Tourism in Industrialized Countries: Catalyst for Growth or Economic Burden?*

Giuseppe Di Giacomo
Università della Svizzera italiana

May 2025

Abstract

Despite the growing economic relevance of tourism, we know little about its long-term economic impact in industrialized countries. How does tourism shape labor markets and local economic activity? I address this question by analyzing the case of Italy, using exogenous variation in outbound tourism by country of origin, interacted with historical destination preferences within Italy, as an instrument for tourist inflows. I find that exposure to tourism reduces employment-to-population and labor force participation rates while increasing the local population. Tourism also reshapes the employment structure, expanding jobs in hospitality and entertainment at the expense of manufacturing and non-tourism-related services. It leads to a decline in the average size of business establishments, particularly in manufacturing, suggesting negative effects on productivity. Tourism is also associated with lower average labor and per capita incomes, and rising property income and housing prices. These findings suggest that tourism may hinder long-run economic development by shifting resources from more to less productive sectors.

Keywords: Tourism, Structural transformation, Local economic shocks, Dutch disease.

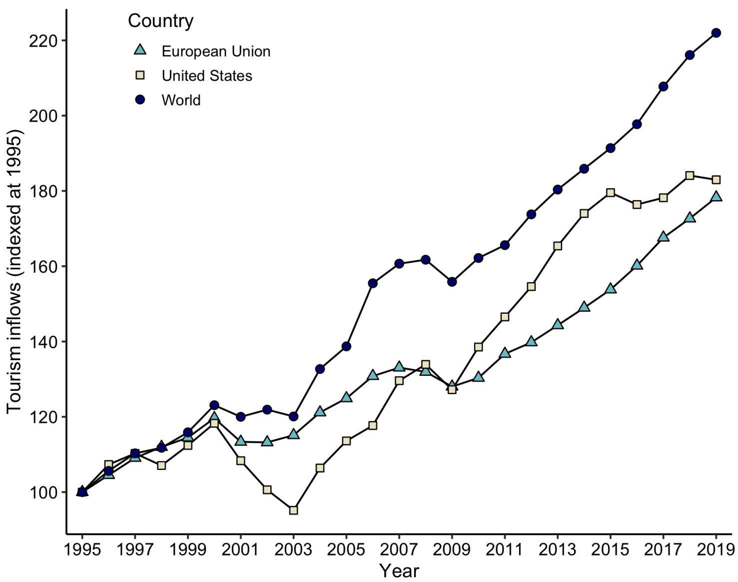
JEL Codes: D31, E24, J21, L60, L83, O14, O18, R11, Z32.

*Email: giuseppe.digiacomo@usi.ch.
I am extremely grateful to David Dorn, Lorenz Kueng, Fabrizio Mazzonna, Raphael Parchet, and Giovanni Pica for insightful comments. I also thank the participants of the Brown Bag Seminars at Università della Svizzera italiana and the IZA Summer School 2024 for suggestions and valuable feedback. All remaining errors are my own.

1 Introduction

Over the past three decades, the number of international tourists has more than doubled worldwide (Figure 1). Motivated by this trend, many regions in industrialized countries have increased their investments in tourism, aiming to boost the local economy. Yet, the rapid growth of tourism has also fueled mounting frustration among residents, leading to protests over disruptions to everyday life (The Economist, 2018, 2024). Despite the growing economic significance of tourism, we still know relatively little about its long-term impact on economic development in industrialized countries.

Figure 1: Tourist arrivals



Notes: This figure displays the trend in tourist arrivals worldwide, as well as from the United States and the European Union, between 1995 and 2019, relative to their 1995 levels, using data from the World Bank.

How does tourism shape local labor markets and influence the local economy? Can it serve as a driver of economic development? This paper examines the long-term impact of tourism on local economies in industrialized countries, focusing on Italy, one of the world's most visited destinations. To identify causal effects, the analysis exploits exogenous variation in outbound tourism flows by country of origin, combined with heterogeneity in destination preferences across Italy.

Tourism involves exporting local services that are usually not traded by temporarily relocating consumers, rather than shipping goods (Faber and Gaubert, 2019). A priori, its impact on the local economy is ambiguous. On the one hand, tourism can boost local economies by raising income and employment and attracting private and public investment, which might also benefit other sectors (Faber and Gaubert, 2019; The Economist, 2024). On the other hand, increases in tourism can raise the cost of living and land values, which in turn may drive up labor costs and crowd out other industries. This dynamic can lead to a case of *Dutch disease* (Copeland, 1991), where tourism diverts resources from more productive sectors to relatively stagnant service industries, undermining long-term productivity growth (Duernecker et al., 2024).

The theoretical ambiguity concerning the effects of tourism in industrialized countries highlights the need for empirical analysis, and Italy provides a suitable case study for examining this question. Over the past two decades, foreign tourist arrivals in Italy have increased by approximately 60 percent (Figure A1), and tourism accounts for over five percent of GDP, or 13 percent when indirect contributions are included (Petrella, 2018). In the labor market, the hospitality and entertainment sector represented around ten percent of total employment in 2019, reflecting a 45 percent increase since the beginning of the century.

To perform the analysis, I built a comprehensive panel dataset at the municipality level for Italy, spanning from the early 2000s to 2019. The dataset integrates multiple administrative and statistical sources. Labor market outcomes and demographic characteristics are drawn from decennial *Census* data and the *Permanent Census of Population and Housing*. Sectoral employment and establishments come from the *Italian registry of active firms*, while income data are obtained from the Ministry of Economy and Finance. I complement these with local housing market information from the Italian tax administration agency, which provides data on property prices and rents. To measure tourism exposure, I combine international departure data from the United Nations World Tourism Organization (UNWTO) with tourist arrival data from the Bank of Italy, which tracks flows to Italian provinces by country of origin, distinguishing from leisure and business travelers.

Estimating the causal effect of tourism in industrialized countries is challenging. In advanced economies, tourism often emerges in areas that are more densely populated, well-connected, and endowed with better amenities—such as cities—all of which are themselves drivers of economic development. Furthermore, the growth of tourism may have been endogenously driven by the decline of manufacturing in these economies. In this paper, I exploit exogenous variation in tourist departures from the 40 most relevant countries for Italian tourism. In particular, I use departures to destinations other than Italy as an instrument for tourist arrivals from those countries to Italian provinces. This variation—driven by factors such as income shocks, shifts in travel preferences, and technological advancements in transportation—predicts tourist inflows while being uncorrelated with other labor market dynamics in Italy. Specifically, I build a shift-share instrument in which the change in departures by country, the *shift*, is allocated across Italian provinces using pre-determined *shares* that capture the baseline importance of a province as a destination for tourists from each country. I then impute the province-level shock at the municipality level using tourism employment shares. In the reduced form analysis, which regresses outcomes on tourism exposure, the identifying assumption is that tourist departures from a given country affect municipality economic outcomes *relative to other areas* only through their impact on tourism, and not through other channels.

Under this assumption, I find that an exogenous increase in tourism exposure reduces both the employment-to-population and labor force participation rates while increasing the population in the exposed municipalities, particularly among young individuals and non-Italians. Exploiting the sectoral employment data, I dig deeper into the effects on employment and identify spillover and substitution effects across industries. I find that tourism exposure increases employment in hospitality and entertainment while reducing it in manufacturing and service sectors not directly tied to it. I also show that tourism leads to an increase in the number of business establishments but a decline in their average size, especially in the manufacturing sector, suggesting a potential drop in productivity. Finally, tourism reduces average per capita and labor income, while increasing property income and housing prices in the affected areas.

In the final part of the analysis, I employ an instrumental variables approach to derive a causal interpretation of the reduced-form estimates, quantifying the effect of tourism on the local economy. I instrument the change in tourist arrivals per worker using my measure of exogenous tourism exposure. The IV approach relies on two additional assumptions: instrument relevance and the exclusion restriction. I provide evidence supporting both, showing that my instrument strongly predicts changes in tourist arrivals per worker, and that it is unlikely to capture other shocks, such as trade flows or business travel.

Using this approach, I estimate that the average increase in tourism exposure experienced by Italian municipalities between 2004 and 2019—equivalent to about one additional tourist per worker—reduced the employment-to-population ratio by 0.4 percent, or approximately 350 workers. It also led to a two percent decline in manufacturing employment and a four percent increase, about 200 workers, in the hospitality and entertainment sector. Although modest in absolute terms, these effects are economically significant. They show how tourism can reshape local labor markets by reallocating employment across sectors and changing the composition of income. This shift toward lower-productivity sectors, which predominantly employ low-skilled labor, can slow long-term economic development and human capital accumulation (Duernecker et al., 2024; Di Giacomo and Lerch, 2024).

This paper contributes to several streams of the literature. In particular, it contributes to the narrow but fast-growing economic literature on tourism. The seminal contribution to the literature on the economic consequences of tourism development is Faber and Gaubert (2019). Analyzing coastal areas in Mexico, the authors find that tourism boosts local economic activity and generates positive spillovers to the manufacturing sector through the expansion of complementary services such as financial and business services. While this study provides the first evidence on the broader economic effects of tourism, it leaves several open questions that this project aims to address.

First, in Mexico, tourism emerged in underdeveloped coastal regions, while in industrialized countries like Italy, international tourism thrives in already productive and developed urban areas (e.g., Milan, Rome, Florence). In this scenario, a long-run reallocation of resources (labor and capital) from other sectors to tourism might negatively affect productivity and economic growth. I investigate the effect of tourism in an industrialized country where the sector's development might come at the expense of other, more productive industries. Other authors have estimated the short-term effect of temporary shocks to tourism on local economies in industrialized countries like Spain and Italy (González and Surovtseva, 2025; Favero and Malisan, 2021; Nocito et al., 2023; Di Giacomo and Lerch, 2024). Unlike these studies, I estimate long-term effects rather than adjustments to temporary changes in tourism flows. Furthermore, I can leverage variation in tourism across the entire country at a granular level, instead of using shocks limited to specific rural or coastal areas.

Second, I propose a new identification strategy that exploits a combination of cross-section and time variation in tourism, resulting in a more compelling framework to estimate its long-term causal effects. This approach is less susceptible to endogeneity problems that arise when using natural features as a source of variation, such as in the seminal paper (e.g., natural features might be directly correlated with public investment).

Finally, I can investigate the effect of tourism on a much wider range of economic outcomes within and beyond the labor market, looking at its effect on employment across granular sectors as well as on the real estate market, and aggregate and personal income by source and demographics.

Another growing strand of the literature on tourism examines its effects on housing markets, particularly house prices and rents. Garcia-López et al. (2020) assess the impact of Airbnb on rents and house prices in Barcelona, Koster et al. (2021) focus on Los Angeles, and Almagro and Domínguez-Iino (2024) study Amsterdam—each finding increases in house prices and rents of varying magnitudes.[1] This paper contributes to this literature by examining the impact of tourism on the real estate market in Italy, exploiting variation across the entire country rather than within a single city. The findings align with the existing evidence, confirming a positive effect of tourism on house prices and rents.

This paper also contributes to the literature on structural change and Dutch disease. Starting with the literature on structural change, a large body of work focuses on shifts across three broad sectors, agriculture, manufacturing, and services (Herrendorf et al., 2014). However, several studies emphasize that structural transformation within the services sector plays a more critical role in shaping aggregate outcomes in advanced economies (Jorgenson and Timmer, 2011). Yet, service industries differ markedly in their productivity and employment growth patterns, highlighting the importance of understanding the dynamics within the service sector. Duernecker et al. (2024) suggest that advanced economies are increasingly subject to a form

[1] Barron et al. (2021) also estimate the effect of Airbnb on housing markets using data from the United States.

of *cost disease*, where aggregate productivity growth slows as structural change reallocates activity toward low-productivity service industries. My findings contribute to this discussion by providing empirical evidence on the economic effects of such a shift. Specifically, I show that tourism drives employment away from manufacturing and high-productivity services toward lower-productivity personal services, potentially affecting productivity growth.

My study also contributes to the literature on Dutch disease, which typically examines the impact of natural resource booms (e.g., Caselli and Michaels (2013); Allcott and Keniston (2018)). While I focus on tourism as a distinct form of resource-driven expansion, differing from the conventional focus on natural resources booms, the underlying economic mechanisms and questions remain closely aligned.

The remainder of the paper is organized as follows. Section 2 describes the data and summary statistics. Section 3 presents the empirical strategy. Section 4 reports the results of the empirical analysis, and Section 5 concludes.

2 Data and descriptive statistics

This section describes the data used in the analysis and a set of summary statistics. Additional information on data sources and cleaning is reported in Appendix C.

2.1 Data

To conduct my analysis, I constructed a comprehensive municipality-level panel dataset for Italy spanning from the early 2000s to 2019, integrating multiple data sources.

2.1.1 Outcome variables

Census and ASIA – I obtained data on socio-demographic characteristics and labor market outcomes from the decennial Census (1971–2011), conducted every ten years, and the Permanent Census of Population and Housing (2018–2019). These datasets provide aggregate information on the resident population at the municipality level. In addition to employment counts from the Census, I use data on the sectoral composition of employment and business establishments in Italian municipalities from the *Archivio Statistico delle Imprese Attive* (ASIA), the Italian registry of active firms, covering the period from 2004 to 2019. This dataset, maintained by the Italian National Institute of Statistics (ISTAT), is a business and establishment register compiled from administrative and statistical sources. ASIA provides detailed information on the yearly average number of employees (expressed in yearly full-time equivalent) and establishments at the municipality level, with industry classifications disaggregated at the two-digit level. To conduct the analysis, I group industries into five homogeneous categories: Manufacturing, Construction, Hospitality and Entertainment, Other Services, and Other Industries. I then further refine the service sector by distinguishing employment and establishments across eight subcategories: Financial, Business, Real Estate, Retail, Rental, Entertainment, Hospitality, and Other Services.[2]

MEF – The Italian Ministry of Economy and Finance (MEF) provides data on yearly income declarations aggregated at the municipality level from 2000 to 2019. These data include detailed information on personal income tax declarations, broken down by income source, as well as the number of tax filers in each income category. Specifically, the dataset reports income from self-employment, dependent work, properties, and businesses.[3] To construct a measure of the municipality's total income, I sum all these sources and express values in euros 2019. An important limitation of the data is the exclusion of rental income from residential properties where neither party is a business. This type of income is not subject to income tax but instead falls under a flat-rate tax scheme (*cedolare secca*). As a result, income generated through platforms like Airbnb is often unobserved in my dataset, since it is typically taxed under the flat-rate system.[4]

OMI – Finally, I gathered information on house prices and rents from the *Osservatorio del Mercato Immobiliare* (OMI), managed by the *Agenzia delle Entrate*, the Italian tax administration agency. These data provide average property values—both for sales and rentals— by homogeneous zones within each municipality. Prices, obtained from real estate transactions, agencies, and experts, are categorized by property type (residential, commercial, industrial,

[2] Additional details on the aggregation process and the sectors included in each category are provided in Appendix C.
[3] The dataset also includes participation income and pensions, which I do not use in my analysis.
[4] Landlords may choose to declare property income under the standard tax regime when eligible for deductions.

office, garages, etc.), condition (poor, normal, and good), and expressed as price per square meter in euros 2019. To construct my dataset, I aggregate the data at the municipality level by averaging prices across neighborhoods, distinguishing between central and peripheral areas. I focus on properties classified as being in normal condition, as this is the most representative category across municipalities and over time. Finally, as OMI reports price ranges rather than exact transaction values, I use the median value within this range. Therefore, these prices are a good proxy but may be understating the average sale price or rent in booming markets.

2.1.2 Tourism measures

UNWTO – To construct my measure of exogenous exposure, I obtained data on tourist departures across more than 150 countries from the United Nations World Tourism Organization (UNWTO).[5] These data include both arrivals by country of origin and departures.[6] To minimize measurement error in outflows, I restrict my sample to the top 40 countries of origin for tourist arrivals in Italy during the 1998–2000 period. These countries, whose relative weights on arrivals are reported in Figure A2, accounted for 90 percent of total arrivals to Italy at the beginning of the century and 83.5 percent in 2019.[7]

Bank of Italy – Information on tourist arrivals and the distribution of tourism within Italy is available in the Survey on International Tourism provided by the Bank of Italy, which collects monthly information on tourist flows to the 102 Italian provinces, broken down by country of origin. The survey is administered directly to tourists at the point of departure from Italy, such as airports, ports, highways, and train stations. Respondents are asked about the duration of their stay, locations visited, and their expenditure across various categories. The Bank of Italy surveys approximately 100,000 foreign travelers per year, and the data are representative of annual inbound tourism to Italy by country of origin at the national level. Once aggregated at the province level, individuals are counted multiple times—once for each province they visit

[5] The UNWTO defines a tourist as someone who stays abroad for over 24 hours but less than a year for leisure, business, or other purposes (UNWTO, 2025). I adopt a narrower definition for tourism within Italy, focusing only on leisure travelers.

[6] I primarily use departure data; however, when these are unavailable, I estimate them based on arrivals in other countries. For more details, see Appendix C.

