Local-industry granularity. Our exposure measure is defined at the ZIP code × industry level. As shown in Table B5 in Supplemental Appendix, when exposure is defined instead at the county × industry level or the ZIP code level without industry differentiation, the estimated

[15] For hours per worker and wages, the estimates remain small across exposure bins.

employment effects attenuate and become insignificant.[16] These results demonstrate that the granularity of our data is essential for identification.

Establishment closings. As highlighted at the end of Section 3, our treatment of permanent establishment exits — coding them as missing rather than zero employment — means that any differential closure rates between treated and control establishments do not contribute to our estimates. When instead we set post-exit employment to zero, the employment estimates generally become somewhat more negative but also more uncertain across the different specifications, which suggests that sample churn is likely a non-trivial issue. We therefore keep with our conservative approach of treating employment of establishments after they exit as missing.

4.4 Aggregate implications

Assessing the aggregate employment consequences of the Canadian tourism decline requires making assumptions about equilibrium effects that are differenced out in our regressions and the extent to which the estimated effects from our Homebase sample apply to other establishments. Here we take a conservative stance by assuming no equilibrium effects and focusing on small establishments in the industries covered by Homebase.

Using 2023 Zip Business Patterns (ZBP) data, we count establishments in the industries covered by our estimation that are located in ZIP code × industry pairs at various exposure thresholds.[17] To isolate small establishments (fewer than 50 employees), we multiply ZBP counts by the share of small establishments in the corresponding industry × state cell from QCEW data. We then combine these counts with our establishment-level estimates to infer aggregate employment loss as:

$$\Delta E = \hat{\beta} \times \sum_{s,z} \text{Expo}_{s,z} \times \text{N}_{s,z}, \tag{4}$$

where $\hat{\beta}$ is the estimated treatment effect on employment and $\text{N}_{s,z}$ is the number of small establishments for industry s in ZIP code z.

[16] In the Supplemental Appendix, we also evaluate the heterogeneity of effects across sectors and find that the adverse impact on employment is mostly concentrated in non-food retail, leisure and hospitality, and restaurants. In contrast, we find no significant employment effect for food stores and drinking places (Figure B6).

[17] ZBP data are missing for about 30% of ZIP codes, presumably because these areas contain too few establishments to satisfy disclosure requirements. ZIP codes with missing ZBP data have substantially smaller populations, averaging 1,000 residents compared to 13,000 resident for ZIP codes with available data. We impute establishment counts for missing ZIP codes by regressing establishment counts on local population counts, labor force size, demographic characteristics, and industry and state fixed effects using the non-missing observations. The results are robust to this imputation procedure.

Table 2: Aggregate employment effects of Canadian visitor decline

	Baseline Post-24 (1)	Baseline Jun–Dec 25 (2)	Dose-response Post-24 (3)	Dose-response Jun–Dec 25 (4)
Panel A: Exposure definition				
Coefficient estimate(s)	−0.391	−0.569	bin-specific	bin-specific
Exposure threshold	top 1%	top 1%	≥ 0.70%	≥ 0.70%
Panel B: Affected markets				
Small establishments (thousands)	36.0	36.0	98.9	98.9
ZIP codes	1,505	1,505	3,345	3,345
Population (millions)	9.1	9.1	25.7	25.7
Panel C: Aggregate effect				
Total empl. losses (thousands)	13.9	20.3	37.9	42.1
% of local employment in retail, leisure and hospitality	-4.3%	-6.3%	-4.1%	-4.6%

Notes: The table reports aggregate employment effects of the 2025 Canadian tourism decline. Column (1) uses the baseline OLS difference-in-differences (DiD) estimate from Table 1 applied to small establishments in the top 1% of exposed local-industry markets. Column (2) uses the DiD estimate based on June–December 2025 treatment when effects are fully realized. Column (3) applies bin-specific difference-in-differences coefficients from Figure B5 to establishments in markets with exposure $\text{Share}_{s,z} \geq 0.70\%$. Column (4) applies the dose-response approach to June–December 2025 treatment. Aggregate employment losses are calculated based on the number of small establishments (fewer than 50 employees) in the exposed ZIP × industry markets. Employment losses are then expressed as a fraction of workforce in retail, leisure, and hospitality sectors in exposed ZIP codes. Source: Authors' calculations based on Advan, Homebase, QCEW, and ZBP data.

Table 2 presents the results for different specifications. Column (1) uses the baseline OLS estimate of −0.391 from Table 1 and applies it to the approximately 36,000 small establishments in the top 1% of exposed local-industry markets representing 1,505 ZIP codes with a population of approximately 9.1 million.[18] This yields a loss of about 13,900 fewer employees relative to the pre-shock period.

As discussed in Section 4.2, the estimate of −0.391 understates the full effect because it averages employment losses over all of 2025. Column (2) instead uses the OLS estimate of −0.569, which captures the full employment effects from June 2025 onward (Figure 3). The implied loss is correspondingly larger, totaling 20,300 fewer workers employed relative to the pre-shock period.

Column (3) and (4) report the employment losses based on the dose-response estimates of markets with exposure $\text{Share}_{s,z} \geq 0.70\%$ from Figure B5 in Supplemental Appendix and

[18]The 82,000 establishments represent roughly 1.8% of the total 2 million small establishments in these sectors nationwide, illustrating the strong geographic concentration of Canadian tourism.

applied to the counts of establishments in corresponding markets.[19] These markets include about 98,900 small establishments in 3,345 ZIP codes with combined population of about 25.7 million. This implies an employment decline by about 37,900 workers when estimated over all of 2025 and of about 42,100 when estimated for June – December 2025 that captures the full effect.

To put these effects in context, consider that employment in small establishments in retail trade and leisure & hospitality in the U.S. totals about 17 million. At the national level, the loss of 13,900 – 42,100 jobs therefore represents only 0.08 – 0.25% of total employment in that segment. While small, note that employment growth in all of retail declined by an estimated 57,000 in 2025 and in leisure & hospitality increased by an estimated 150,000.[20] The decline in Canadian tourism therefore had a meaningful negative impact on employment growth in these two sectors.

Perhaps more importantly, the impact of these employment losses is highly concentrated. For instance, a loss of 20,300 jobs in the 1,505 ZIP codes of top 1% exposed markets represents about a 6% contraction in retail and leisure & hospitality employment at small establishments and about a 0.5% decline in total private employment in these markets. These losses are sizable, especially if they persist over time as our event-study estimates suggest.[21]

Finally, as already noted above, our aggregate calculations are likely conservative estimates for two reasons. First, the establishments covered in Homebase are disproportionately small. If hotels, entertainment venues and convention centers are also affected, which seems likely, then the direct aggregate employment losses we calculate represent a lower bound. Second, a growing literature shows that tourism generates significant local economic gains through demand spillovers onto non-tourism sectors, though some of these gains are offset by higher prices (e.g., Faber and Gaubert 2019; Allen et al. 2020). The negative employment effects that we estimate capture only the direct impact of the decline in Canadian visitors and may therefore be amplified through these spillovers.

[19] We do not include the effects of the markets with exposure $\text{Share}_{s,z} \in [0.50, 0.70)\%$ because the estimate is close to zero.

[20] See the Bureau of Labor Statistics' Current Employment Statistics from January 2026.

[21] A natural question is whether the local markets most exposed to the Canadian visitor decline differ systematically from others. In a simple regression analysis presented in Table B6 and discussed in Supplemental Appendix B, we find that more exposed ZIP codes were significantly more likely to vote for Democratic candidates in 2024. Exposed ZIP codes are also less affluent, have a lower share of non-white residents, and lower female labor force participation. In this respect, the adverse impact of Canadian visitors on U.S. locations differs from the negative impact of Chinese and E.U. retaliatory tariffs, which mainly affected Republican-leaning counties [Fetzer and Schwarz, 2020].

5 Conclusion

This paper combines smartphone foot-traffic data with real-time establishment-level employment records to provide the first systematic evidence on the labor market consequences of the 2025 decline in Canadian tourism to the United States. Establishments in highly exposed local markets experienced relative employment declines of about 6%, implying aggregate losses of 13,900 to 42,100 jobs concentrated in roughly 1,500 to 3,300 ZIP codes. These estimates are conservative, as they cover only small establishments and abstract from demand spillovers. The findings illustrate how trade and diplomatic tensions can generate significant unintended consequences for non-tradable service sectors. More broadly, our methodology of linking smartphone-based visitor origin data with high-frequency payroll records provides a template for real-time assessment of tourism disruptions applicable to future shocks.