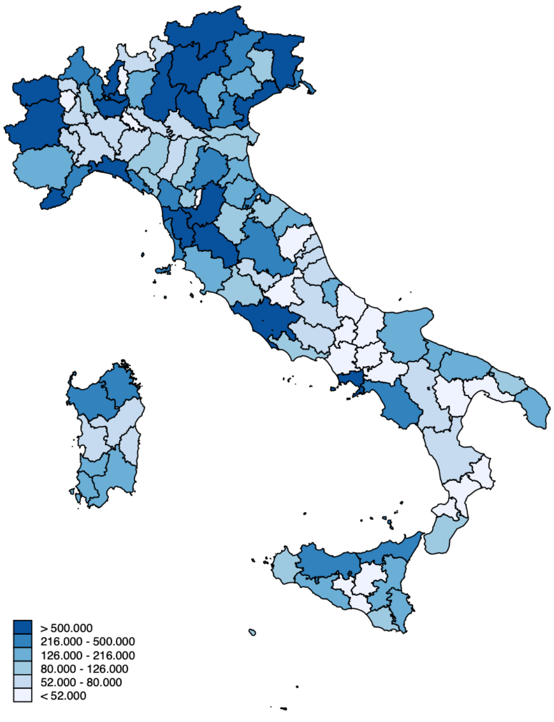
[7] I use three years in the baseline to reduce noise. Including 60 more countries increases coverage by just 7.6 percentage points while raising measurement error risk due to the inclusion of smaller countries.

during their stay.[8] I impute the provincial level flows at the municipality level as follows:

$$\text{Tourists per worker}_{m,t} = \frac{1}{L_t^m} \ell_t^{m(p)} A_t^p \tag{1}$$

where A_t^p is the number of foreign tourist arrivals in province p in year t, and $\ell_t^{m(p)} = T_t^{m(p)}/T_t^p$, is the share of provincial tourism employment in municipality m, located in province p in year t. I then normalize by total employment L_t^m, which provides a measure of arrivals per worker. To build arrivals, I focus exclusively on leisure travelers—those visiting for holidays, religious or pilgrimage reasons, medical treatments or spas, and honeymoons. I exclude individuals traveling for business, family visits, shopping, transit, unknown reasons, or those commuting as cross-border workers. Local economic conditions could influence these categories and affect the labor markets and the local economy through channels beyond tourism.

Figure 2: Arrivals by province at baseline



Notes: This figure displays the annual number of tourist arrivals at the provincial level for the year 2004, based on data from the Bank of Italy. Tourists are counted multiple times, once for each location they visit within the country.

[8] Although the survey records the municipalities visited by foreign tourists, this information is not representative at the municipality-month level. To ensure consistency over time, I reconstruct harmonized provincial boundaries for all municipalities, as detailed in Appendix C.

2.2 Descriptive statistics

In 2019, global revenues from international tourism reached 1.3 trillion euros. Italy—one of the most visited countries in the world and ranked fifth in terms of tourism revenue—accounted for 3.5 percent of total global expenditure (Bank of Italy, 2020). That same year, nearly 41 million foreign tourists visited Italy for leisure, marking an increase of almost 60 percent since the early 2000s (Figure A1). These inflows generated over 28 billion euros in revenue (Bank of Italy, 2020). Tourism in Italy contributes more than five percent to the national GDP, and estimates suggest that this share rises to approximately 13 percent when indirect effects are taken into account (Petrella, 2018).

In 2000, Italy hosted tourists from over 150 countries. However, the top ten countries of origin—Germany, France, the United Kingdom, the United States, Austria, Switzerland, the Netherlands, Spain, Australia, and Belgium, accounted for approximately 80 percent of total foreign arrivals, with Germany alone representing over 25 percent (Figure A2).[9] Geographic proximity and access points—such as airports and ports—play an important role, as evidenced by the predominance of neighboring countries among the main sources of tourism. Consequently, as shown in Figure 2, foreign tourist arrivals are more heavily concentrated in the northern and central provinces of Italy. Nonetheless, tourism remains significant in the south, particularly in provinces like Naples and Salerno, and in regions such as Sicily and Sardinia. In the baseline year, the average Italian province recorded approximately 800,000 tourist arrivals, corresponding to about 1.7 tourists per worker (see also Figure A4).

Table 1, which illustrates characteristics of Italian municipalities and the main outcome variables of my analysis, shows in Panel C that employment in the Hospitality and Entertainment sector accounted for 3.32 percent of the working-age population at the beginning of the sample period, rising to approximately five percent by 2019. This represents a 42 percent increase—the largest across all sectors in the economy.[10] By 2019, tourism-related employment made up about 11 percent of total employment. Panel C also indicates that manufacturing

[9] The share of each of these top-origin countries in total foreign tourist arrivals varies significantly across Italian provinces, as shown in Figure A3.

[10] The Entertainment sector includes museums, libraries, entertainment industries (such as cinema, television, and radio), as well as sports. Given its close connection to tourism, I frequently group it with the Hospitality sector in the analysis.

Table 1: Descriptive statistics

	Baseline		Change		Long difference	
	Mean	Sd	Mean	Sd	Mean	Sd
	[1]	[2]	[3]	[4]	[5]	[6]
			Panel A: Demographics (Census)			
Population (000s, %)	153.76	384.84	-0.56	6.62	-0.01	0.12
Non-Italian	2.34	1.73	2.49	2.21	5.85	3.42
College	7.79	4.06	2.78	0.99	6.34	1.77
High-school	26.95	4.92	3.68	1.66	8.25	3.28
Less than high-school	65.26	8.39	-6.46	1.74	-14.59	3.12
			Panel B: Labor market outcomes (Census)			
Employment	54.89	11.15	2.83	2.34	6.55	3.19
Unemployment	4.67	2.60	2.58	3.06	5.23	1.91
Labor force part.	59.56	8.92	5.41	3.20	11.79	3.58
			Panel C: Employment by sector (ASIA)			
Total	43.57	21.34	0.89	6.25	1.66	8.16
Manufacturing	12.05	12.22	-1.30	3.46	-2.33	4.53
Hospitality & Entert.	3.32	3.50	0.76	1.48	1.42	1.60
Other services	22.86	13.57	1.99	3.96	3.67	5.17
Construction	4.61	2.23	-0.61	1.39	-1.20	1.62
Other sectors	0.73	0.95	0.05	0.71	0.09	0.85
			Panel D: Income per capita (000s, %, MEF)			
Total	13.98	4.58	7.57	7.69	14.57	8.56
Dependent work.	11.19	3.57	10.32	8.63	19.91	9.03
Self employed	0.85	0.61	0.13	21.31	0.20	25.60
Property	0.96	0.50	-8.29	21.90	-17.79	19.18
Entrepreneur	0.99	0.34	-8.42	15.57	-15.33	18.78
			Panel E: House prices and rents (000s, %, OMI)			
Sales	2.02	1.49	-2.12	22.57	-4.65	23.94
Rents	0.01	0.01	-7.12	26.76	-13.55	33.06
			Panel F: Tourist arrivals (UNWTO, Bank of Italy)			
Tourists (000s)	223.87	706.31	120.58	434.56	243.91	835.47
Tourists per wrk.	1.73	3.68	0.51	1.49	1.10	2.72

Notes: This table presents descriptive statistics for the main outcome variables at the municipality level. Columns 1 and 2 report average values and standard deviations in the baseline year, 2001 for Census variables and 2004 for all others. Columns 3 and 4 show average changes over two subperiods: 2001/04–2011 and 2011–2019. Columns 5 and 6 report long differences over the full period 2001/04–2019. Panel A reports population shares by group, calculated as the ratio of each group's population to the working-age population in the municipality. For example, the share of non-Italians is defined as the number of non-Italians divided by the working-age population. Panel B presents labor market outcomes in share of the working-age population. Panel C shows the employment-to-population ratio by sector. Panel D reports income per capita by category, while Panel E presents average house prices and rents per square meter. Finally, Panel F illustrates data on tourist arrivals. Averages are weighted by the municipality population in 2001. Shares are expressed in percentage points, while values in Panels D and E are expressed as percent changes (e.g., 0.5 corresponds to 0.5%). All monetary values are expressed in 2019 euros.

employment has declined, replaced by rising employment in the service sector. Panel B of the table shows that, over the sample period, employment, unemployment, and labor force participation all increased while the working-age population declined, as reported in Panel A.[11]

Panel D of the table shows that the average income per tax capita in Italian municipalities

[11] The employment-to-population ratio can be calculated using both the Census and ASIA datasets. The former reflects employment by place of residence, while the latter rather captures the workers-to-resident population ratio, with employment measured at the municipality of work. Discrepancies may also arise because, in the Census, individuals may report themselves as employed even if they work in the informal sector or under other ambiguous conditions.

is about 14,000 euros, having increased by nearly 15 percent between 2004 and 2019. Among the various income sources analyzed, labor income per capita experienced the largest growth. In contrast, property income declined by almost 18 percent, likely due to the housing market crisis that began in 2008, with house prices never fully recovering to their pre-crisis levels. Consistent with this trend, Panel E reports that the average price per square meter of residential housing is approximately 2,000 euros—down about five percent over the sample period. Rental prices also declined significantly, falling by 13 percent from a baseline of ten euros per square meter.

3 Empirical strategy

Estimating the causal effect of tourism on local economies poses several identification problems. Tourist arrivals can be correlated to local demand shocks (e.g., manufacturing downturns) or regional characteristics (such as accessibility or proximity) that may influence both tourism inflows and labor market outcomes. Moreover, local policies can boost tourist arrivals (e.g., investments in infrastructure, advertisement campaigns), and measurement error of tourist flows may bias the estimates towards zero.

To address these challenges, I construct an exogenous measure of tourism exposure by leveraging variation in outbound departures from each country of origin to destinations other than Italy. These departures are used to predict tourist arrivals from that country to Italian provinces. The variation is driven by factors such as income shocks, evolving travel preferences, and technological advancements in transportation. While these factors influence the total number of tourists leaving a country, they are plausibly unrelated to local labor market conditions in Italy.

Following an approach similar to the enclave hypothesis in the immigration literature (Bartel, 1989; Card and DiNardo, 2000), I allocate these departures across Italian provinces based on the baseline distribution of tourism from each country—that is, the relative importance of each province as a destination in a baseline year for tourism from that country. This approach relies on the idea that the spatial distribution of international tourists is path-dependent. Past patterns of visitation tend to persist over time due to a range of reinforcing mechanisms: for instance, word-of-mouth and social networks can promote familiarity and reduce uncertainty for new tourists; the existence of direct transportation routes such as international flights or rail connections increases accessibility and repeat visitation; and local infrastructure often adapts over time to host specific nationalities, offering services tailored to the visitors. In the Italian context, long-standing ties between certain provinces and source countries (e.g., German tourists in South Tyrol, and Russian tourists on the coast of Tuscany and Romagna) illustrate the persistence of these patterns. Building on this logic, I use the baseline distribution of tourism from each country to predict arrivals in the province. I then impute this shock at the municipality level using hospitality employment. As a result, my exogenous measure of exposure takes the form of a shift-share instrument, constructed as follows:

$$\text{Tourism exposure}_{m,t} = \frac{1}{L^m_{t_0}} \ell^m_{t_0} \sum_{c \in C} s^{p,c}_{t_0} \left[D^c_t - D^c_{t-1} \right] \tag{2}$$

where $D^c_t - D^c_{t-1}$, is the change in tourist outflows from country c to any destination except Italy. This flow is redistributed to Italian provinces using $s^{p,c}_{t_0} = A^{p,c}_{t_0}/A^c_{t_0}$, which is the share of arrivals from country c to province p over total arrivals in Italy from country c in the baseline year 2004. The province-level measure is then interacted with the share of provincial tourism employment in municipality m in 2004, $\ell^{m(p)}_{t_0} = T^{m(p)}_{t_0}/T^p_{t_0}$, to obtain a municipality-level exposure. This imputation allows me to analyze outcomes at a much more granular level compared to the provincial level.[12] Finally, the measure is transformed into departures per worker by normalizing for the total employment in the municipality in 2001 $L^m_{t_0}$.[13]

Using this measure, I estimate the effect of tourism on outcomes measured at the municipality level using a stacked first-difference specification with two periods, 2004-2011 and

[12] This approach is similar to that of Autor et al. (2013), who reallocate imports by industry a the commuting zone level to analyze the effects of import competition in the US. However, I also discuss the province-level analysis in Section B.1 of the Appendix.

[13] To normalize by employment, I choose between two sources: the employment count from the 2001 Census and that from ASIA in 2004. Using the 2001 Census has the advantage of being predetermined, even when analyzing variables also drawn from the 2001 Census, which would not be the case with 2004 data. Section B.1 presents robustness checks using the alternative normalization. Results remain highly consistent.

2011-2019.[14] Specifically, I estimate the following regression:

$$\Delta y_{m,t} = \alpha_{rt} + \beta \cdot \text{Tourism exposure}_{m,t} + \mathbf{X}'_{m,t_0}\Gamma + \varepsilon_{m,t} \quad (3)$$

where $\Delta y_{m,t}$ is the change in the outcome variable of interest in municipality m between $t-1$ and t; $\mathbf{X}'_{m,t_0}$ is a vector that includes municipality level covariates kept constant at the baseline year to avoid endogeneity; $\alpha_{r,t}$ is the region-year fixed effects; Tourism exposure$_{m,t}$ is my exogenous tourism shock; $\varepsilon_{m,t}$ is the error term.[15] The stacked specification allows me to exploit the differential growth in tourism across the two sub-periods under analysis. As shown in Figure A1, the first period is marked by a modest increase in tourist arrivals, while the second period (2011 to 2019) exhibits a much steeper increase. However, I discuss the long-difference specification results in Section B of the Appendix.

In Section 4 I start by presenting the reduced-form regressions. In this framework, the identifying assumption is that the measure of tourism exposure, conditional on controls, has to be uncorrelated with the error term and affect outcomes at the municipality level only through tourism. This implies that labor markets with higher exposure to tourism—measured by their baseline tourism composition and tourist departures—do not experience systematically different shocks or trends relative to those with lower exposure. Given how my measure of exposure is constructed, the identification relies primarily on the exogeneity of the shift component (Borusyak et al., 2022)— specifically, changes in departures by country of origin. I provide further details and discuss potential threats to the validity of this identifying assumption in Section 4.1 and Section 4.2.3.

To quantify the impact of tourism on outcomes, I then estimate IV coefficients, using my measure of tourism exposure as an instrument for the change in tourist arrivals per worker at the municipality level over the sample period. When estimating the effects in the IV framework, I impose additional assumptions, such as the relevance assumption and the exclusion restriction, which are discussed in Section 4.3.

[14] For Census variables unavailable in 2004, I use their 2001 values and approximate the 8-year change to 2011 by rescaling the observed 10-year change: specifically, I divide the 10-year change by 10 and multiply by eight.

[15] Region-year fixed effects account for the fact that Italian regions have substantial administrative and fiscal autonomy, with much of public investment and policy implementation occurring at the regional level, potentially leading to differential trends across regions over time.

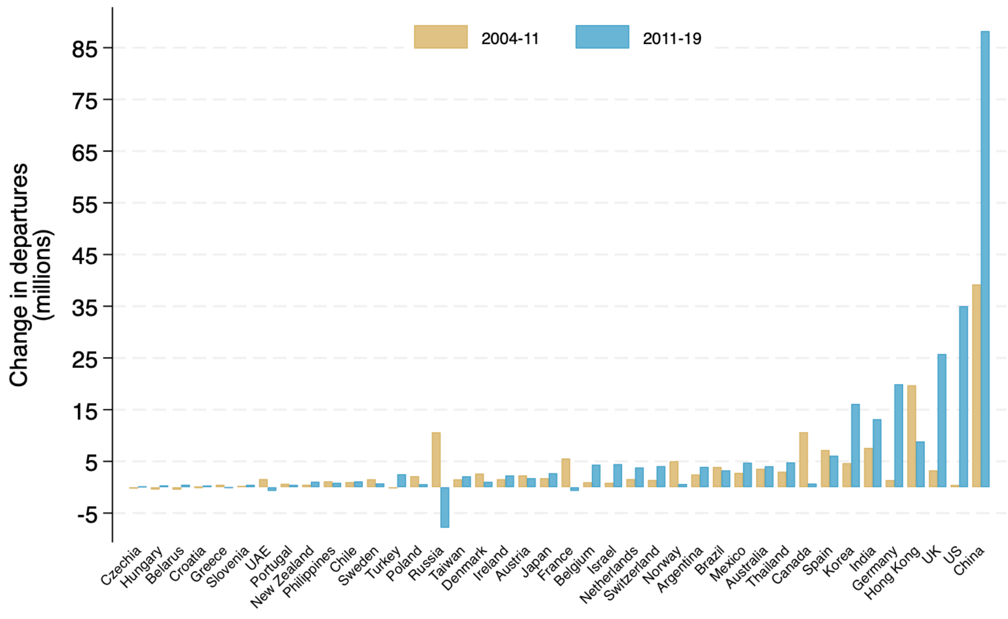
4 Empirical evidence

This section introduces my measure of exposure to tourism and documents its variation. I then present reduced-form results for employment, and employment by sector, as well as population, income, and house prices. I also assess the robustness of these results. The final subsection presents the IV estimates.

4.1 Exogenous exposure to tourism

As outlined in the previous section, my exogenous measure of exposure leverages variation in tourist departures by country of origin to predict tourist arrivals to Italy. In addition, it exploits the heterogeneity in the geographic distribution of tourists from different countries across Italian provinces, as well as the variation between more and less touristic municipalities within each province.