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Supplemental Appendix

A Data

A.1 Advan Research Data

The Advan Research Patterns dataset covers more than 8 million points of interest (POIs) across the United States. Each POI includes a geolocation and a 6-digit North American Industry Classification System (NAICS) code. To assess the representativeness of Advan's coverage, we compare the geographic distribution of Advan POIs with establishment counts from the Zip Business Patterns (ZBP) at the 5-digit ZIP code level for the industries in our analysis.[22] The correlation coefficient is 0.95, reflecting close correspondence along both geographic and industry dimensions.

Advan Research tracks approximately 45 million U.S. mobile devices and 20 million international devices on a daily basis. Location information is collected through GPS coordinates, WiFi connections, and cellular tower pings.

Advan defines a visit as any instance when a device is detected within the geofenced boundary of a point of interest (POI), with no minimum dwell time required. This approach differs from earlier data providers (e.g., SafeGraph) that imposed a 4-minute minimum dwell threshold. Advan records at most one visit per device-POI-day. Multiple entries and exits at the same location on the same day are counted as a single visit. To extrapolate from observed devices to total visitors, Advan applies the scaling factor:

$$\text{Estimated Visitors} = \frac{\text{Unique Devices at POI}}{\text{Total Panel Devices}} \times \text{Population} \tag{A.1}$$

Device home locations are determined by identifying the building where each device spends the most nighttime hours (6pm-8am) over a calendar month. Advan identifies a home location for approximately 80% of devices in the panel, where a home location is a Census Block Group for U.S. devices and a Dissemination Area for Canadian devices; home locations cannot be assigned for other countries.

A.2 Homebase Data

The Homebase (HB) data consist of anonymized daily records of individual hours worked and wages of employees, linked longitudinally to the establishment where they work and the firm that owns the establishment.[23] The data are recorded in real time and are used by many of the businesses for payroll processing.

The raw HB data contain well over 150,000 unique establishments. Starting in December 2020, the HB establishments come with a 6-digit North American Industry Classification System (NAICS) code. The majority of establishments in HB data are in sectors associated with

[22] Establishment and POI counts for a given geography need not correspond exactly. A single establishment may be recorded as multiple POIs depending on its physical layout, and the appropriate time frame for comparison is ambiguous given that POIs appear and disappear over time, while the Zip Business Patterns data reflect a specific reference period.

[23] Almost all firms in Homebase are single-establishment firms.

Table A1: Establishment counts and employment in HB and the QCEW

Retail trade

	HB data				QCEW data					
	Estab.		Workers		Estab.			Workers		
	#	%	#	%	#	% all	% small	#	% all	% small
1–4	13,452	42.4	37,462	16.6	504,750	47.2	50.1	888,535	5.8	11.9
5–9	11,401	36.0	74,747	33.0	240,698	22.5	23.9	1,625,003	10.6	21.8
10–19	5,223	16.5	68,622	30.3	174,265	16.3	17.3	2,336,052	15.2	31.3
20–49	1,629	5.1	45,401	20.1	88,372	8.3	8.8	2,609,065	17.0	35.0
50–99	0	0.0	0	0.0	31,327	2.9	–	2,168,742	14.1	–
100+	0	0.0	0	0.0	29,030	2.7	–	5,708,778	37.2	–
Total	31,705	100.0	226,232	100.0	1,068,442	100.0	–	15,336,175	100.0	–

Arts, entertainment, recreation

	HB data				QCEW data					
	Estab.		Workers		Estab.			Workers		
	#	%	#	%	#	% all	% small	#	% all	% small
1–4	2,038	21.5	5,879	5.5	116,541	63.5	66.9	131,286	5.4	12.9
5–9	3,221	33.9	21,853	20.5	22,676	12.4	13.0	151,740	6.2	14.9
10–19	2,793	29.4	37,742	35.3	20,061	10.9	11.5	273,589	11.2	26.9
20–49	1,438	15.2	41,375	38.7	14,989	8.2	8.6	458,930	18.8	45.2
50–99	0	0.0	0	0.0	5,528	3.0	–	377,656	15.5	.–
100+	0	0.0	0	0.0	3,689	2.0	–	1,045,452	42.9	–
Total	9,490	100.0	106,849	100.0	183,484	100.0	–	2,438,653	100.0	–

Accommodation and food services

	HB data				QCEW data					
	Estab.		Workers		Estab.			Workers		
	#	%	#	%	#	% all	% small	#	% all	% small
1–4	13,865	21.9	40,153	6.0	250,862	32.0	34.2	386,203	2.8	4.4
5–9	21,794	34.5	149,804	22.3	134,597	17.2	18.4	921,618	6.6	10.4
10–19	19,764	31.3	265,372	39.5	177,320	22.6	24.2	2,503,213	18.0	28.3
20–49	7,801	12.3	217,060	32.3	169,706	21.6	23.2	5,035,192	36.2	56.9
50–99	0	0.0	0	0.0	39,789	5.1	–	2,634,785	19.0	–
100+	0	0.0	0	0.0	11,785	1.5	–	2,421,918	17.4	–
Total	63,224	100.0	672,389	100.0	784,059	100.0	–	13,902,929	100.0	–

Notes: The table reports the distribution of establishments and employment by establishment size class in Homebase and QCEW. Columns titled "#" report counts of establishments and employment by size class. In the "HB data" panels, columns titled "#" show the share of establishments and the share of employment in each size class. In the "QCEW data" panels, columns titled "% all" show shares across all establishments, while columns titled "% small" show shares restricted to establishments with fewer than 50 workers. Source: Authors' calculations based on Homebase and QCEW data for the first quarter of 2024.

in-person services: Retail trade (NAICS 44-45), Education and health (NAICS 61-62), Leisure and hospitality (NAICS 71-72), and Other services (NAICS 81). Kurmann et al. [2025] demonstrated, using data over the 2019-2021 period, that the data are representative of employment and business dynamics in these four sectors for establishments with fewer than 50 employees.[24]

For our analysis, we use establishments in NAICS 44-45 and 71-72. We require establishments to appear in the Homebase data in 2024 and to be active for at least 3 consecutive weeks during 2024 or 2025, where a week is classified as active if the establishment has positive employment and at least 40 total hours worked.[25] We retain establishments located in ZIP code × industry cells for which we have Advan data (about 97% of the Homebase sample). The resulting HB sample contains 104,419 establishments.

Table A1 compares this sample with data from the Quarterly Census of Employment and Wages (QCEW) for the first quarter of 2024. QCEW publishes establishment-level data by size class only for the first quarter of each year. In Retail trade, the distribution of establishments by class sizes is extremely similar between HB and the QCEW. In the Leisure and hospitality sectors, that distribution is less concentrated toward small businesses than in the QCEW data. By summing employment numbers in the QCEW columns, we see that establishments with fewer than 50 workers in the sectors analyzed comprise 17.3 million workers. This represents 13 percent of total U.S. private sector employment in February 2024.

In Figure A1, we further compare employment per establishment in HB with the QCEW data. As can be seen, larger establishments (those with 20 to 49 workers) are slightly smaller in HB, while the converse is true for the smallest establishments (1 to 4 workers); overall, however, there is a close fit to the QCEW.

As mentioned, the QCEW data by establishment class size is available only in the first quarter (February) of each year. This is the only available source of information by sector and class size regarding establishment-level employment dynamics for the recent period.[26] In Figure A2, we report QCEW employment in 2023, 2024, 2025, normalized by February-2024 employment. As can be seen, the HB data (also normalized to 1 in February 2024) matches the 2023 and 2025 data points in each sector closely.

In Figure A2, we further report the monthly employment series from the Current Employment Statistics (CES). It is important to note that the CES estimates include establishments of all sizes, not just small establishments. Yet, to the extent that small establishments account for 55 percent of employment in the two sectors analyzed (Table A1), this comparison is informative.

The dynamics of the HB data are extremely similar to those of the CES, particularly in NAICS 71 and 72. This is remarkable, given the magnitude of employment variation over the course of the year: in Arts, entertainment and recreation (NAICS 71), for instance, employment increases by 30 percent during the summer. The seasonal variations are much lower in Retail trade, where the HB and CES lines differ more, which could be due to small retailers experiencing more employment variation than larger ones. Still, the fit is quite good, and we can conclude from the figure that our sample is representative of business dynamics in the sectors analyzed.

[24] To obtain NAICS code before December 2020, Kurmann et al. [2025] matched the HB establishments to POIs from SafeGraph.

[25] These requirements filter out businesses that only show up in HB data for a short period of time and with too few hours logged into the application, presumably because they are trying out the software.

[26] The most recent data from the Business Dynamics Statistics is for 2023.

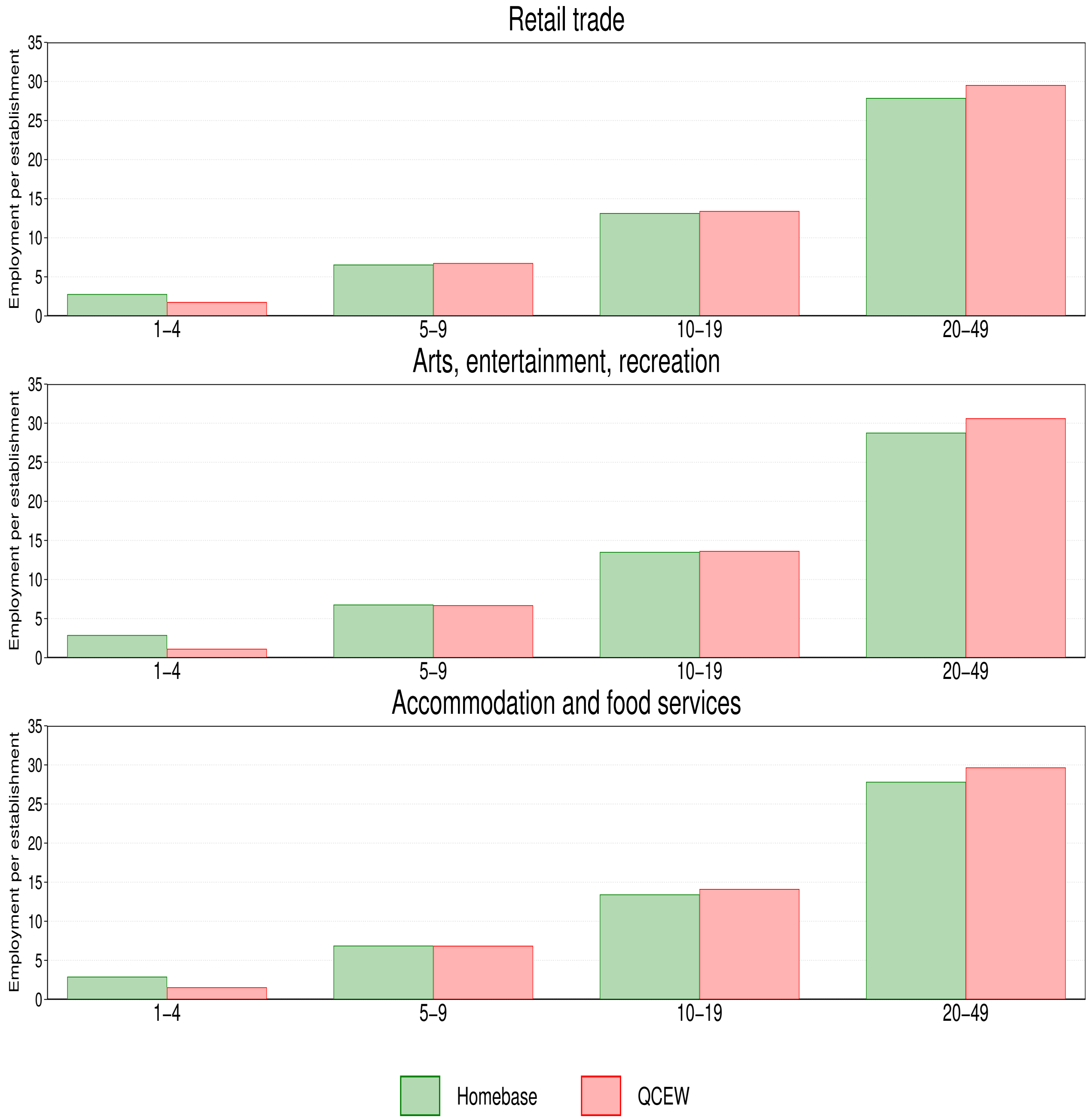


Figure A1: Average employment by establishment size

NOTES: The figure shows average employment by establishment size class for NAICS-2 industries. Source: Authors' calculations based on Homebase and QCEW data for the first quarter of 2024.

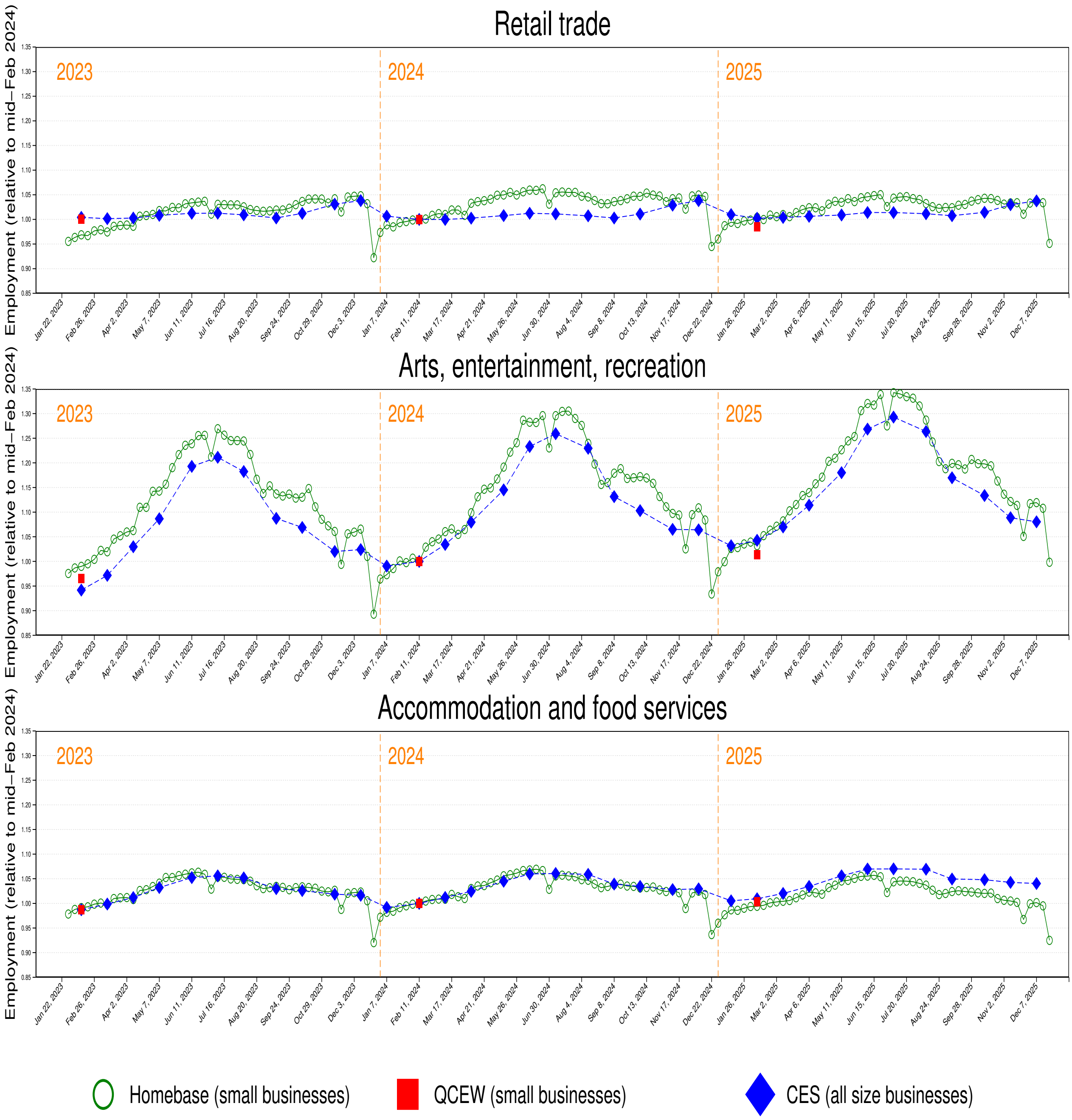


Figure A2: Comparison of HB employment dynamics with QCEW and CES

NOTES: The figure shows weekly employment from Homebase and annual employment from QCEW data for small businesses by NAICS-2 industries, and monthly employment from CES data for all-size businesses. None of the weekly or monthly estimates are seasonally adjusted. Source: Authors' calculations based on CES, Homebase, and QCEW data.