Figure 3: Change in departures



Notes: This figure shows changes in departures by country of origin to destinations other than Italy, split into two subperiods: 2004–2011 and 2011–2019. Countries are ranked from left to right based on their total change in departures over the full period (2004–2019), with values expressed in thousands of individuals.

Figure 3 shows changes in tourist departures by country of origin to destinations other than Italy. As discussed in the previous section, these changes are driven by factors idiosyncratic to the sending countries and are plausibly unrelated to local labor market conditions in Italy. The figure highlights substantial heterogeneity in departures both across countries and over time. As expected, China exhibits the largest increase in tourist departures in both subperiods, with a cumulative rise of approximately 130 million additional travelers. Significant increases are also observed for the United States, the United Kingdom, Germany, and Hong Kong. In contrast, only a few countries show negative trends, most notably Russia and France, between 2011 and 2019.

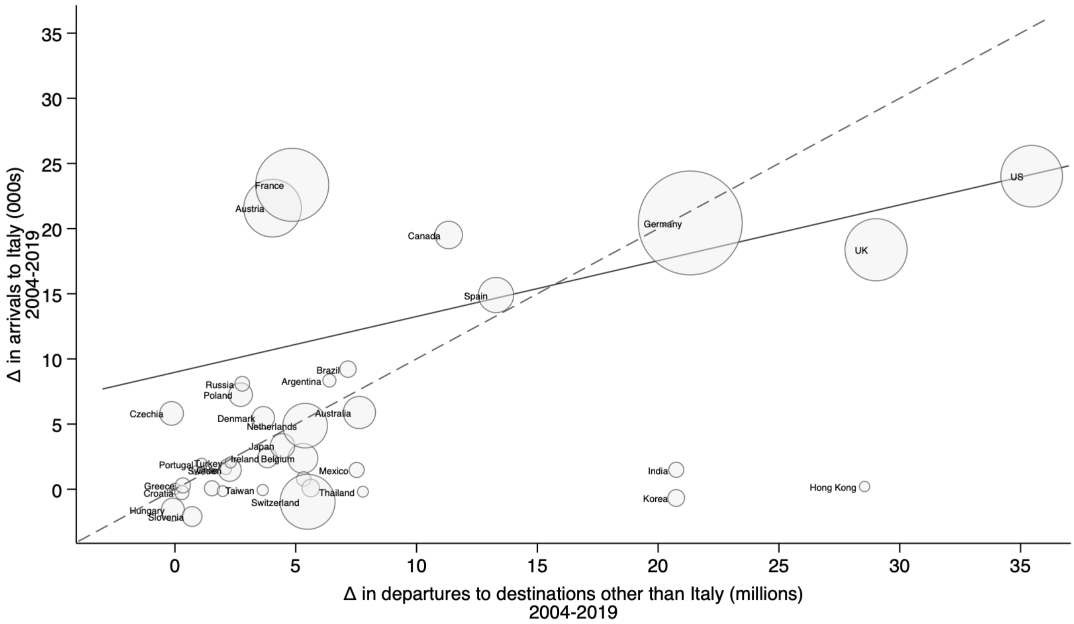
Tourist preferences for visiting Italy vary significantly by country of origin, making departures from some countries more relevant than others. Nevertheless, as shown in Figure 4, there is a strong positive correlation between the change in departures (x-axis, in millions) and the corresponding change in arrivals to Italy (y-axis, in thousands) between 2004 and 2019. The figure also reveals considerable heterogeneity across countries. For those above the 45° line, more than one tourist arrives in Italy for every additional 100 departures, indicating a relatively strong preference for Italy as a destination—examples include France, Austria, Canada, and Spain. In contrast, countries below the 45° line exhibit a lower relative preference for Italy. The solid line represents the linear fit, summarizing the average correlation across all countries. Its upward slope confirms the overall positive relationship.

The other relevant component of my identification strategy is the heterogeneity in the composition of tourism across Italian provinces. I move beyond the variation in total tourist arrivals at the national level, reported in Figure 4, and instead exploit the country-specific preferences for different destinations within Italy. These preferences are measured by the share of tourists from each country visiting a given Italian province in the baseline period. The distribution is illustrated in Figure A5 in the Appendix. For many countries, the most popular destinations include Rome, Florence, Venice, Naples, and Milan. In particular, the provinces of Rome, Venice, and Florence account for approximately 30 percent of all foreign tourist arrivals (see also Figure 2). Nonetheless, the figure reveals substantial heterogeneity in destination choices across countries of origin.[16]

Figure 5 displays the geographic distribution of my exposure measure between 2004 and

[16] Figure A5 also suggests a necessary robustness check: excluding provinces that systematically receive a high share of tourists from each country, as they may be effectively "always treated."

Figure 4: Departure by country and arrivals to Italy

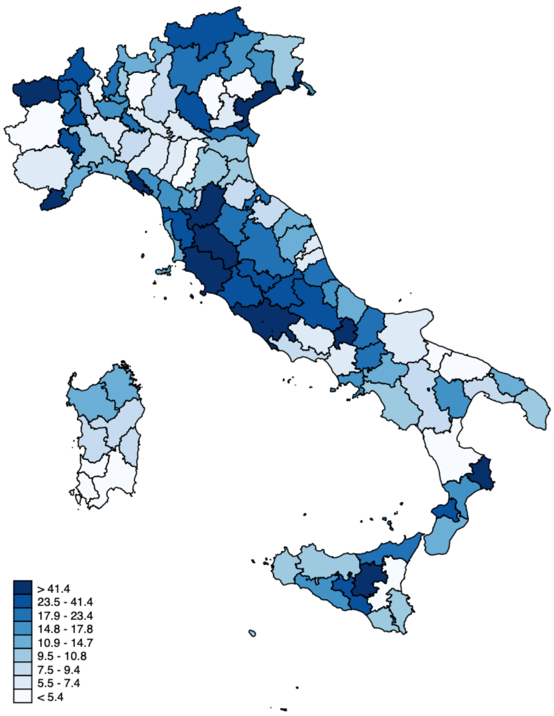


Notes: This figure plots the change in tourist departures to destinations other than Italy (x-axis, in millions) and the corresponding change in arrivals to Italy (y-axis, in thousands) by country of origin between 2004 and 2019. Tourists are counted multiple times if they visit more than one destination within Italy. The size of each bubble reflects the share of total arrivals in 2004. The dashed line represents the 45° line and indicates a 1:100 ratio between arrivals and departures, while the solid line shows the linear fit, weighted by the baseline share of arrivals ($\beta = 0.43, (0.16)$). China, a clear outlier, is excluded from the figure; including it yields a positive but flatter relationship ($\beta = 0.28, (0.16)$). Figure A6 in the Appendix includes China and reports separate observations for the two subperiods.

2019, calculated at the province level before the shock is imputed at the municipality level. In many areas of Italy, the increase in exposure is modest. On average, the increase amounts to approximately ten additional tourists per worker. However, in several regions—including parts of Piedmont, Valle d'Aosta, Trentino, Tuscany, Lazio, Campania, and Sicily—the exposure measure ranges between 15 and 40 additional tourist departures per worker (e.g., Venice, Florence, and Rome). More strikingly, some provinces within these regions experience increases of more than 40 additional departures per worker.

Finally, I impute the shock at the municipality level using tourism employment shares as described in the empirical strategy (Section 3). This step allows me to leverage more granular variation in the outcome variables. The shares assign higher exposure to municipalities with larger hospitality employment within each province. In Section 4.2.3, I examine alternative sets of shares used for the imputation and show that they yield similar results.

Figure 5: Provincial exogenous exposure



Notes: This figure shows the exogenous change in tourist exposure at the province level, normalized by baseline employment. The measure is defined as: $\text{Tourism exposure}_{p,t} = \frac{1}{L^{p}_{t_0}} \sum_{c \in C} s^{p,c}_{t_0} \left[D^{c}_{t} - D^{c}_{t-1} \right]$. Darker colors correspond to a higher change in tourist departures per worker. Darker colors correspond to a higher change in tourist departures per worker. The exposure measure has a mean of 9.6 and a standard deviation of 12.

4.2 Reduced-form evidence

This subsection presents the main results of the reduced-form analysis, building on the empirical framework outlined in the previous sections.

4.2.1 Local labor market outcomes and population

Employment-to-population ratio – I begin the analysis of the impact of tourism on local economies by examining its effect on the employment-to-population ratio at the municipality level. Results are presented in Table 2. Columns 1 to 5 are based on Census data, while Column 6 uses data from ASIA. Columns 1 to 3 progressively include additional sets of controls, and Column 4 excludes the provinces of Rome, Florence, and Venice, which are the most exposed areas across the country. All regressions are weighted by population, except Column 5, which reports unweighted results.

The table shows that, across all specifications, the effect of exogenous tourism exposure

Table 2: Tourism exposure and employment-to-population ratio

	Census					ASIA
	Weighted			Excludes RO-FL-VE	Unweighted	Weighted
	[1]	[2]	[3]	[4]	[5]	[6]
Tourism exposure	-0.089	-0.133***	-0.157***	-0.408***	-0.269***	-0.266**
	(0.063)	(0.034)	(0.049)	(0.142)	(0.099)	(0.126)
Observations	15818	15818	15714	15312	15714	15714
Covariates:						
Region-Year FE	✓	✓	✓	✓	✓	✓
Socio-Demographic		✓	✓	✓	✓	✓
Industry			✓	✓	✓	✓
Geographic			✓	✓	✓	✓
Pre-trends			✓	✓	✓	✓

*Notes: This table reports the standardized effect of tourist departures per worker on the employment-to-population ratio at the municipality level using Census and ASIA data. Column 1 includes only region-year fixed effects. Column 2 adds controls for baseline socio-demographic characteristics, including the log of the working-age population, population shares by age group, the share of women, and educational attainment (i.e., the share of individuals with a college degree, a high school diploma, and a middle school diploma), as well as the baseline employment rate. Column 3 includes three additional sets of controls: i) employment structure, measured by the employment rate in agriculture, manufacturing, tourism, and other services; ii) geographical characteristics, including indicators for coastal areas, islands, altitude, and the degree of urbanization; iii) pre-trends, measured as the change between 1971 and 2001 in population, the share of college graduates, gender-specific labor force participation, and sectoral employment rates in agriculture, manufacturing, and commerce. Column 4 excludes the provinces of Rome, Florence, and Venice. Column 5 reports unweighted regression, and Column 6 reports results using ASIA data. Coefficients are multiplied by 100, and standard errors allow for arbitrary clustering at the province level. Coefficients with ***, ** and * are significant at the 1%, 5% and 10% confidence level.*

on the employment-to-population ratio is consistently negative. In Column 1, the coefficient is noisily estimated, possibly because the effect of tourism could be confounded by employment and population dynamics. Column 2 accounts for this potential confounding by controlling for baseline socio-demographic characteristics and employment. The estimated coefficient becomes more negative and highly statistically significant. Column 3 adds a richer set of covariates that capture differences in industry composition, geographical characteristics, and pre-existing trends in demographics and sectoral employment. Adding these controls does not substantially change the point estimate and the standard errors.

An additional concern, as discussed in Section 4.1, is that the results could be disproportionately driven by a few highly attractive and populous provinces. Columns 4 and 5 address this issue by either excluding the provinces of Rome, Florence, and Venice or removing the population weights from the regression. In both cases, the estimated coefficients become more negative, suggesting possible heterogeneous effects of tourism across municipalities. The increase in the coefficient may reflect the fact that, in the most tourist-attractive areas, tourism is already deeply integrated into the local economy, so marginal increases in tourist flows tend to generate smaller employment effects compared to less touristic provinces.

Regarding the magnitude of the effect—examined in detail when discussing the IV estimates in Section 4.3—the preferred specifications presented in Columns 3 and 6 suggest that a one-standard-deviation increase in tourism exposure is associated with a reduction in the employment-to-population ratio of 0.157 percentage points when using Census data, and 0.266 percentage points when using ASIA data.

Figure A7 in the Appendix presents the estimated effects separately by gender for employment, unemployment, and labor force participation. The figure shows that the effect on employment is negative for both men and women, with a larger negative impact among women. Moreover, the decline in the employment-to-population ratio appears to be driven by a reduction in labor force participation rates, while the unemployment-to-population ratio remains unaffected. This pattern suggests that the employment decline is more consistent with a withdrawal from the labor force than a decrease in the job-finding rate.

Population and log-level analysis – One additional piece of evidence regarding tourism's impact on municipal labor market outcomes is the observed change in the denominator—population. Figure A8 in the Appendix illustrates these effects: Panel A reports the impact of tourism exposure on the log of the population by gender and on the number of foreign residents, while Panel B presents the effects on the log of various labor market outcomes by gender.

The figure indicates that tourism exposure is associated with an increase in municipal population, as well as a rise in the number of non-Italian residents. Specifically, a one standard deviation increase in tourism exposure increases population by 0.5 percent and non-Italian residents by 2.2 percent. Panel B further reveals small increases in employment, unemployment, and labor force participation. However, these changes are smaller than the increase in population, which explains the decline in the employment-to-population ratio described above.[17]

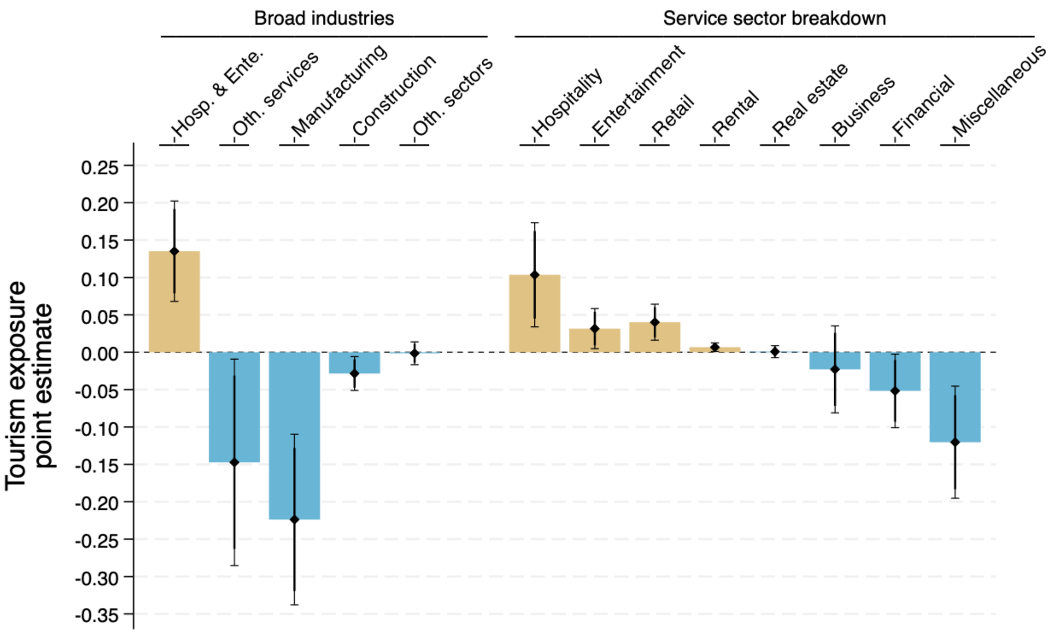
Thus, in terms of log levels, my results align with those estimated by Faber and Gaubert (2019) in Mexico, with an increase in population and employment, yet the size of the effects is an order of magnitude smaller and the ranking is inverted, as population growth exceeds the increase in employment, reducing the employment-to-population ratio.

[17] The population change suggests a potential shift in human capital, as tourism mostly generates demand for low-skilled labor. Section B in the Appendix shows that the substitution between college and non-college graduates is limited at the municipality level and becomes more pronounced only when analyzing CZ-level aggregates.

4.2.2 *Industry composition*

Employment by sector – The aggregate effect on the employment-to-population ratio conceals substantial heterogeneity across sectors. Figure 6 reports the impact of tourism exposure disaggregated by broad economic sectors and by detailed service industries, using ASIA data.[18]

Figure 6: Effect on employment-to-population ratio by sector



Notes: This figure shows the effect of standardized tourism exposure on the employment-to-population ratio at the municipality level, by broad economic sectors and detailed service industries, using ASIA data. Changes are expressed in percentage points of the working-age population and are multiplied by 100. Every regression includes two time periods with 7,857 observations and the full battery of controls of my preferred specification. Regressions are weighted by municipality population in 2001. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Confidence intervals are at the 90% and 95% level.

The figure shows that tourism exposure induces a reallocation of employment from sectors less directly tied to tourism toward those more closely connected. Specifically, higher tourism exposure leads to a decline in employment in Construction, Manufacturing, and Other services, while boosting employment in the Hospitality and Entertainment sectors. However, the gains in these tourism-related sectors are not enough to offset the losses elsewhere, resulting in an overall decline in total employment described in the previous section.

My data also allows for a more granular analysis within the service sector. The right-hand side of Figure 6 presents a decomposition of services into eight subcategories. This

[18] The sum of the coefficients for the broad economic sectors corresponds to the total employment effect reported in Column 6 of Table 2.

breakdown reveals that only industries directly linked to tourism—highlighted in gold in the figure—experience employment gains in response to increased tourism exposure. In contrast, higher-skill service industries, such as Financial and Business services, exhibit negative effects on employment. This suggests that tourism expansion may crowd out more skill-intensive services that are critical to the functioning and development of the local economy.[19]

My findings on sectoral employment align with those of González and Surovtseva (2025) for Spain, who show that temporary tourism shocks in the short run lead to a reallocation of employment across sectors rather than generating gains in total employment. I find evidence of this mechanism also in the medium-long run and further show that in this case, the overall impact on employment is negative. In contrast, my results diverge from those of Faber and Gaubert (2019) for Mexico, where tourism expanded in economically underdeveloped areas with limited pre-existing economic activity, reducing the need for substitution with other sectors and stimulating net employment gains.