B Additional results

B.1 Changes in international visits to the U.S.

Figure B1 shows the monthly number of non-Canadian visitors (computed as the sum of overseas and Mexican visitors) to the U.S. in 2023, 2024, and 2025. The number of non-Canadian visitors remained largely stable in 2025 compared with 2024. Over the first 11 months of 2025,[27] there were 47.7 million visitors, compared with 47.2 million over the same period in 2024, confirming that the decline in Canadian visits reflects Canada-U.S. bilateral tensions rather than a broad pullback in international tourism.

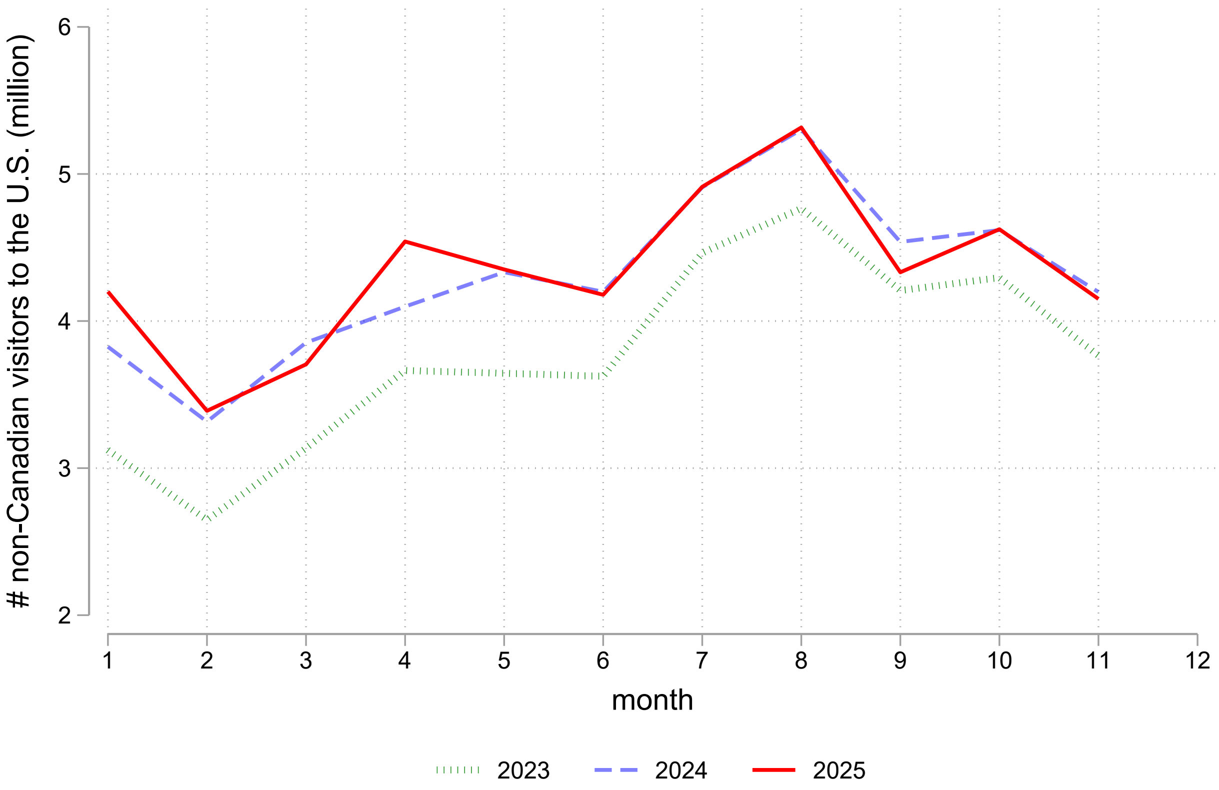


Figure B1: Non-Canadian visitors to the United States

NOTES: The figure shows the number of non-Canadian visitors (computed as the sum of overseas visitors and Mexican visitors) to the United States in each month of 2023, 2024, and 2025. Figures are in millions of visitors. Data on Mexican visitors for December 2025 are not available yet. Source: International Trade Administration, International Visitor Arrivals Program - ADIS I-94.

Figure B2 complements Figure 1 by disaggregating the 2025 tourism decline by traveler type and mode of transportation. The figure shows that the decline is not driven by compositional shifts across border crossing types: Canadian visitors returning from the U.S. fell by approximately 25% across all categories.

The patterns for land crossings are particularly revealing. Same-day land visits, which likely capture cross-border shopping trips, declined almost immediately in early 2025. In contrast, overnight land visits, which more likely reflect longer-term tourism plans, declined only later in the year, consistent with longer cancellation lags for pre-planned trips.

[27] Data for Mexican visitors in December 2025 are not yet available.