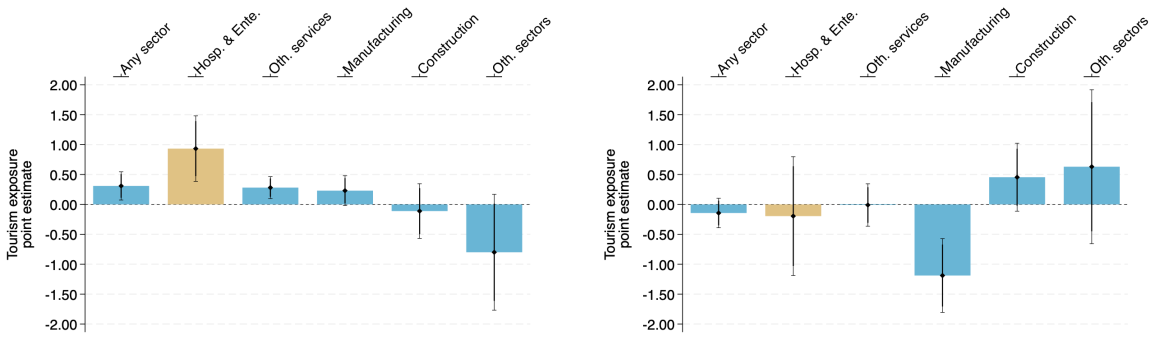
Establishment level – I now examine how tourism shocks affect the number and size of establishments across sectors. While I do not observe productivity directly, the establishment dynamics offer suggestive evidence about how it may respond to these shocks. In particular, analyzing establishment dynamics helps identify whether tourism shocks lead to business exit, a shift toward smaller and potentially less labor-productive firms, or an expansion of larger, possibly more efficient establishments.

Figure 7 presents the effects of tourism on establishment-level outcomes: Panel A shows results for establishment counts, while Panel B focuses on establishment size, measured as workers per establishment. Although the effects are modest, Panel A indicates that tourism leads to an increase in the total number of establishments in the exposed areas, with the strongest effects observed in the Hospitality and Entertainment sectors, where the number of establishments rises by about one percent. I also find a small increase in the number of establishments in Manufacturing and Other services, suggesting that tourism may help stimulate broader economic activity in these areas. However, Panel B reveals that this expansion in the number of

[19] The effects are similar when looking at the employment share by sector (Figure A9), or in log-levels (Figure A10). Miscellaneous services include telecommunications, insurance, research and development, IT services, the public sector, and other miscellaneous services.

Figure 7: Effect on establishments

Panel A: Log-count (%) Panel B: Log-size (%)



Notes: This figure shows the effect of standardized tourism exposure on log-establishment counts (Panel A) and size (Panel B), by broad economic sectors using ASIA data. Changes are expressed in percent and are multiplied by 100. Every regression includes two time periods and the full battery of controls of my preferred specification. Regressions are weighted by municipality population in 2001. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Confidence intervals are at the 90% and 95% level.

establishments is accompanied by a decline in their average size. This is evident in Manufacturing, where the average establishment size shrinks by about 1.2 percent.

These results suggest that tourism may stimulate a reorganization of local production, characterized by an increase in the number of smaller firms and a reduction in average firm size, particularly in Manufacturing. This pattern suggests a decline in average labor productivity through reduced economies of scale and the entry of potentially less efficient firms.

Spillover effects – At this point, one may wonder whether the observed changes in the composition of the labor market (and population) are driven by tourist-attractive areas specializing in the industry, driving businesses in other sectors to relocate to surrounding municipalities to meet the potentially increased demand for goods and services. In other words, one may ask whether the negative effects of tourism at the municipality level are offset by increased economic activity in non-touristic sectors in nearby areas.

I test this mechanism in Section B.3 of the Appendix, following two approaches. First, I examine potential spillovers by constructing a measure of exposure for each municipality based on the average exposure of other municipalities within its commuting zone (CZ), excluding its own exposure (i.e., a leave-one-out measure). Second, I replicate most of the analysis by aggregating both outcomes and exposure at the CZ level.

Both approaches suggest that tourism shocks have limited spillover effects, and if any are present, they tend to move in the same direction as the effects estimated at the municipality level (Table B5). The CZ level analysis yields results that closely mirror those at the municipality level. The only notable difference, discussed in Section B.3, is a discernible shift in population composition at the CZ level that is less clear at the municipality level. Specifically, tourism seems to reduce the share of individuals with a college degree and increase the share of individuals with less than a high school diploma living in the CZ.

4.2.3 Threat to validity and robustness

This section briefly outlines the main threats to the validity of the analysis and presents key robustness checks. A more detailed discussion, along with additional analyses, is provided in Section B.1 of the Appendix.

Possible confounders – Two main concerns may challenge the validity of the identification strategy. First, an increase in departures from a given country might reflect not only rising tourism demand but also productivity gains in the tradable sector of that country, potentially increasing international competition faced by Italian firms in the tradable sector. Moreover, the increase in departures might also increase business travelers, which would affect the Italian local economy through channels other than tourism.[20] Second, municipalities with higher tourism-related employment may also be more exposed to other adverse long-term trends—such as the decline of manufacturing—placing them on a preexisting downward trend. In this case, the rise in tourism could be a consequence, rather than a cause, of broader structural shifts in the local economy. In both cases, the estimated effects may capture local trends rather than isolating the causal impact of tourism.

Regarding the first concern, the construction of my exposure measure is specifically designed to isolate tourism-related flows from business travel. As detailed in Section 3, I allocate departures across Italian provinces based on the baseline share of arrivals from each country, considering only travelers whose primary purpose is leisure. Consistent with this idea, Figure A11 shows a negative correlation between changes in business travel to Italian provinces and

[20] Another potential channel is that departures may partly reflect migration flows from these countries. However, migrants are not classified as tourists in the UNWTO data, and I exclude flows directed to Italy in any case.

my measure of exogenous tourism exposure.

However, this does not rule out the possibility that departures may also capture increasing trade competition. To address this concern, my baseline specification includes controls for the municipality's sectoral employment composition, which serve as a proxy for baseline exposure to aggregate trade shocks. Under the assumption that these shares capture all systematic variation in trade exposure, the coefficient on tourism exposure is identified off cross-municipality differences in tourism among areas with similar trade exposure. Furthermore, as shown in Figure B1 in the Appendix, my estimates remain robust when excluding countries, such as China, that have experienced substantial increases in international trade over recent decades.

Regarding the second concern, my preferred specification addresses potential differential trends across Italian municipalities in terms of population, sociodemographic characteristics, labor force participation, and industry employment rates. I control for these underlying trends by including the change in these variables between 1971 and 2001. As an additional robustness check, Figure B2 in the Appendix reveals that my results remain consistent when alternative periods (1981–2001 or 1991–2001) are also included. Moreover, Table B1 in the Appendix directly examines the relationship between my measure of tourism exposure and changes in population and employment rates in manufacturing and services over the same period. Results show that tourism exposure is not significantly correlated, either economically or statistically, with pre-trends in these variables.

Other robustness checks – Section B.1 presents several additional robustness checks. I show that the results remain robust when including province fixed effects or when using a long-differences specification instead of the stacked model (Table B2). Moreover, as suggested by Borusyak et al. (2025), I address the fact that the tourism shares used in my analysis sum to one at the country-of-origin level (rather than at the province level). Figure B3 shows that controlling for the sum of shares does not affect the results.

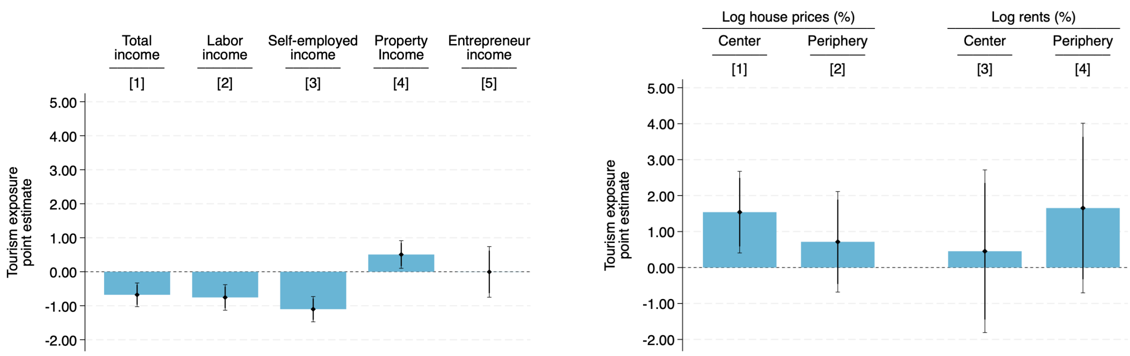
A further set of robustness checks concerns the construction of the exposure measure and the choice of the shares. In particular, I show that the results are similar when normalizing exposure using 2004 ASIA employment data instead of 2001 Census employment (Table B3, Panel A). I also show that imputing the shock at the municipality level using the hospitality employment share within each municipality, $f_{t_0}^{m(p)} = T_{t_0}^{m(p)}/L_{t_0}^{m(p)}$, rather than the municipality's share of provincial tourism employment, $\ell_{t_0}^{m(p)} = T_{t_0}^{m(p)}/T_{t_0}^{p}$, yields similar results results (Table B3, Panel B). I then confirm the robustness of my findings when computing baseline province-level tourism shares using the share of tourism arrivals from each country within a province, $s_{t_0}^{p,c} = A_{t_0}^{p,c}/A_{t_0}^{p}$, rather than using the share of a province's arrivals in Italy from that country, $s_{t_0}^{p,c} = A_{t_0}^{p,c}/A_{t_0}^{c}$ (Table B3, Panel C). Finally, I show that my results are consistent even when skipping the municipality-level reallocation and estimating the regressions directly at the province level (Table B4).

4.2.4 Income and house prices

My final set of reduced-form results explores the impact of tourism on local income and housing markets, offering a proxy for its broader effects on economic activity and welfare. Figure 8 presents the findings in two panels. Panel A, based on MEF data, shows how tourism exposure affects the log change of various income sources—namely total, labor, self-employment, property, and entrepreneurial income—all measured on a per-capita basis. Panel B, using OMI data, illustrates the impact on the change in log house prices and rents per square meter, distinguishing between central and peripheral areas within municipalities.

Figure 8: Effect income per capita and house prices

Panel A: Log-income per capita (%) | Panel B: Log house prices and rents (%)



Notes: This figure presents the effect of standardized tourism exposure on local economic outcomes. Panel A displays the impact on log income per capita by source, based on MEF data, while Panel B shows the effects on log house prices and rents per square meter, using OMI data. All changes are expressed in percent and multiplied by 100. Each regression includes two time periods and the full set of controls from my preferred specification. Regressions on house prices and rents also control for baseline price and rent levels. House prices and rents are available for a smaller set of municipalities. Data on the periphery are available only for a subsample of about 4,000 municipalities. Regressions are weighted by municipality population in 2001. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Confidence intervals are at the 90% and 95% level.

Income – Panel A shows that higher tourism exposure is associated with a decline in income per capita (Column 1). Disaggregating by income source, tourism reduces all categories except for property income (Column 4), which increases by approximately one percent for a one-standard-deviation increase in exposure. This category is mostly composed of rental income. Figure A12 in the Appendix presents the same results using municipality aggregate income instead of per capita measures, revealing a similar pattern.

These results suggest that, in the long run, tourism tends to shrink both the local labor market and the broader local economy. However, two important caveats must be addressed. First, as detailed in Section 2.1, my income data do not capture a substantial portion of rental income derived from informal tourist accommodations—such as Airbnb and second-home rentals—which are typically taxed under a flat-rate regime and therefore excluded from the income tax records used in this analysis. Although these income flows go undetected due to data limitations, the results still indicate that tourism has limited, or even negative, spillover effects beyond property-related income.

Second, tourism is a sector characterized by widespread informal employment and is known to have among the highest levels of tax evasion and informal work in Italy (ISTAT, 2024). As a result, part of the income generated in tourism-heavy municipalities may have shifted to the informal sector and remained undeclared, potentially offsetting the negative effects observed in the formal accounts. Nevertheless, this shift can still be detrimental to the local economy, as it reduces tax revenues for local governments—as documented in Figure A12 in the Appendix—and may consequently lead to a lower provision of public services for the resident population.

House prices and rents – Panel B of Figure 8 shows that increased tourism exposure leads to higher house prices in city centers. This suggests that tourism may contribute to a rising cost of living in these areas, potentially discouraging non-tourism-related workers from residing there. These results on prices and rents are in line with the findings of the literature in other cities (Garcia-López et al., 2020; Koster et al., 2021; Almagro and Domínguez-Iino, 2024), and for municipalities exposed to temporary tourism shocks within Italy (Favero and Malisan, 2021; Nocito et al., 2023). However, as with income and employment effects, the estimated impacts on housing prices remain relatively modest.

4.3 IV estimation

In this section, I present my instrumental variable estimates and examine the quantitative impact of tourism on the local labor market and local economy. Specifically, I use my exogenous measure of tourism exposure to predict changes in foreign tourist arrivals per worker at the municipality level (see Equation 1). The IV framework, however, relies on a stronger set of identifying assumptions than the reduced-form approach. In particular, it requires: *i*) the *relevance assumption*, meaning that the instrument must be correlated with tourist arrivals at the municipality level; and *ii*) the *exclusion restriction*, which requires that the instrument affects the outcome variable only through its impact on tourist arrivals.

The relevance assumption can be tested empirically through a first-stage regression of changes in tourist arrivals per worker on my exogenous measure of tourism exposure. Table A1 in the Appendix reports the results.[21] In my preferred specification (Column 6), a one-standard-deviation increase in tourism exposure is associated with an increase of approximately 0.62 standard deviations in tourist arrivals per worker. This relationship is consistent across multiple specifications, with an F-statistic well above the conventional threshold, suggesting that the instrument is strongly correlated with the endogenous variable and thus satisfies the relevance condition.

The second requirement, the exclusion restriction, is not directly testable, but it could be violated under certain scenarios. For example, suppose that an increase in departures from a country of origin *c*, driven by income growth following, say, a productivity boost in its manufacturing sector, leads not only to a rise in tourism from *c* to municipality *m* relative to other municipalities, but also to a decline in manufacturing exports from *m* compared to other areas. In this case, my measure would reflect both the increase in tourism and a decline in manufacturing competitiveness, violating the exclusion restriction. While such a scenario seems unlikely, it remains a theoretical possibility. As detailed in Section 4.2.3, I take several steps to address and rule out this potential channel.

IV estimates – If these assumptions are met, I can replace the explanatory variable of Equa-

[21] I have also already introduced the discussion about the relevance of the instrument in Section 4.1.

Table 3: Effect of tourism on labor markets, income and house prices: IV estimates

	Employment-to-population ratio (pp)					Log income per capita (%)			Log house pr. (%)	
	Total Census	Total ASIA	Manu-facturing	Hospitality & Entert.	Other services	Total & income	Labor income	Property income	Sales	Rents
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
	Panel A: OLS estimates									
ΔTourists per worker	-0.025	-0.143	-0.088*	0.042	-0.065	-0.409**	-0.454***	0.598**	0.631	0.399
	(0.056)	(0.149)	(0.051)	(0.082)	(0.065)	(0.162)	(0.172)	(0.258)	(0.547)	(1.042)
	Panel B: IV estimates									
$\Delta\widehat{\text{Tourists per worker}}$	-0.250**	-0.425*	-0.358**	0.216***	-0.235	-1.084**	-1.208**	0.809***	2.846**	1.219
	(0.105)	(0.248)	(0.139)	(0.079)	(0.144)	(0.424)	(0.463)	(0.263)	(1.408)	(3.028)
Baseline avg	54.89	43.57	12.05	3.32	22.86	13976.08	11186.02	956.49	2023.18	7.85
Kleibergen-Paap F	27.99	27.99	27.99	27.99	27.99	27.99	27.99	27.99	12.68	13.29
Observations	15714	15714	15714	15714	15714	15714	15714	15714	13620	12853
Covariates:	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: This table presents OLS and IV estimates of the effect of standardized changes in tourists per worker on employment, income, and housing outcomes at the municipality level. Columns 1 to 5 show the impact on the employment-to-population ratio, based on Census data (Column 1) and ASIA data (Columns 2 to 5). Coefficients are expressed in percentage points and multiplied by 100. Columns 6 to 8 display the effects on income per capita by income category using MEF data, while Columns 9 and 10 report the effects on house prices and rents based on OMI data. These coefficients are expressed in percent and also multiplied by 100. All regressions include two time periods and the full set of controls from my preferred specification. In addition, regressions on house prices and rents control for baseline levels of prices and rents. Regressions are weighted by municipality population in 2001. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Confidence intervals are at the 90% and 95% level.

tion 3 with the change in tourist arrivals per worker instrumented with my measure of tourism exposure.[22] The β coefficient captures both the total direct and indirect effect of tourism on the local labor market and the local economy.

Table 3 presents the estimated effects of changes in tourists per worker on employment, income, and housing outcomes at the municipality level. Panel A reports OLS estimates, while Panel B displays the corresponding IV estimates. Columns 1 to 5 report the effects on the employment-to-population ratio. Columns 6 to 8 present the effects on income per tax capita, and Columns 9 and 10 show the effects on house prices and rents.

Starting with the OLS estimates, the table shows that all coefficients have the expected sign, consistent with the reduced-form analysis. In particular, tourism has a negative effect on employment and income (except for property income), and a positive effect on house prices and rents. However, the estimated coefficients are small in magnitude and often non statistically significant. I interpret these results as being biased toward zero, potentially due to measurement error in tourist arrivals and omitted variables. For example, public investment may offset the negative impact on employment, while informal short-term rental activity—which may not be

[22] In other words, running the following regression: $\Delta y_{m,t} = \alpha_{rt} + \beta \cdot \Delta\widehat{\text{Tourists per worker}}_{m,t} + \mathbf{X}'_{m,t_0}\Gamma + \varepsilon_{m,t}$.

fully captured in official data—could dampen the observed effect on property income.

Focusing on the IV estimates, the table shows that a one-standard-deviation increase in tourists per worker reduces the employment-to-population ratio by between 0.25 and 0.42 percentage points (corresponding to a 0.5 to 1 percent decline), using Census and ASIA data, respectively. As highlighted in the reduced-form analysis, this effect is heterogeneous across sectors. A one-standard-deviation increase in tourism exposure reduces manufacturing and services employment by 0.35 and 0.23 percentage points, respectively—equivalent to a three percent decline in manufacturing and a one percent decline in services, although the latter is more noisily estimated. In contrast, employment in hospitality and entertainment increases by 0.21 percentage points, a substantial rise of about 6.5 percent. The table also shows that the tourism shock reduces both total income and labor income by approximately 0.5 percent, while property income increases by around 1.3 percent. Finally, tourism raises house prices by about three percent.

To put these numbers into context, a one-standard-deviation increase in tourists per worker corresponds to roughly 1.5 additional tourists per worker, about one and a half times the average increase observed between 2004 and 2019 (Table 1). This implies that the average increase in tourism over the sample period, one additional tourist per worker, reduced the employment-to-population ratio by roughly 0.4 percent, or 338 fewer workers, lowered manufacturing employment by around two percent, and increased hospitality employment by about four percent, or an additional 250 workers.[23]

While these effects are not massive in absolute terms, they are economically meaningful and highlight how tourism can reshape local labor markets by reallocating employment across sectors and shifting the composition of income. Moreover, these estimates should be interpreted as a lower bound for several reasons. First, as previously discussed, tourism often relies on informal workers and is associated with tax evasion (ISTAT, 2024), which are not captured in official data. Second, my identification strategy leverages variation in exposure to foreign tourism within the country. It is therefore possible that foreign tourism partially crowds out

[23] The change in employment is calculated as $\Delta\text{Workers} = \text{Population} \times r_0 \times \Delta\%$, where $r_0 = 0.549$ (54.9%) and $\Delta\% = 0.004$ (0.4%). For a population of 154,000, this gives $154,000 \times 0.549 \times 0.004 \approx 338$ fewer employed individuals. A similar calculation was used to calculate the tourism employment increase.

domestic tourism, which could relocate to less touristic areas, thereby dampening the estimated effects.

5 Conclusions

Despite the increasing economic importance of tourism over the past few decades, we still know little about its long-term impact on economic development in industrialized countries. This paper investigates the long-run effects of tourism expansion on labor markets and local economies, focusing on Italy, a leading global tourism destination where tourism represents a significant share of both GDP and employment.

My findings show that an exogenous increase in foreign tourism lowers both the employment-to-population and the labor force participation rates, while leading to population growth in exposed municipalities (particularly among young individuals and non-Italians). Tourism expansion also shifts the composition of employment, increasing jobs in the hospitality and entertainment sectors while reducing employment in manufacturing and services not directly tied to it. Moreover, I find that tourism growth raises the number of business establishments but reduces their average size—especially in manufacturing—suggesting a potential decline in productivity. Finally, tourism leads to lower average per capita and labor incomes, while driving up property income and housing prices in affected areas.

My results are consistent with the literature examining the effects of tourism in Spain, but differ from the findings for Mexico. How can this difference be explained? In Mexico, tourism mostly grew in relatively undeveloped coastal regions, where there was space for new activities to emerge without displacing existing industries. Moreover, strong local linkages—such as construction and food production—allowed much of the tourism multiplier to be captured locally. In contrast, in advanced economies like Italy, tourism growth over the past two decades has expanded on top of an already mature sector. New professional and informal hospitality services, as well as tourist attractions, have spread into densely developed areas where land and labor are scarce, leading to different local economic dynamics.

As a result, the incremental expansion of tourism in Italy tends to crowd out other economic activities and generates leakages through non-local suppliers. Rising land and housing prices amplify this pressure: non-tourism-related firms are priced out of these areas, leading to a decline in average firm size and potentially dampening productivity. Moreover, the shift toward lower-skill employment may undermine long-run human capital accumulation, contributing to slowing down productivity growth.

Crucially, my results do not contradict the evidence that tourism development can boost growth in lagging regions of advanced economies, as seen in rural areas of southern Italy (Favero and Malisan, 2021; Nocito et al., 2023). Instead, they suggest that once the most accessible opportunities have been exhausted, continued reliance on tourism alone may yield diminishing returns.

These findings have important implications for policymakers. They point to the need for careful management of tourism expansion and strategic public investment. To sustain labor market gains and promote long-term local economic development, greater diversification into more productive tradable sectors or knowledge-intensive services may be necessary.

References

Allcott, Hunt and Daniel Keniston, "Dutch disease or agglomeration? The local economic effects of natural resource booms in modern America," *The Review of Economic Studies*, 2018, *85* (2), 695–731.

Almagro, Milena and Tomás Domínguez-Iino, "Location sorting and endogenous amenities: Evidence from amsterdam," Technical Report, National Bureau of Economic Research 2024.

Autor, David, David Dorn, and Gordon Hanson, "The China syndrome: Local labor market effects of import competition in the United States," *American Economic Review*, 2013, *103* (6), 2121–68.

Bank of Italy, "Indagine sul turismo internazionale 2019," Technical Report 2020.

Barron, Kyle, Edward Kung, and Davide Proserpio, "The effect of home-sharing on house prices and rents: Evidence from Airbnb," *Marketing Science*, 2021, *40* (1), 23–47.

Bartel, Ann P, "Where do the new US immigrants live?," *Journal of labor economics*, 1989, *7* (4), 371–391.

Borusyak, Kirill, Peter Hull, and Xavier Jaravel, "Quasi-experimental shift-share research designs," *The Review of economic studies*, 2022, *89* (1), 181–213.

_ , _ , and _ , "A practical guide to shift-share instruments," *Journal of Economic Perspectives*, 2025, *39* (1), 181–204.

Card, David and John DiNardo, "Do immigrant inflows lead to native outflows?," *American Economic Review*, 2000, *90* (2), 360–367.

Caselli, Francesco and Guy Michaels, "Do oil windfalls improve living standards? Evidence from Brazil," *American Economic Journal: Applied Economics*, 2013, *5* (1), 208–238.

Copeland, Brian R, "Tourism, welfare and de-industrialization in a small open economy," *Economica*, 1991, pp. 515–529.

Di Giacomo, Giuseppe and Benjamin Lerch, "Service Jobs and Education: Evidence from Tourism Shocks in Italy," *Available at SSRN*, 2024.

Duernecker, Georg, Berthold Herrendorf, and Akos Valentinyi, "Structural change within the services sector and the future of cost disease," *Journal of the European Economic Association*, 2024, *22* (1), 428–473.

Faber, Benjamin and Cecile Gaubert, "Tourism and economic development: Evidence from Mexico's coastline," *American Economic Review*, 2019, *109* (6), 2245–93.

Favero, Luca and Ilaria Malisan, "The Effect of Being a European Capital of Culture: Evidence from Matera," *Available at SSRN 3946245*, 2021.

Garcia-López, Miquel-Àngel, Jordi Jofre-Monseny, Rodrigo Martínez-Mazza, and Mariona Segú, "Do short-term rental platforms affect housing markets? Evidence from Airbnb in Barcelona," *Journal of Urban Economics*, 2020, *119*, 103278.

González, Libertad and Tetyana Surovtseva, "Do More Tourists Promote Local Employment?," *Journal of Human Resources*, forthcoming 2025.

Herrendorf, Berthold, Richard Rogerson, and Akos Valentinyi, "Growth and structural transformation," *Handbook of economic growth*, 2014, *2*, 855–941.

ISTAT, "L'economia non osservata nei conti nazionali: Anni 2019–2022," Technical Report, Rome 2024.

Jorgenson, Dale W and Marcel P Timmer, "Structural change in advanced nations: a new set of stylised facts," *Scandinavian Journal of Economics*, 2011, *113* (1), 1–29.

Koster, Hans RA, Jos Van Ommeren, and Nicolas Volkhausen, "Short-term rentals and the housing market: Quasi-experimental evidence from Airbnb in Los Angeles," *Journal of Urban Economics*, 2021, *124*, 103356.

Nocito, Samuel, Marcello Sartarelli, and Francesco Sobbrio, "A beam of light: Media, tourism and economic development," *Journal of Urban Economics*, 2023, *137*, 103575.

Petrella, Andrea, "Il peso del turismo in Italia, le caratteristiche della domanda e la capacita ricettiva," Technical Report, Banca d'Italia 2018.

The Economist, "The backlash against overtourism," https://www.economist.com 2018. Accessed: July 2024.

_ , "What the War on tourism gets wrong," https://www.economist.com 2024. Accessed: September 2024.

UNWTO, "Glossary of tourism terms," 2025. Accessed: 2025-04-09.

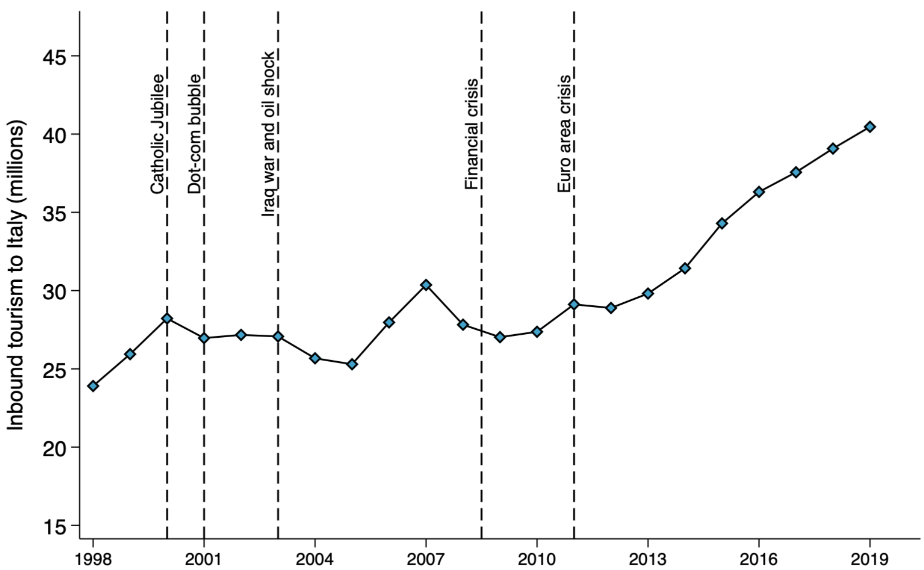
Online Appendix:

Tourism in Industrialized Countries: Catalyst for Growth or Economic Burden?

Giuseppe Di Giacomo

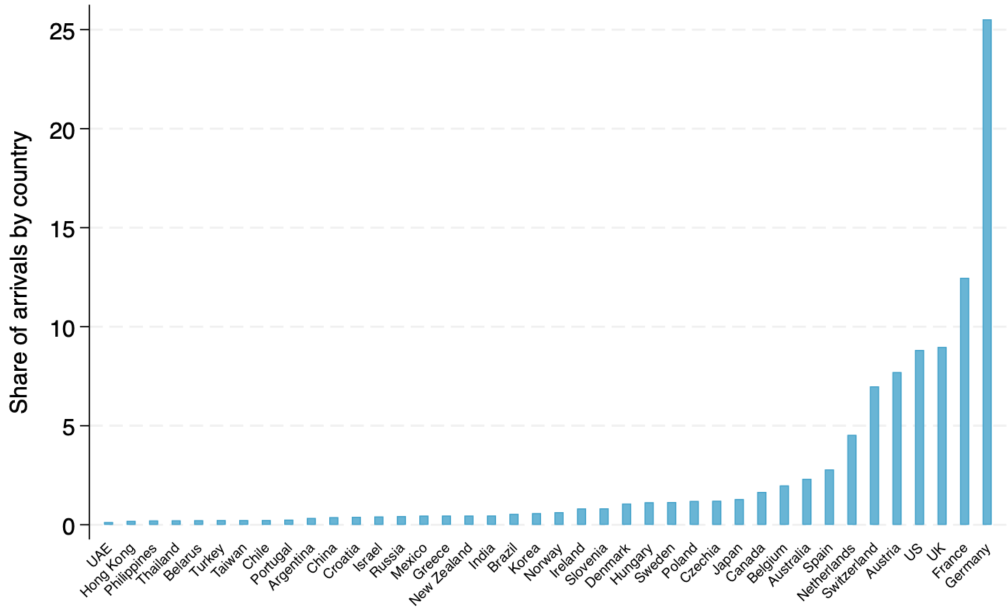
A Additional figures and tables

Figure A1: Inbound tourism to Italy



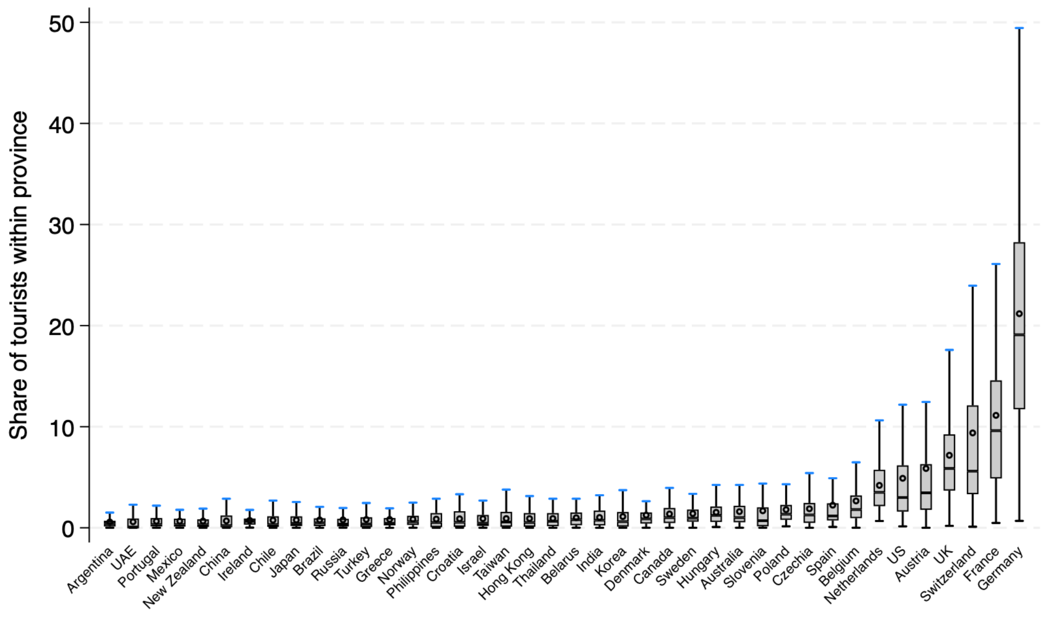
Notes: This figure reports the inbound tourism by year based on data from the Bank of Italy. Data are expressed in millions.

Figure A2: Share of arrivals by country of origin in the period 1998-2000



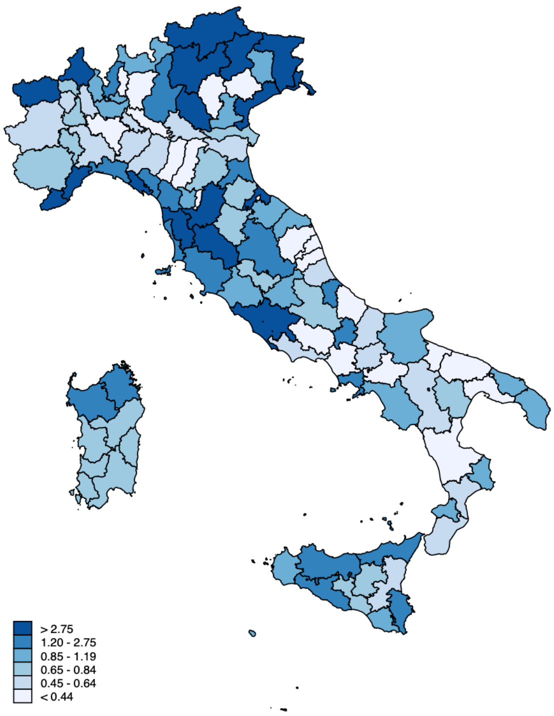
Notes: This figure presents the share of tourist arrivals to Italy by country of origin in the period 1998-2000. The figure focuses on the top 40 nationalities in terms of arrivals based on data from the Bank of Italy. These arrivals cover about 90 percent of all the arrivals to the country at baseline.