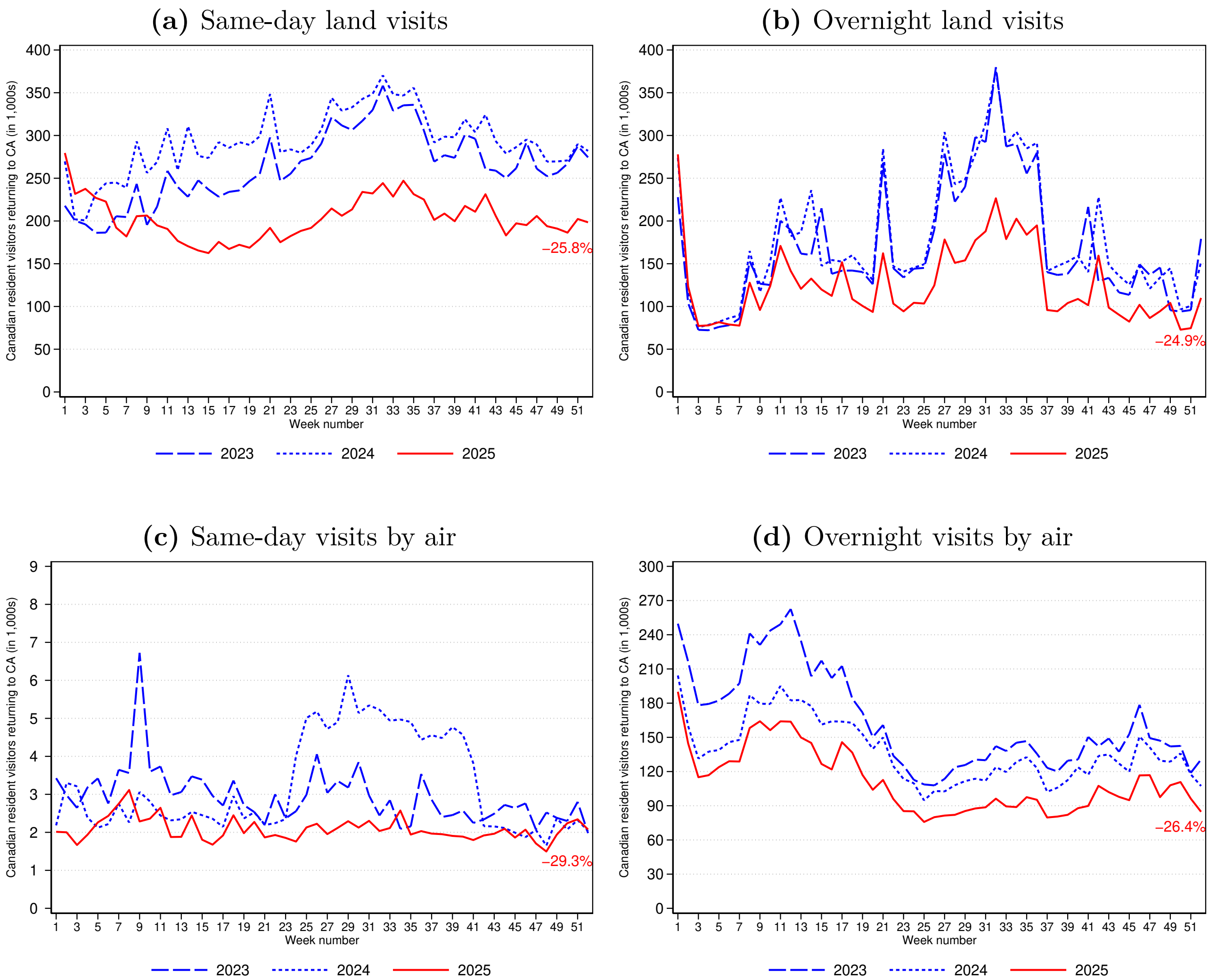


Figure B2: Canadian resident visitors to the United States

NOTES: The figure shows the number of Canadian resident visitors returning to Canada from the United States, by air or land travel, in each week of 2023, 2024, and 2025. Figures are in thousands of visitors. The percentage figure represents the change in 2025 relative to the average of 2023 and 2024. Source: Statistics Canada, Frontier Counts.

B.2 Most visited destinations and gravity

Table B1 presents the top three destinations for Canadian visitors in four selected industries. For example, in "Amusement and Theme Parks" (NAICS 713110), 19.5% of all Canadian visitors within this industry occur in ZIP code 32830 (Lake Buena Vista, FL), where the corresponding exposure measure is 0.4%. The primary attraction driving Canadian tourism to this location is Walt Disney World Resort. Notice that the highest Canadian visitor share appears in Retail Trade in ZIP code 98226 (Bellingham, WA) at 7.0%. However, this location accounts for only 0.7% of all Canadian retail visits, illustrating that retail visits are much more geographically dispersed than other industries.

Table B1: Most visited destinations by Canadian visitors

ZIP	City/Neighborhood	Fraction CAN Visits (%)	Share CAN (%)	Relevance for Canadian Tourists
		Panel A: Full-Service Restaurants		
89109	Las Vegas, NV	1.2	1.3	Casinos, shows, restaurants
10036	Midtown Manhattan, NY	1.1	0.7	Times Square, Broadway shows
33139	Miami Beach, FL	0.9	0.4	South Beach, nightlife, beach resorts
		Panel B: Amusement & Theme Parks		
32830	Lake Buena Vista, FL	19.5	0.4	Walt Disney World Resort
32821	Orlando, FL	6.8	0.3	Universal Orlando, SeaWorld
92802	Anaheim, CA	6.4	0.3	Disneyland Resort
		Panel C: Leisure & Hospitality		
89109	Las Vegas, NV	7.7	1.1	Entertainment and conventions
96815	Honolulu, HI (Waikiki)	1.6	1.1	Beach vacations
89158	Las Vegas, NV	1.2	1.1	Resorts, shopping
		Panel D: Retail Trade		
98226	Bellingham, WA	0.7	7.0	Border shopping hub
14304	Niagara Falls, NY	0.7	5.8	Niagara Falls tourism
89109	Las Vegas, NV	0.5	1.0	Casinos, shows, restaurants

Notes: The table reports the most visited destinations by Canadian tourists across different industries based on Advan foot traffic data. "Fraction CAN Visits" is the percentage of total Canadian visits to points of interest (POIs) in a given industry that occur in this specific ZIP code. "Share CAN" is the percentage of Canadian visits among all visitors (Canadian and U.S. combined) to POIs in the ZIP code × industry pair. Destinations are selected based on high absolute numbers of Canadian visitors and/or high Canadian visitor shares. The rightmost column provides context on the primary attractions driving Canadian tourism to each location. Source: Authors' calculations based on Advan data.

Figure B3 plots the distribution of our Canadian tourism exposure measure. To further investigate its reliability, we estimate a series of gravity regressions with $\text{Share}_{s,z}$ as the dependent variable and distance from Canadian metropolitan areas (CMAs), measures of local tourism amenities, and industry fixed effects as explanatory variables. The results, reported in Table B2, align well with expectations. Distance to the closest CMA is consistently and strongly negatively associated with $\text{Share}_{s,z}$ while natural and cultural attractions are strong predictors of higher Canadian visitor shares. These patterns hold in the full sample and within major industry categories. Overall, these gravity regression results, while suggestive, lend considerable credibility to our exposure measure.

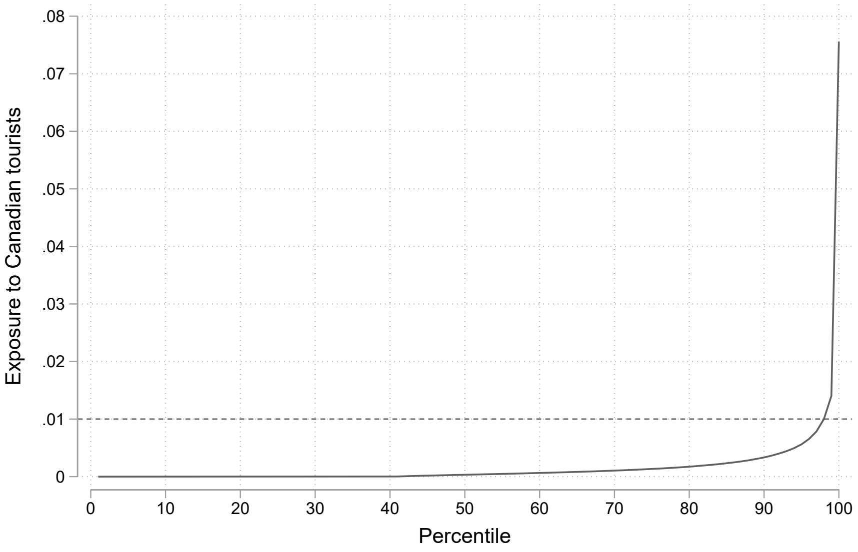


Figure B3: Exposure to Canadian visitors (ZIP code× industry)

NOTES: The figure shows the distribution of the share of Canadian visitors across ZIP code × industry pairs in the U.S. The share is computed as the average over year 2024 of the weekly ratio of the number of visitors from Canada over the total number of visitors in a market. Source: Authors' calculations based on Advan data.

Table B2: Gravity determinants of Canadian visitors to the U.S.

	(1)	(2)	(3)	(4)	(5)	(6)
Counties' natural appeal	0.260***	0.204***	0.229***	0.280***	0.237***	0.259***
	(0.0347)	(0.0413)	(0.0541)	(0.0491)	(0.0273)	(0.0310)
Dist. to closest CMA	-0.753***		-0.399***	-0.811***	-0.732***	-0.720***
	(0.0728)		(0.0658)	(0.0809)	(0.0713)	(0.0728)
Cultural amenities	5.243***	5.869***	6.546***	5.496***	3.788***	6.064***
	(1.088)	(1.191)	(1.389)	(1.200)	(1.118)	(1.247)
Access to Canada		0.845***				
		(0.0834)				
Sample	Full	Full	Full	44	71	72
Observations	96,950	96,950	96,950	31,211	16,740	48,999

Notes: The table reports the PPML regressions of the share of Canadian visitors in industry s and ZIP code z on several gravity variables and industry fixed effects. The variables are: the natural appeal of the county based on climate and landscape characteristics as measured by USDA ERS; the distance of the ZIP code to the closest Canadian metropolitan area (CMAs); a measure of a ZIP code's cultural amenities (number of establishments in arts and performing arts, museums, historical sites, amusement and gambling); access to Canada measured as the sum of population in CMAs divided by the bilateral distance between a ZIP code and the CMAs. The last three columns report regressions for specific sectors: NAICS 44-45 (Retail Trade), NAICS 71 (Arts, Entertainment, and Recreation), NAICS 72 (Accommodation and Food Services). ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. Source: Authors' calculations based on Advan, USDA ERS, and ZBP data.

B.3 U.S. local business outcomes

Table B3 presents summary statistics describing the three outcome variables of the regressions.

Table B3: Weekly business outcomes in Homebase

	Mean	**p25**	**p50**	**p75**
Employment	9.07	3.71	6.75	11.8
Hours per worker	24.1	17.5	23.1	29.8
Hourly wage	14.6	11.8	14.5	17.0

Notes: The table describes the distribution of weekly employment, hours worked per employee, and hourly wages in our sample for establishments in NAICS 44-45 and 71-72 in Homebase. Source: Authors' calculations based on Homebase data.

B.4 Event-study results

Figure B4 presents the event-study estimates obtained through PPML, alongside the OLS results repeated here for comparison.

B.5 Alternative exposure and dose-response relationship

In the baseline difference-in-differences model, we define a ZIP-code × industry cell as "treated" if its exposure measure is in the top 1% of the distribution. We adopt this threshold, motivated by the extreme right-skewness of the exposure variable (Figure B3), to provide clear identification of high-exposure units. Table B4 shows that our results are robust to using a 5% cutoff instead. As expected, the coefficients are smaller in magnitude but continue to show a significant negative impact of the tourism decline.

To investigate whether effects are concentrated among highly exposed ZIP codes and diminish as we lower the exposure threshold, we test for a dose-response relationship using the following augmented specification:

$$y_{j,s,z,t} = (\sum_k \beta_k \text{Expo}_{s,z}^{\mathcal{I}_k}) \times \text{Post}_t + \gamma_j + \delta_{s,t} + \theta_{z,t} + \varepsilon_{j,s,z,t}, \quad \text{(B.1)}$$

where the $\text{Expo}_{s,z}^{\mathcal{I}_k}$ regressors are dummy variables that take the value of one if $\text{Share}_{s,z} \in \mathcal{I}_k$ and the $\mathcal{I}_k$'s partition the upper part of the distribution of our Canadian tourism exposure variable. Specifically, we set $\mathcal{I}_1 = [1\%, 100\%]$, $\mathcal{I}_2 = [0.70\%, 1\%)$, $\mathcal{I}_3 = [0.70\%, 0.85\%)$, $\mathcal{I}_4 = [0.50\%, 0.70\%)$. This implies that the estimated $\hat{\beta}_k$'s are measured relative to ZIP code × industry cells with a share of Canadian visitors below 0.5%.

Figure B5 presents the results. For brevity, we report only the OLS results; PPML estimates are qualitatively similar. The negative impacts are concentrated in the top exposure categories, while coefficients for lower exposure thresholds are not statistically significant. For employment, the effects tend to decline monotonically as we move down the exposure distribution, while the patterns for hours and wages are less clear due to wider confidence intervals.

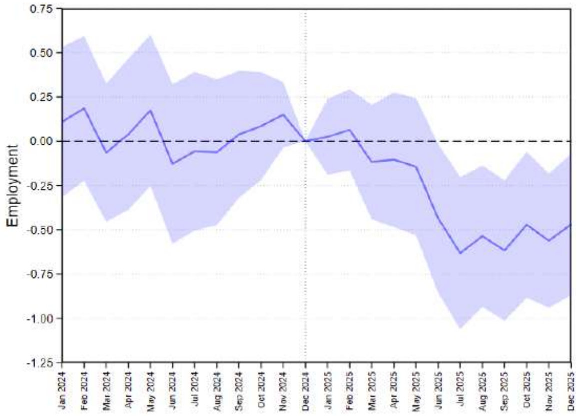
B.6 Heterogeneity across industries

Figure B6 compares our baseline OLS coefficients (vertical dashed line in each panel) with industry-specific estimates.[28] Specifically, we estimate:

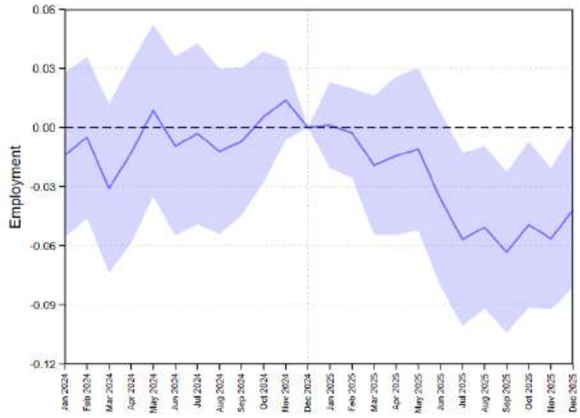
$$y_{j,s,z,t} = \sum_z \beta_z \text{Expo}_{s,z} \times \text{Post}_t \times \mathbb{1}_{z=Z} + \gamma_j + \delta_{s,t} + \theta_{z,t} + \varepsilon_{j,s,z,t}, \quad \text{(B.2)}$$

[28] PPML estimates show similar patterns and lead to the same conclusions.

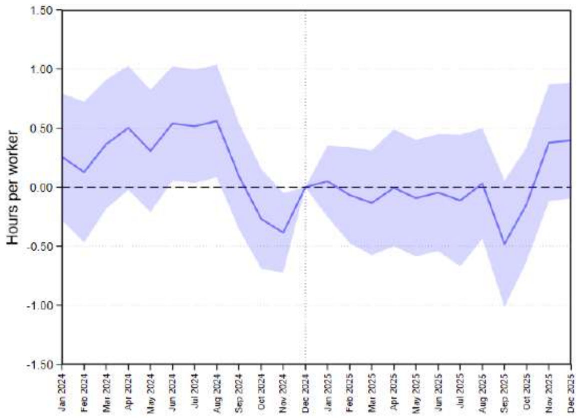
(a) Employment (OLS)



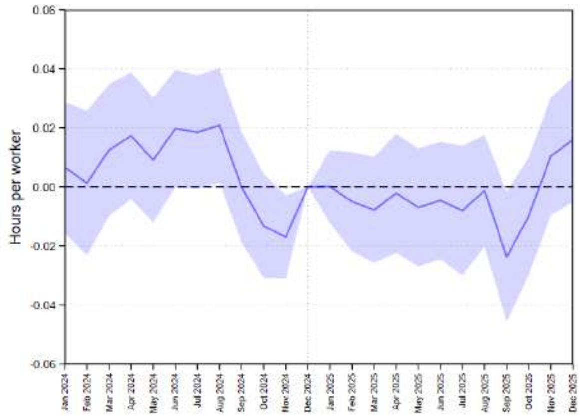
(b) Employment (PPML)



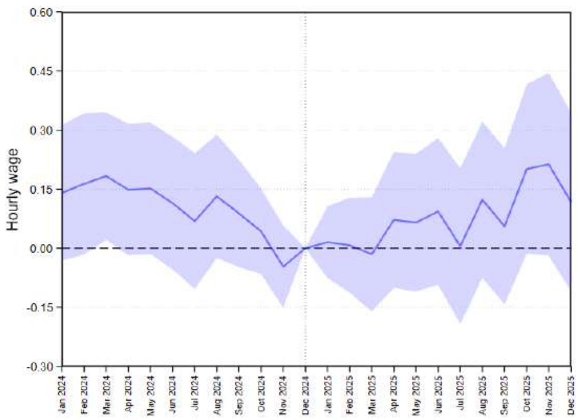
(c) Hours per worker (OLS)



(d) Hours per worker (PPML)



(e) Hourly wage (OLS)



(f) Hourly wage (PPML)

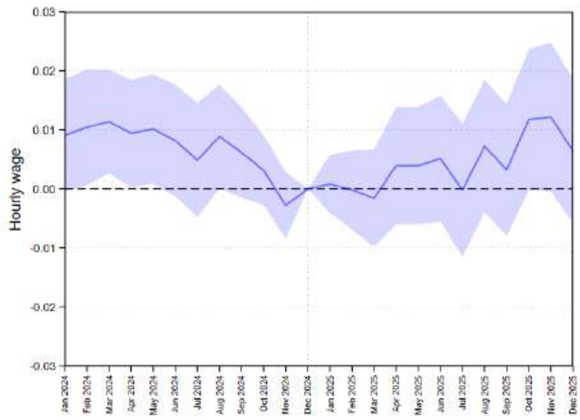


Figure B4: Canadian tourism decline and U.S. local business outcomes: Event-study (PPML+OLS)

NOTES: The figure shows the event-study estimates of the effects of Canadian visits on weekly employment (top row), average hours per worker (middle row) and hourly wages (bottom row). The left figures present the estimates of the OLS specification. The right figures present the estimates of the PPML specification. 90% confidence intervals are in blue. Source: Authors' calculations based on Advan and Homebase data.