Figure A3: Distribution of provincial tourism by country of origin



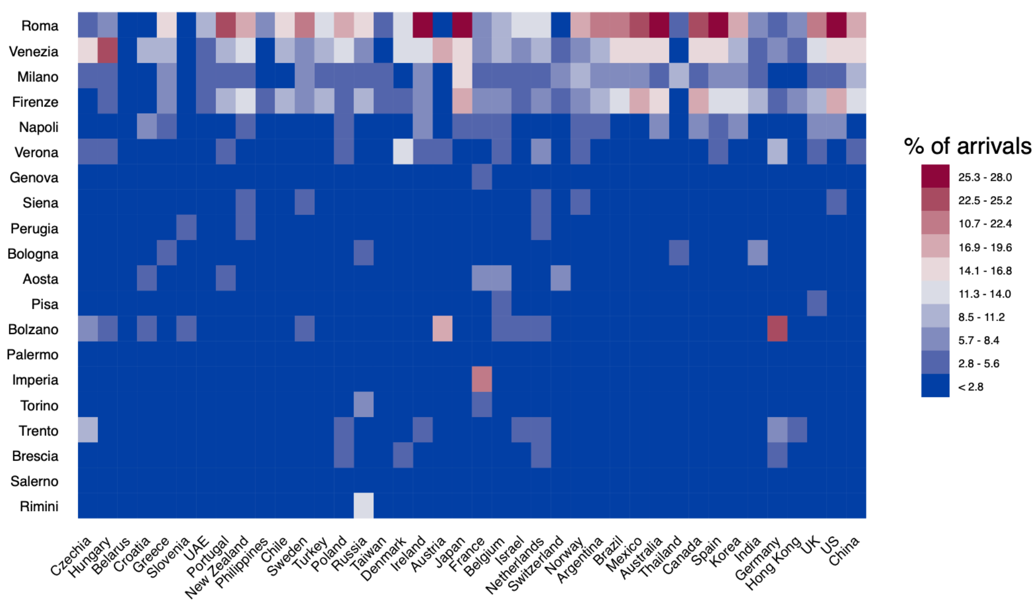
Notes: This figure illustrates the share of provincial tourism by country of origin in 2004 using data from the Bank of Italy. In the box, the horizontal line represents the median, the dot indicates the average, and the margin first and third quartiles. The whiskers extend from the box to the farthest data point within 1.5 times the IQR of the respective quartile. Outliers (data points exceeding 1.5 times the interquartile range (IQR)) are not reported in the graph. Shares are multiplied by 100.

Figure A4: Arrivals per worker by province at baseline



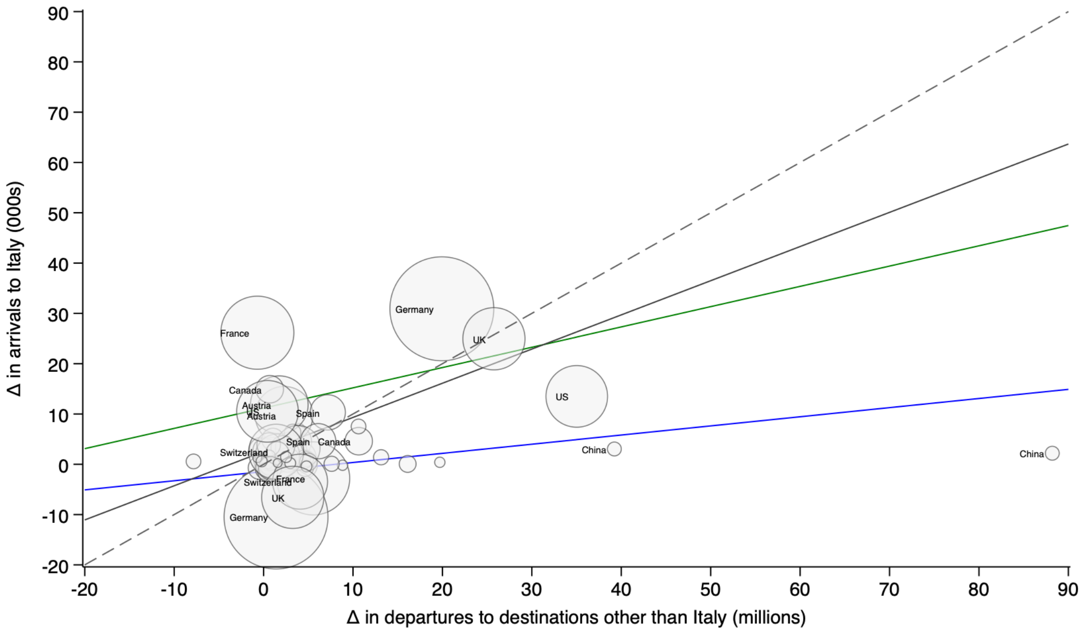
Notes: This figure displays the annual number of tourist arrivals per worker at the provincial level. The number is calculated using tourist arrivals for the year 2004, based on data from the Bank of Italy, and employment count from the 2001 Census. Tourists are counted multiple times, once for each location they visit within the country.

Figure A5: Most visited provinces by country



Notes: This figure shows the baseline share of tourist arrivals by country of origin for the top 20 provinces. Provinces are ranked from most to least popular based on their average share of arrivals across all countries.

Figure A6: Departure by country and arrivals to Italy by subperiod



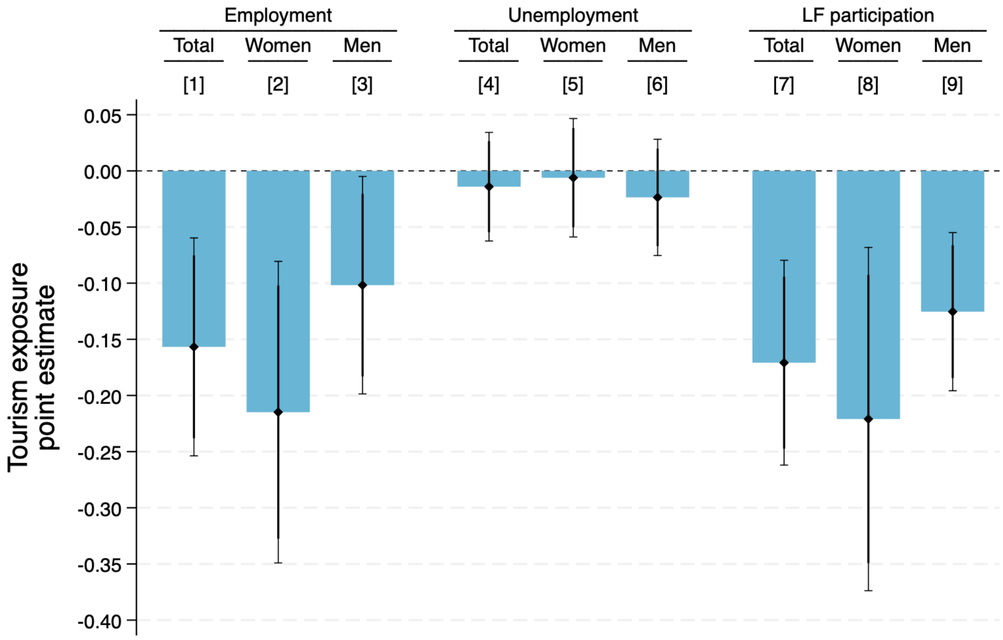
Notes: This figure plots the change in tourist departures to destinations other than Italy (x-axis, in millions) and the corresponding change in arrivals to Italy (y-axis, in thousands) by country of origin between 2004-2011 and 2011-2019. Tourists are counted multiple times if they visit more than one destination within Italy. The size of each bubble reflects the share of total arrivals in 2004. The dashed line represents the 45° line, indicating a 1:100 ratio between arrivals and departures. The solid lines show linear fits: the blue line corresponds to the 2004–2011 period, the green line to 2011–2019, and the black line to the overall correlation.

Table A1: First-stage regressions

	Unweighted	Weighted					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Tourism exposure	0.356***	0.620***	0.603***	0.629***	0.627***	0.626***	0.622***
	(0.117)	(0.104)	(0.102)	(0.119)	(0.116)	(0.118)	(0.131)
Kleibergen-Paap F	9.33	35.36	34.71	28.12	29.02	27.99	22.70
Observations	15818	15818	15818	15818	15818	15714	15714
Covariates:							
RegionYear FE	✓	✓	✓	✓	✓	✓	✓
Demographics			✓	✓	✓	✓	✓
Industry				✓	✓	✓	✓
Geographic					✓	✓	✓
Pre-trends						✓	✓
Province FE							✓

Notes: This table reports the standardized effect of tourism exposure on standardized foreign tourist arrivals per worker at the municipality level. Column 1 presents the unweighted regression, which includes only region-by-year fixed effects. Columns 2 through 7 show regressions weighted by 2001 municipality population, with each column sequentially adding more controls. Standard errors allow for arbitrary clustering at the province level. Coefficients with ***, ** and * are significant at the 1%, 5% and 10% confidence level.

Figure A7: Effect on labor market outcomes by gender

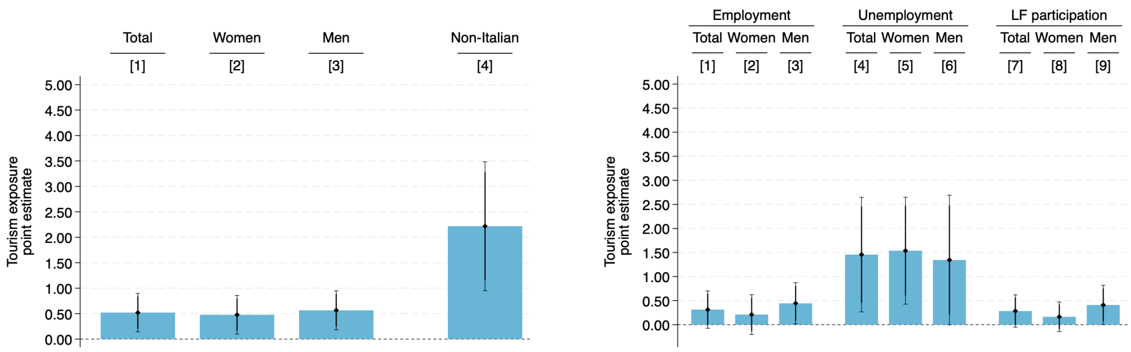


Notes: This figure shows the effect of standardized tourism exposure on labor market outcomes by gender at the municipality level, using Census data. Changes are expressed in percentage points of the working-age population within each group and are multiplied by 100. Every regression includes two time periods with 7,857 observations and the full battery of controls of my preferred specification. Regressions are weighted by municipality population in 2001. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Confidence intervals are at the 90% and 95% level.

Figure A8: Effect on population and labor market outcomes

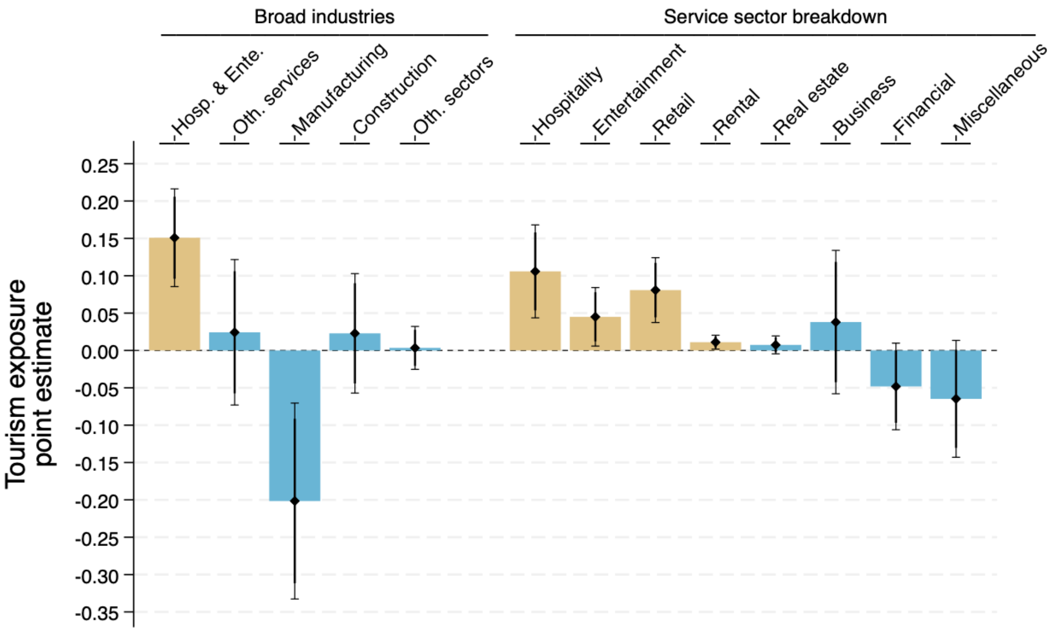
Panel A: Log-population (%)

Panel B: Log-level (%)



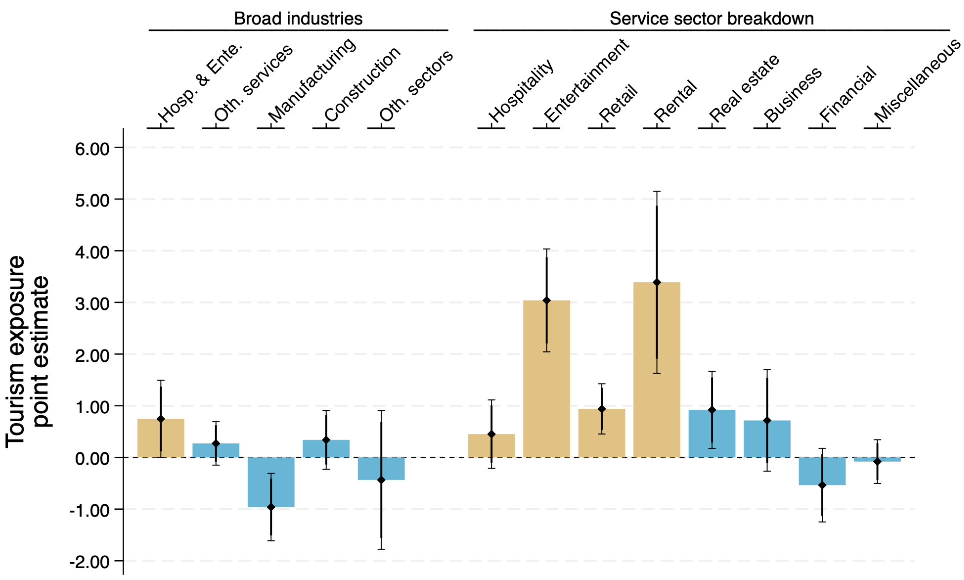
Notes: This figure shows the effect of standardized tourism exposure on population (Panel A) and labor market outcomes (Panel B) by gender at the municipality level, using Census data. Changes are expressed in percent and are multiplied by 100. Every regression includes two time periods with 7,857 observations and the full battery of controls of my preferred specification. Regressions are weighted by municipality population in 2001. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Confidence intervals are at the 90% and 95% level.

Figure A9: Effect on the employment share by sector



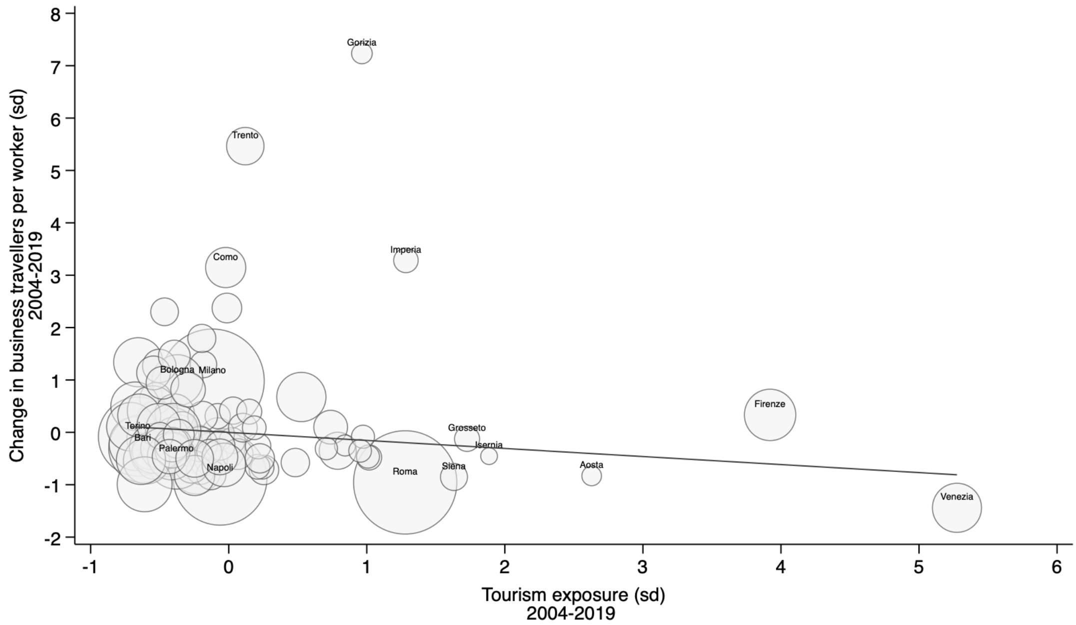
Notes: This figure shows the effect of standardized tourism exposure on the employment share at the municipality level, by broad economic sectors and detailed service industries, using ASIA data. Changes are expressed in percentage points of total employment and are multiplied by 100. Every regression includes two time periods with 7,857 observations and the full battery of controls of my preferred specification. Regressions are weighted by municipality population in 2001. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Confidence intervals are at the 90% and 95% level.