Table B4: Impact of Canadian tourism decline on U.S. local business outcomes: Alternative definition of exposure

	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A: Employment			
Expo × Post	−0.134*	-0.009	−0.226**	−0.019*	-0.172	-0.014
	(0.076)	(0.007)	(0.098)	(0.010)	(0.112)	(0.011)
			Panel B: Hours per worker			
Expo × Post	0.122	0.005	0.075	0.004	0.177	0.007
	(0.088)	(0.003)	(0.115)	(0.004)	(0.125)	(0.005)
			Panel C: Hourly wage			
Expo × Post	-0.078	−0.005*	-0.074	-0.005	-0.113	−0.007*
	(0.048)	(0.003)	(0.065)	(0.003)	(0.075)	(0.004)
Establishment FE	Yes	Yes	Yes	Yes	Yes	Yes
ZIP code × Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry × Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Spec.	OLS	PPML	OLS	PPML	OLS	PPML
Sample	All regions		With CAN visitors		With CAN border	

Notes: The table reports difference-in-differences estimates of the impact of the decline in Canadian tourism on local business outcomes. The dependent variables are the number of employees (Panel A), hours worked per employee (Panel B), and hourly wage (Panel C) measured at a weekly frequency. Expo is a dummy variable equal to 1 if the establishment is located in a ZIP code × industry pair with Canadian visitor share in the top 5% . Post is a dummy equal to 1 for weeks after January 2025. Uneven columns report OLS regressions. Even columns report Poisson pseudo-maximum likelihood (PPML) estimates. Estimation are performed on the full sample in columns (1) and (2), on the sample of counties where at least one market is exposed to Canadian visitors in columns (3) and (4), and on the sample of establishments that are in states bordering Canada. All specifications include establishment, ZIP code × time, and industry × time fixed effects. Standard errors (in parentheses) are clustered at ZIP code × industry level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. Source: Authors' calculations based on Advan and Homebase data.

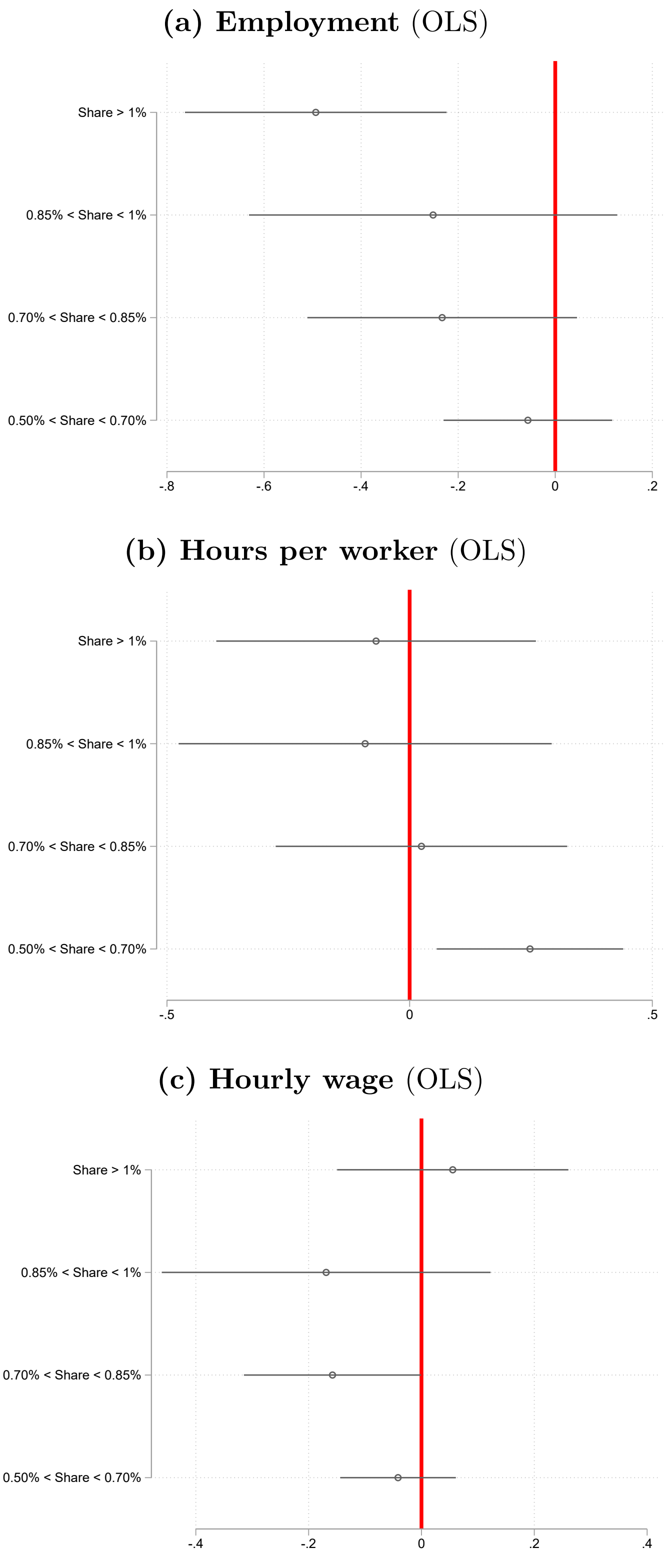


Figure B5: Augmented regressions testing for a dose-response relationship

NOTES: The figure shows the dose-response relationship (Equation (B.1)) between exposure to Canadian visitors and weekly employment (Panel (a)), average hours per worker (panel (b)) and hourly wages (Panel (c)). All coefficients are relative to a share of Canadian visitors below 0.5%. 95% confidence intervals are in grey. Source: Authors' calculations based on Advan and Homebase data.

where $\mathbb{1}_{z=Z}$ is an indicator variable for the selected industries. The negative employment effects are driven primarily by retail establishments other than food stores, leisure and hospitality businesses, and restaurants. For hours worked, we find a small negative aggregate effect, which Figure B6 shows is concentrated in food stores and snack bars. Finally, the absence of wage effects in the aggregate persists when examining individual industries.

B.7 Role of granularity

Table B5 reports the results from alternative regressions gauging the role of geographic and industry granularity. For comparison purposes, the first two columns report the baseline results, where exposure is measured at the ZIP codes × industry level alongside ZIP-time and industry-time fixed effects, and where standard errors are clustered at the ZIP codes × industry level.

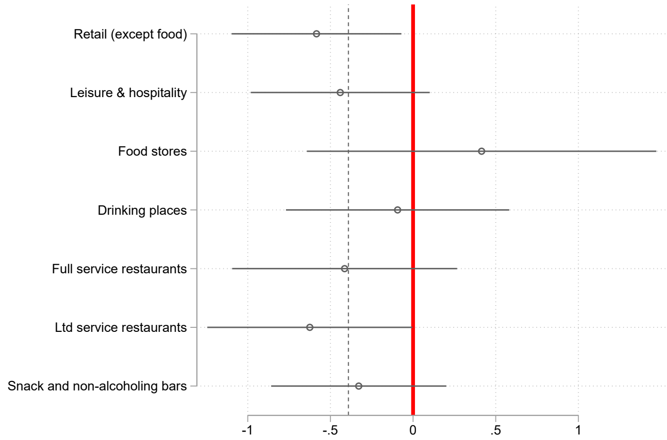
Table B5: Impact of Canadian tourism decline on U.S. local business outcomes: Role of geographic and industry granularity

	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A: Employment			
Expo × Post	-0.391^{***}	-0.028^{**}	0.242	0.034	0.108	0.013
	(0.148)	(0.014)	(0.198)	(0.023)	(0.129)	(0.013)
Observations	11,756,536	11,748,046	12,633,040	12,631,739	12,653,335	12,651,866
			Panel B: Hours per worker			
Expo × Post	-0.315^{*}	-0.013^{*}	-0.307	-0.015^{*}	0.052	0.002
	(0.185)	(0.007)	(0.204)	(0.009)	(0.150)	(0.006)
Observations	11,101,885	11,101,885	11,950,199	11,950,199	11,968,706	11,968,706
			Panel C: Hourly Wage			
Expo × Post	0.035	0.001	0.235^{*}	0.015^{*}	-0.151	-0.009
	(0.097)	(0.005)	(0.129)	(0.008)	(0.149)	(0.008)
Observations	5,918,474	5,918,474	6,608,049	6,608,049	6,620,061	6,620,061
Establishment FE	Yes	Yes	Yes	Yes	Yes	Yes
ZIP code × Time FE	Yes	Yes	Yes	Yes	No	No
County × Time FE	No	No	Yes	Yes	Yes	Yes
Industry × Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Spec.	OLS	PPML	OLS	PPML	OLS	PPML
Exposure	ZIP-industry		County-industry		ZIP	

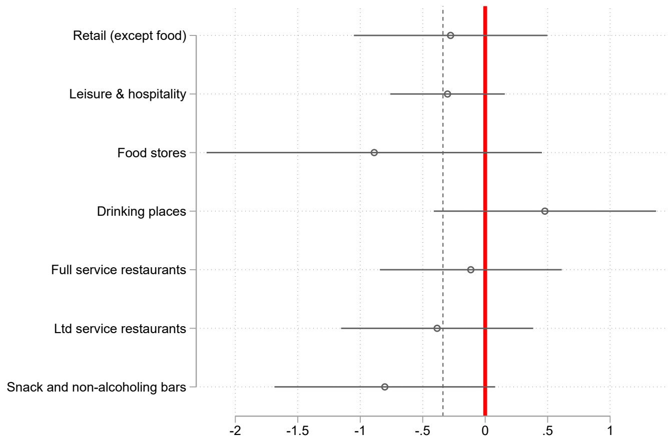
Notes: The table reports difference-in-differences estimates of the impact of the decline in Canadian tourism on local business outcomes. The dependent variables are the employment (Panel A), hours worked per employee (Panel B), and hourly wage (Panel C) measured at a weekly frequency. Expo is a dummy variable equal to 1 if the business is located in a ZIP code × industry pair with Canadian visitor share in the top 1% (approximately 1% of establishments). Post is a dummy equal to 1 for weeks after January 2025. Uneven columns report OLS regressions. Even columns report Poisson pseudo-maximum likelihood (PPML) estimates. Estimation are performed on the full sample. In columns (1) and (2), exposure is at the baseline ZIP code × industry level. In columns (3) and (4), exposure is at the county × industry level. In columns (5) and (6), exposure is at the ZIP code level. Standard errors (in parentheses) are clustered at the ZIP code × industry level in columns (1) and (2), at the county × industry level in columns (3) and (4), and at the ZIP code level in columns (5) and (6) ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. Source: Authors' calculations based on Advan and Homebase data.

In columns (3) and (4) of Table B5, we instead measure exposure at the county × industry level, and adjust fixed effects and standard-error clustering accordingly. In this specification,

(a) Employment (OLS)



(b) Hours per worker (OLS)



(c) Hourly wage (OLS)

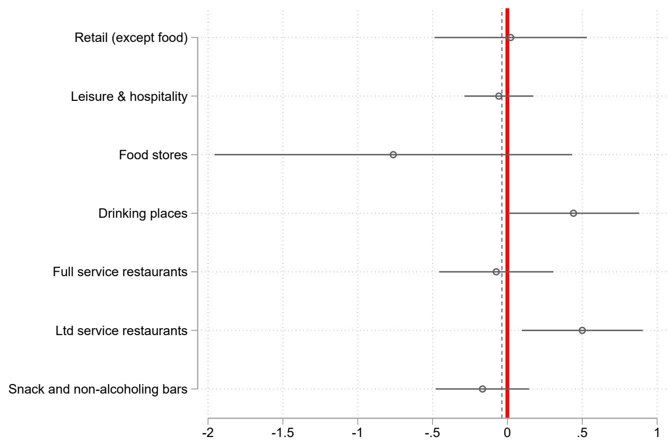


Figure B6: Impact of Canadian tourism decline on U.S. local business outcomes: Heterogeneity across industries

NOTES: The figure plots the estimated coefficients from Equation (B.2) for weekly employment (Panel (a)), average hours per worker (panel (b)) and hourly wages (Panel (c)). The dotted line represents the coefficients estimated in the baseline specification (2). Source: Authors' calculations based on Advan and Homebase data.

the effects on employment become statistically insignificant, the effects on hours are mostly unchanged, and for wages the coefficients become marginally significant positive. In turn, in columns (5) and (6), we consider exposure at the ZIP-code level while omitting the industry dimension. Accordingly, we include county-time fixed effects as county is the natural higher-level geographic unit. We also include industry-time fixed effects to maximize comparability with the baseline model. In this specification, we fail to detect significant impacts on any of the outcome variables. Taken together, these results show that detecting the effects of declining Canadian tourism requires both the geographic granularity of ZIP codes and variation across industries.

B.8 Characteristics of exposed ZIP codes

To characterize the ZIP codes that are most exposed to Canadian tourism, we run Logit regressions of the exposure dummy variable against a set of demographic and income variables, measurements of local labor market performance, and political preferences (for the latter, the variables are available only at the county level). Table B6 shows the results.

Table B6: Characteristics of exposed ZIP codes

Exposure variable	Top 5%	Top 1%	Top 5%	Top 1%
	(1)	**(2)**	**(3)**	**(4)**
Panel A: Demographics				
Share of College educated	1.344***	1.151**	1.510***	1.140
	(0.055)	(0.082)	(0.090)	(0.095)
Share of non-white population	0.745***	0.663***	0.965	0.941
	(0.027)	(0.050)	(0.023)	(0.036)
Panel B: Income				
Median household income	0.926***	0.858***	0.768***	0.771***
	(0.023)	(0.047)	(0.032)	(0.060)
Panel C: Labor market				
Unemployment rate	0.997	0.885*	0.962	0.782***
	(0.033)	(0.056)	(0.043)	(0.058)
LFP rate of female workers	0.958	0.829***	0.843***	0.728***
	(0.032)	(0.048)	(0.041)	(0.051)
Panel D: Political preferences				
2024 share of Democrat voters	1.567***	1.558***	1.283***	1.190**
	(0.057)	(0.107)	(0.070)	(0.099)
2024 voter turnout rate	1.302***	1.366***	0.889***	0.813***
	(0.039)	(0.076)	(0.038)	(0.051)
Sample	All regions		With CAN border	
Pseudo R-squared	0.039	0.029	0.017	0.016
Observations	32,798	32,798	5,960	5,960

Notes: Each column reports the odd ratios from a Logit regression of the Exposure dummy variable, with standard errors in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. The dependent variables are scaled to show the implied change of going from the 25th to the 75th percentile of the distribution of a variable. Source: Authors' calculations based on Advan and Census data.

Beginning with Columns (1) and (2) showing the estimates across the full sample, we find that ZIP codes with a more educated population, lower household income, and a lower share of non-White individuals are more likely to be exposed to Canadian tourism. For example, going from ZIP codes at the 25th percentile of the education distribution to ZIP codes at the 75th percentile raises the odds of being exposed to Canadian tourism by between 15% and 34% (depending on the cutoff used to define exposure). Moreover, we find a strong association with voter turnout as well as votes for the Democratic candidate in the 2024 presidential election. In Columns (3) and (4), where the sample is restricted to ZIP codes in states with a land border with Canada, we find that the relationships with education is somewhat stronger while that with race mostly disappear, and the negative relationship with household income becomes more pronounced. We also note that a stronger labor market, as measured by the participation of women in the labor force, is associated with less exposure to Canadian tourism. Notably, the strong correlation with Democratic votes remains. Going from ZIP codes at the 25th percentile of the Democratic vote share distribution to ZIP codes at the 75th percentile raises the odds of being exposed to Canadian tourism by 56% when looking nationwide, and by 19%-28% when looking at U.S. states along the Canadian border. In sum, ZIP codes that are more exposed to Canadian tourism are less affluent and more likely to have voted for the Democratic candidate in the recent presidential election.