Figure A10: Effect on log employment by sector



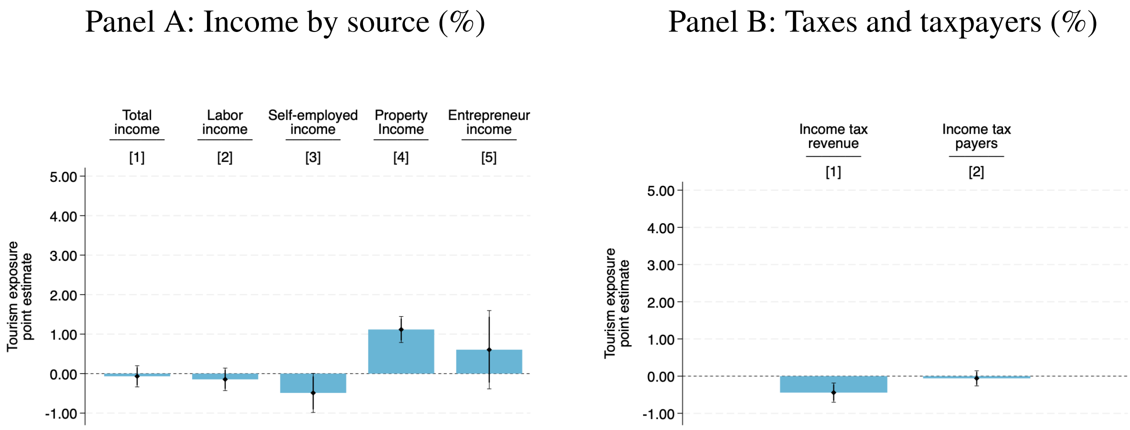
Notes: This figure shows the effect of standardized tourism exposure on log employment by sector at the municipality level, by broad economic sectors and detailed service industries, using ASIA data. Changes are expressed in percent and are multiplied by 100. Every regression includes two time periods with 7,857 observations and the full battery of controls of my preferred specification. Regressions are weighted by municipality population in 2001. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Confidence intervals are at the 90% and 95% level.

Figure A11: Business travellers and tourism exposure



Notes: This figure plots the change in tourism exposure and the corresponding change in business travellers at the province level between 2004 and 2019. The size of each bubble reflects the baseline province population. The solid line shows the linear fit, weighted by the baseline population. All values are expressed in standard deviations.

Figure A12: Effect on income and income tax revenues



Notes: This figure presents the effect of standardized tourism exposure on the log of income by source in Panel A, while Panel B shows the impact on the log of total income tax revenue and the number of income tax payers, based on MEF data. All changes are expressed in percent and multiplied by 100. Each regression includes two time periods and the full set of controls from my preferred specification. Regressions are weighted by municipality population in 2001. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Confidence intervals are at the 90% and 95% level.

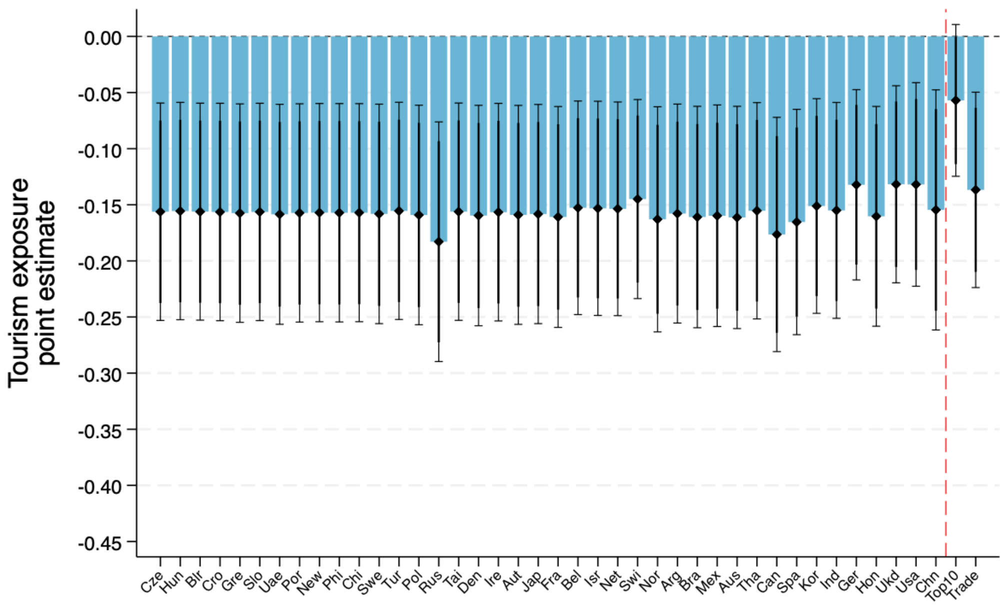
B Additional analyses and robustness checks

B.1 Robustness checks

This section presents a set of robustness checks in support of my preferred specification.

Country exclusion – As discussed in the main text, an increase in departures from a given country may reflect not only growing tourism demand but also rising trade competitiveness or business travel, potentially impacting the Italian economy through non-tourism related channels.

Figure B1: Effect on employment-to-population ratio by country exclusion



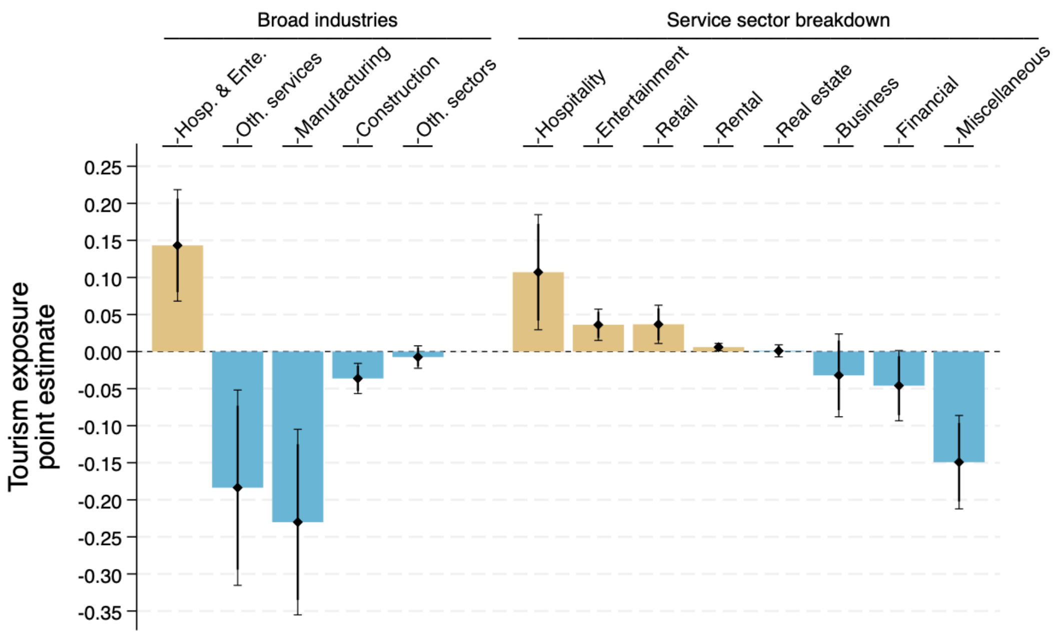
Notes: This figure illustrates the reduced form point estimates of the effect of tourism exposure on the employment-to-population ratio when excluding each country of origin from the shift-share measure one at a time, using Census data. For example, *Chn* excludes departures from China; *Top10* excludes the ten countries with the highest number of arrivals; and *Trade* excludes China, Hong Kong, India, Mexico, the UAE, Turkey, and Germany, relevant trading partners of Italy that have experienced significant increases in international trade. Changes are expressed in percentage points of total employment and are multiplied by 100. Every regression includes two time periods with 7,857 observations and the full battery of controls of my preferred specification. Regressions are weighted by municipality population in 2001. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Confidence intervals are at the 90% and 95% level.

To address this concern, Figure B1 presents the effect of tourism on the employment-to-population ratio when excluding one country at a time from the construction of the instrument. The results indicate that the estimated effects are not driven by any single country or specific group of countries. The figure also shows that the results remain stable when excluding countries that have experienced the largest increases in trade flows in recent decades, as well as the ten countries with the highest number of arrivals to Italy at baseline. These results suggest that the effect of tourism is not driven by unrelated country-specific shocks.

Pre-trends – One potential concern is that tourism may emerge as a response to other local demand shocks—such as the fall of manufacturing—in municipalities already on a downward economic trend.

I account for this concern in my preferred specification by controlling for changes in population, sociodemographic characteristics, labor force participation, and industry employment rates between 1971 and 2001. However, Figure B2 shows that further controlling for additional pre-trends, specifically changes between 1981-2001 and 1991-2001 in these variables, does not affect the results.

Figure B2: Effect on employment-to-population ratio with additional pre-trend controls



Notes: This figure shows the effect of standardized tourism exposure on the employment-to-population ratio at the municipality level, by broad economic sectors and detailed service industries, using ASIA data. Changes are expressed in percentage points of the working-age population and are multiplied by 100. Every regression includes two time periods with 7,857 observations and the full battery of controls of my preferred specification. It also controls for pre-trends in population, sociodemographic characteristics, labor force participation, and industry employment rates in the periods 1981-2001 and 1991-2001. Regressions are weighted by municipality population in 2001. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Confidence intervals are at the 90% and 95% level.

I further examine the relationship between past changes in manufacturing employment, population, and tourism-related employment and my measure of tourism exposure to ensure that the results reflect period-specific effects rather than pre-existing trends.[24] Table B1 reports these results and shows that, conditional on baseline controls, past changes in these variables are not systematically related to tourism exposure.

Table B1: Exposure correlation with pre-trends

	Population 1971-2001	Manufacturing 1971-2001	Commenrce 1971-2001
	[1]	[2]	[3]
Tourism exposure$_{'04-'19}$	-0.890 (3.299)	0.040 (0.032)	0.016 (0.018)
Observations	7857	7857	7857
Baseline covariates:	✓	✓	✓

Notes: This table reports the correlation between long-difference changes in tourism exposure and pre-trends in population (Column 1), as well as employment-to-population rates in manufacturing and commerce (Columns 2 and 3). All regressions include the full set of controls from the preferred specification, excluding the pre-trend variables themselves. Regressions are weighted by municipality population in 2001. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Coefficients with ***, ** and * are significant at the 1%, 5% and 10% confidence level.

Alternative variation – In this paragraph, I show that my results are robust to restricting the source of variation to within-province differences, by adding province fixed effects, or by using only cross-sectional variation in a long-differences specification. The results are reported in Table B2.

Alternative construction of the instrument – This section presents the main results using alternative constructions of the instrument. The estimates are reported in Table B3.

Panel A shows the results obtained by normalizing the exposure measure with total municipal employment from the 2004 ASIA data, instead of using 2001 Census data. The results are both qualitatively and quantitatively similar to the main estimates presented in Figure 6.

Panel B reports the results when the shock is imputed at the municipality level using the hospitality employment share within each municipality ($f_{t_0}^{m(p)} = T_{t_0}^{m(p)}/L_{t_0}^{m(p)}$), rather than using the municipality's share of provincial tourism employment ($\ell_{t_0}^{m(p)} = T_{t_0}^{m(p)}/T_{t_0}^{p}$):

$$\text{Tourism exposure}_{m,t} = f_{t_0}^{m(p)} \sum_{c \in C} s_{t_0}^{p,c} \left[\frac{D_t^c - D_{t-1}^c}{L_{t_0}^p} \right] \tag{4}$$

The results remain consistent with the main findings.

[24] The best proxy for tourism-related employment in Census data is employment in the commerce sector.

Table B2: Province fixed effects and long differences

	Census	ASIA					
	Total	Total	Hospitality & Entert.	Other Services	Manu-facturing	Con-struction	Other sectors
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Panel A: Province FE						
Tourist arrivals	-0.332***	-0.529***	0.137*	-0.271**	-0.327**	-0.051***	-0.017**
	(0.078)	(0.199)	(0.071)	(0.109)	(0.130)	(0.018)	(0.008)
Observations	15714	15714	15714	15714	15714	15714	15714
	Panel B: Long-differences (2004-2019)						
Tourism exposure	0.057	-0.030	0.256***	-0.065	-0.211***	-0.027	0.016
	(0.063)	(0.164)	(0.057)	(0.093)	(0.071)	(0.024)	(0.012)
Observations	7857	7857	7857	7857	7857	7857	7857
Covariates:	✓	✓	✓	✓	✓	✓	✓

Notes: This table shows the effect of standardized tourism exposure on the employment-to-population ratio at the municipality level, by broad economic sectors, using Census and ASIA data. Changes are expressed in percentage points of the working-age population and are multiplied by 100. Every regression includes the full battery of controls of my preferred specification. Panel A also controls for province fixed effects. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Regressions are weighted by municipality population in 2001. Coefficients with ***, ** and * are significant at the 1%, 5% and 10% confidence level.

Table B3: Alternative construction of the exposure

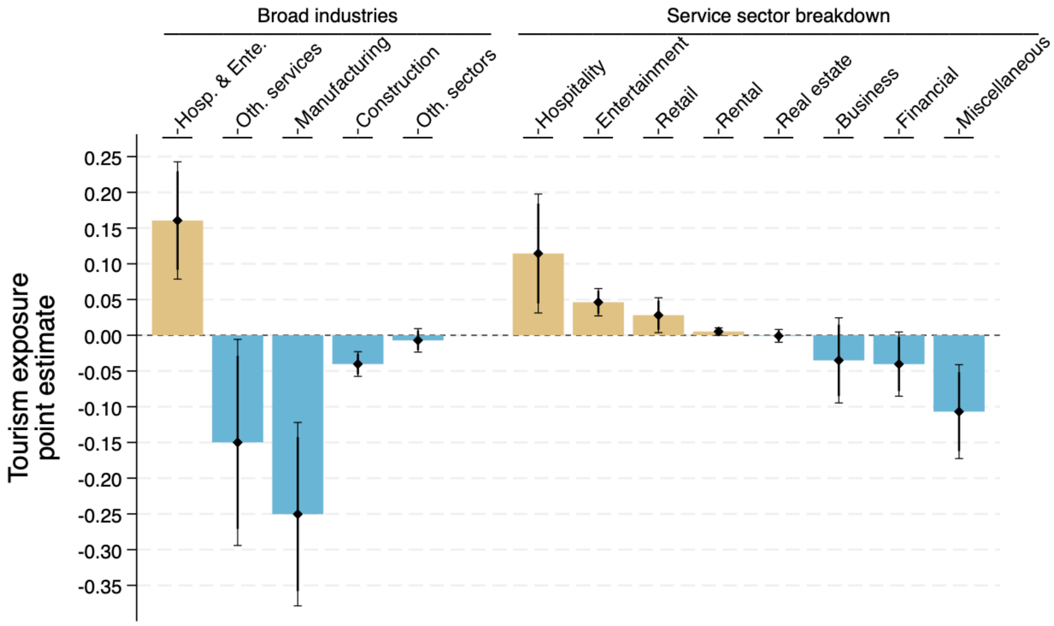
	Census	ASIA					
	Total	Total	Hospitality & Entert.	Other Services	Manu-facturing	Con-struction	Other sectors
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Panel A: Alternative normalization						
Tourists per worker	-0.163***	-0.178*	0.118***	-0.109**	-0.195***	0.009	-0.001
	(0.055)	(0.092)	(0.031)	(0.055)	(0.046)	(0.020)	(0.008)
	Panel B: Alternative municipality shares						
Tourists per worker	-0.136***	-0.101	0.143***	-0.084	-0.185***	0.021	0.005
	(0.050)	(0.089)	(0.030)	(0.052)	(0.044)	(0.029)	(0.006)
	Panel C: Alternative province shares						
Tourists per worker	-0.217***	-0.210*	0.109*	-0.110*	-0.124***	-0.086***	0.001
	(0.060)	(0.122)	(0.056)	(0.062)	(0.046)	(0.020)	(0.009)
Observations	15714	15714	15714	15714	15714	15714	15714
Covariates:	✓	✓	✓	✓	✓	✓	✓

Notes: This table shows the effect of standardized tourism exposure on the employment-to-population ratio at the municipality level, by broad economic sectors, using Census and ASIA data. Changes are expressed in percentage points of the working-age population and are multiplied by 100. Every regression includes the full battery of controls of my preferred specification. Regressions are weighted by municipality population in 2001. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Coefficients with ***, ** and * are significant at the 1%, 5% and 10% confidence level.

Finally, Panel C confirms my findings when computing baseline province-level tourism shares using the share of tourism arrivals from each country within a province ($s_{t_0}^{p,c} = A_{t_0}^{p,c} / A_{t_0}^{p}$). In this case, I use the source of heterogeneity described in Figure A3.

Sum of shares – One final robustness check addresses a potential concern related to the construction of the shares in my main specification. Specifically, the tourism shares sum to one at the country-of-origin level, rather than at the municipality level, which may introduce a source of distortion in the estimates. Following the recommendation of Borusyak et al. (2025), Figure B3 presents results from a specification that includes the sum of the shares at the municipality level as a control. The results remain substantially unchanged.

Figure B3: Effect on employment-to-population ratio by sector controlling for the sum of shares



Notes: This figure shows the effect of standardized tourism exposure on the employment-to-population ratio at the municipality level, by broad economic sectors and detailed service industries, using ASIA data. Changes are expressed in percentage points of the working-age population and are multiplied by 100. Every regression includes two time periods with 7,857 observations and the full battery of controls of my preferred specification. Regressions also control for the sum of shares at the municipality level. Regressions are weighted by municipality population in 2001. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Confidence intervals are at the 90% and 95% level.

Province level results – This paragraph reports the results of the analysis conducted at the province level. This approach has the advantage of not requiring any reallocation or imputation of the shock across municipalities, as the exposure is directly calculated at the provincial level. However, it comes with two main drawbacks: the number of observations drops to around 200, and the larger geographic scale increases the risk that the estimated effects may be diluted, especially given that tourism activity is highly concentrated in specific areas within provinces.

The construction of the exposure measure follows the same structure as the main specifica-

Table B4: Province level analysis

	Census	ASIA					
	Total	Total	Hospitality & Entert.	Other Services	Manu-facturing	Con-struction	Other sectors
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Tourist arrivals	-0.128	-0.197	0.109***	-0.067	-0.206***	-0.022	-0.011
	(0.089)	(0.141)	(0.022)	(0.070)	(0.078)	(0.025)	(0.011)
Observations	202	202	202	202	202	202	202
Covariates:	✓	✓	✓	✓	✓	✓	✓

Notes: This table shows the effect of standardized tourism exposure on the employment-to-population ratio at the province level, by broad economic sectors and detailed service industries, using Census and ASIA data. Changes are expressed in percentage points of the working-age population and are multiplied by 100. Every regression includes the full battery of controls of my preferred specification. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Regressions are weighted by province population in 2001. Coefficients with ***, ** and * are significant at the 1%, 5% and 10% confidence level.

tion described in Equation 2, with the key difference that it does not rely on municipality-level shares to impute the shock. Table B4 reports the results, which are highly consistent with those from the municipality-level analysis.

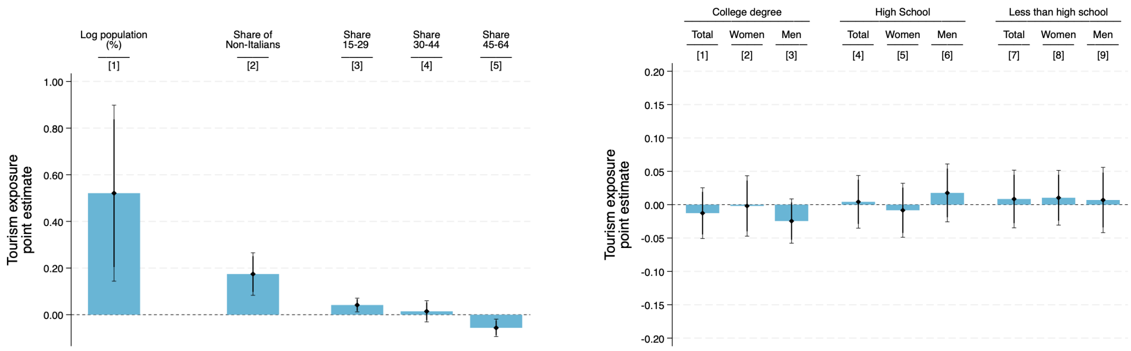
B.2 Additional results

Demographics – I now examine how tourism affects population composition at the municipality level. Figure A8 shows that an exogenous shock to tourism increases both the total population and the number of non-Italians living in the area. Panel A of Figure B4 further shows how this population growth affects the composition of the resident population by age and nationality. The graph reveals that, alongside the increase in non-Italians, there is also a rise in the share of younger individuals aged 15–29, who appear to be a major driver of the overall population growth.

Panel B of Figure B4 examines the effect of tourism exposure on the educational composition of the population. Consistent with the nature of the shock, which primarily boosts labor demand in low-skilled sectors, the figure shows a decline in the share of college graduates living in the area, particularly among men. However, this shift is relatively modest at the municipality level and becomes substantially more pronounced at the CZ level, as discussed in Section B.3.

Figure B4: Effect on population composition

Panel A: Population composition Panel B: Education



Notes: This figure shows the effect of standardized tourism exposure on log-population, share of non-Italian, share of population by age group (Panel A), and share of population by education group (Panel B) at the municipality level, using Census data. Changes are multiplied by 100. Every regression includes two time periods with 7,857 observations and the full battery of controls of my preferred specification. Regressions are weighted by the municipality population in 2001. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Confidence intervals are at the 90% and 95% level.

B.3 Spillover effects and CZ level results

As described in the main text, one may wonder whether the negative effects of tourism at the municipality level are offset by increased economic activity in non-touristic sectors in nearby municipalities. Here, I test this mechanism in two ways. First, I examine potential spillovers by constructing a measure of exposure for each municipality based on the average exposure of other municipalities within its CZ, excluding its own exposure (i.e., a leave-one-out measure). Second, I replicate most of the analysis at the CZ level.

Table B5: Spillover effects

	Census	ASIA					
	Total	Total	Hospitality & Entert.	Other Services	Manu-facturing	Con-struction	Other sectors
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Tourism exposure	-0.130***	-0.246*	0.147***	-0.150*	-0.210***	-0.030**	-0.003
	(0.037)	(0.134)	(0.036)	(0.077)	(0.056)	(0.014)	(0.007)
CZ tourism exposure	-0.057	-0.043	-0.026	0.006	-0.029	0.002	0.003
	(0.045)	(0.098)	(0.020)	(0.044)	(0.068)	(0.014)	(0.007)
Observations	15714	15714	15714	15714	15714	15714	15714
Covariates:	✓	✓	✓	✓	✓	✓	✓

Notes: This table shows the effect of standardized tourism exposure on the employment-to-population ratio at the municipality level, by broad economic sectors and detailed service industries, using Census and ASIA data. The table also reports the effect of the leave-one-out CZ level exposure. Changes are expressed in percentage points of the working-age population and are multiplied by 100. Every regression includes the full battery of controls of my preferred specification. Regressions are weighted by municipality population in 2001. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Coefficients with ***, ** and * are significant at the 1%, 5% and 10% confidence level.

Table B5 presents the results of the first approach. The evidence indicates that the negative effects of tourism remain largely unchanged when controlling for the tourism exposure of the municipality's commuting zone (CZ). Moreover, the leave-one-out CZ exposure suggests that tourism activity in nearby municipalities tends to affect local employment in a similar way as the municipality's own tourism exposure, although I was not able to estimate any statistically significant relationship.

CZ level analysis – I now show the results of my analysis aggregating exposure and outcomes at the CZ level. Therefore, my exposure measure will be calculated as follows:

$$\text{Tourism exposure}_{cz,t} = \frac{1}{L_{t_0}^{cz}} \sum_{m \in cz} \ell_{t_0}^{m} \sum_{c \in C} s_{t_0}^{p,c} \left[D_t^c - D_{t-1}^c \right]. \tag{5}$$

In other words, to aggregate from the municipality level to the CZ level, I sum the non-normalized municipality exposure for all municipalities within a CZ and then normalize for the CZ employment at baseline. CZ classification is provided by ISTAT (*sistemi locali di lavoro*) and is based on commuting flows in 2011. Italy includes 611 CZs.

Table B6: CZ-level labor market effects

	Census	ASIA					
	Total	Total	Hospitality & Entert.	Other Services	Manu-facturing	Con-struction	Other sectors
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Panel A: Employment-to-population ratio						
Tourist arrivals	-0.156**	-0.141	0.099***	-0.072	-0.160***	-0.010	0.002
	(0.071)	(0.099)	(0.022)	(0.046)	(0.059)	(0.016)	(0.010)
	Panel B: Firm count (%)						
Tourist arrivals	.	0.186	0.814**	0.255**	0.186	-0.049	-1.418
	.	(0.143)	(0.364)	(0.127)	(0.193)	(0.240)	(1.137)
	Panel C: Firm size (%)						
Tourist arrivals	.	.	-0.027	-0.156	-0.570	0.343	1.188
	.	.	(0.340)	(0.204)	(0.344)	(0.279)	(0.927)
Observations	1222	1222	1222	1222	1222	1222	1222
Covariates:	✓	✓	✓	✓	✓	✓	✓

Notes: This table reports the effects of standardized tourism exposure on the employment-to-population ratio (Panel A), the log number of establishments (Panel B), and the log average establishment size (Panel C), disaggregated by broad economic sectors at the CZ level, using data from the Census and ASIA. Changes are expressed in percentage points of the working-age population in Panel A, and in percent in Panels B and C (all estimates are multiplied by 100). All regressions include the full set of controls from my preferred specification. Regressions are weighted by the CZ population in 2001. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Coefficients with ***, ** and * are significant at the 1%, 5% and 10% confidence level.

Table B6 reports the effect of tourism exposure on employment-to-population ratio, establishment count, and establishment size at the CZ level. The results are very similar to the municipality-level analysis reported in the main text.

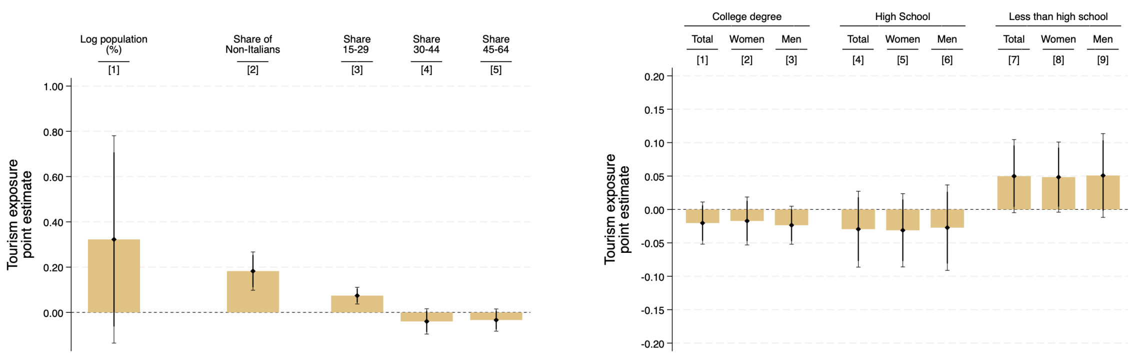
Figure B5 presents the effects of tourism exposure on population size and composition at the CZ level. Panel A shows the overall population response, while Panel B focuses on changes in the population share by education level. As shown in Panel A, tourism exposure is associated with an increase in the CZ population—mirroring the results at the municipality level from the main analysis—although the relationship is estimated with slightly more noise. The figure also shows a rise in the number of non-Italian residents and a modest shift in age composition, with a higher share of younger individuals moving into the area.

Turning to Panel B, the figure highlights a clear reallocation in the population by education level: there is a decline in the share of individuals with college and high school education, accompanied by an increase in the share of those without a high school diploma. This pattern was only marginally visible at the municipality level (see Figure B4). These results are consistent with increased demand for low-skilled labor driven by tourism, alongside a decline in demand for high-skilled labor typically employed in sectors such as services and manufacturing, which are crowded out by tourism activity.

Figure B5: Effect on population and education at CZ level

Panel A: Population composition

Panel B: Education



Notes: This figure shows the effect of standardized tourism exposure on log-population, share of non-Italian, share of population by age group (Panel A), and share of population by education group (Panel B) at the CZ level, using Census data. Changes are multiplied by 100. Every regression includes two time periods with 611 observations and the full battery of controls of my preferred specification. Regressions are weighted by the CZ population in 2001. Standard errors are robust against heteroskedasticity and allow for clustering at the province level. Confidence intervals are at the 90% and 95% level.

C Data and cleaning

This section provides further details about the data cleaning process.

Census – As detailed in the main text, I use municipality-level Census data spanning from 1971 to 2019. However, over the decades, many municipalities have merged, while others have split from existing ones. Wherever possible, I standardized municipal boundaries to their 2011 definition, as this aligns with the commuting zone classification used in my analysis. When this was not feasible, I adopted the 2019 boundaries. For instance, municipalities that merged after 2011 were also aggregated in earlier years. Cases where boundary reconstruction was unclear were excluded, though these represent a negligible fraction of the sample.

Moreover, unlike Censuses conducted up to 2011, starting in 2018, the Italian statistical office no longer surveys the entire population. Instead, it samples a subset and integrates the results with administrative records to produce municipality-level estimates. To address this, following established literature, I increase the sample size of the Permanent Census by averaging data from 2018 and 2019.[25]

ASIA – This dataset includes all economic units engaged in professional and business activities in the manufacturing and services sectors. Establishments are classified as active if they have been operational for at least six months within the year. ASIA provides information on employment and the number of establishments at the municipality level.

ASIA provides industry-level data at the two-digit level of aggregation according to the ATECO classification, which is based on the NACE system, the standard for economic activity classification across the European Union. In 2007, ATECO underwent a revision, transitioning from ATECO 2002 to ATECO 2007. This update, aligned with the broader shift from NACE Rev. 1.1 to NACE Rev. 2 at the European level. To ensure consistency, I harmonized the data across classification changes using a crosswalk provided by ISTAT.

As described in the main text, I group industries into homogeneous categories: Manufacturing, Construction, Hospitality and Entertainment, Other Services, and Other Industries. The aggregation Other industries includes Agriculture, Material extraction, Energy, and Utilities.

[25] I exclude 2020 due to the impact of the COVID-19 pandemic, which could distort the results.

I further break down the service sector into eight subcategories: Financial, Business, Real Estate, Retail, Rental, Entertainment, Hospitality, and Miscellaneous. Specifically, Entertainment includes museums, libraries, entertainment industries (e.g., cinema, TV, and radio), and sports. Meanwhile, Miscellaneous comprises telecommunications, insurance, research and development, IT services, the public sector, and other miscellaneous services.

OMI – Data on house prices and rents come from OMI of the *Agenzia delle Entrate*. These prices are derived from multiple sources: (i) real estate transactions recorded by notaries, which provide actual sale prices; (ii) Sworn Appraisals (*Perizie Estimative*), conducted by real estate professionals, banks, or technical offices; (iii) market surveys from real estate agencies, brokers, and experts; and (iv) property values declared for tax purposes.

OMI reports price ranges for both sales and rentals. To obtain a single measure, I compute the median value within each range. I then adjust prices for inflation and report them in 2019 euros using a tool provided by ISTAT.

UNWTO – Information on departures by country of origin is obtained from UNWTO. As specified in the main text, I focus on the top 40 countries of origin for arrivals to Italy at baseline. Among these, I exclude Monaco due to a lack of data, while I include the United Arab Emirates, which was originally ranked around 52nd but experienced significant growth during the period under study.

UNWTO data provides information on both departures and arrivals by country of origin. This means that the total number of departures can be derived either directly from departure data or as the sum of arrivals in other countries from a given country of origin. The dataset also distinguishes between overnight visitors (tourists) and same-day visitors (excursionists). These different classifications yield similar results. Specifically, the outflow estimates based on tourist departures and arrivals are highly correlated (above 90%), while the correlation with total departures (tourists + excursionists) is slightly lower (75%).

To ensure consistency, I prioritize data sources in the following order when tourist departure data are unavailable. I first use outflows of tourists obtained from arrivals, which applies to Greece, Croatia, Portugal, and the Emirates. If this information is not available, I rely on total departures (tourists + excursionists), which is used when no other data sources exist or for island nations.

Bank of Italy – Information on tourist arrivals by country of origin is obtained from the Survey on International Tourism provided by the Bank of Italy, which collects monthly data on tourist flows to Italian municipalities, broken down by country of origin. These data are gathered through surveys conducted at points of entry, such as airports, ports, and highways in border regions. Tourists are asked to list all the locations they visited during their trip, along with the number of nights stayed and the amount of money spent.

While highly detailed, the data can become sparse when dealing with small countries of origin or less touristic Italian provinces without a direct point of arrival for international tourists. To mitigate this issue, I aggregate data over two or three-year periods to increase sample size and impute missing values for tourist arrivals by country of origin. The imputation method applies, whenever possible, the national growth rate in arrivals from a given country of origin to estimate missing values at the country-province-year level. The imputed and original measures are strongly correlated, ensuring consistency in the analysis.

Province reconstruction – Italian provincial boundaries have changed several times over the past 25 years. For my analysis, I reconstructed a time-consistent set of provincial boundaries, resulting in a total of 102 provinces. To do this, I aggregated provinces that were split over time and also merged them historically when they became part of a single administrative unit. For instance, due to the frequent boundary changes in the past decade, Sardinia is represented by three macro-provinces: North, Center, and South. Other examples of aggregation include the provinces of Fermo and Ascoli Piceno; Bari and Barletta-Andria-Trani; and Monza and Milan.