

Tourism and Economic Development: Evidence from Switzerland*

Dino Collalti[†]

Abstract

Tourism is often promoted as a driver of local economic development, yet its long-run effects remain ambiguous. This paper studies how early tourism demand shapes contemporary economic outcomes and whether tourism effects persist or change over time. Using Switzerland as a laboratory, we assemble a new municipality-level dataset combining historical travel descriptions, hotel registries, and modern administrative data on tourism, employment, wages, and population. We use text-based measures of original tourism attractiveness from an 1867 guidebook to jointly instrument historical and contemporary hotel presence, separating long-run legacy effects from current tourism impacts. We find that an additional hotel in 1894 increases today's employment and population by about 10 percent, with modest wage gains. In contrast, conditional on this historical tourism legacy, an additional hotel today reduces total employment and population, despite increasing tourism-sector jobs. Wage effects operate through changes in workforce composition rather than local productivity premia. The effects are concentrated in Alpine municipalities and are partly mediated by second-home intensity. Overall, the results show that tourism can generate persistent local development, but that marginal tourism expansion in a mature economy may crowd out other economic activity.

*We thank Eric Strobl, Ferdinand Rauch, Maximilian von Ehrlich, Robert Elliot, Elisabeth Preyer, Christian Laesser, David Airey, and participants of the 74th Aiest conference 2025 for their useful comments. Special thanks go to Deborah Lendi, who assisted in the data collection and contributed to the historical background discussion.

[†]Department of Economics, University of Bern, Schanzeneckstrasse 1 - 3001, Switzerland;
dino.collalti@windowslive.com

1 Introduction

Economic activity is highly persistent across space. Regions that gained early advantages through geography, infrastructure, or institutions often remain prosperous long after the original causes have faded (Banerjee and Iyer, 2005; Tabellini, 2010; Nunn and Puga, 2012). A substantial body of research documents such path dependence in agriculture, manufacturing, and trade (e.g. Dell and Olken, 2020; Donaldson and Hornbeck, 2016; Bleakley and Lin, 2012; Jedwab and Moradi, 2016). Recent work extends these insights to the modern service sector of tourism, showing how exogenous variation in natural or cultural endowments can drive regional specialization, as observed in Mexico and Brazil (Faber and Gaubert, 2019; Linsenmeier, 2025). Yet we still know little about the long-run effects of historical conditions on tourism, particularly in advanced economies. This paper studies the impact of tourism on economic development in Switzerland over the past 150 years.

Tourism offers a particularly useful context for studying persistence in economic development. It is one of the largest global industries, accounting for roughly ten percent of GDP and employment (WTTC, 2023), and a central pillar of regional development policy. Governments routinely subsidize tourism infrastructure and activities, viewing them as catalysts for local growth and diversification into the service sector. Despite this relevance in policy, the long-run economic consequences of tourism development remain poorly understood. While the tourism-led growth hypothesis (TLGH) views tourism as an engine of local development (Brida et al., 2016), it has been argued that the labor-intensive industry provides little potential for productivity growth in the long run and consequently leads to non-competitive and low-income local economies, similar to the *Dutch disease* (Inchausti-Sintes, 2015; Kim et al., 2021).¹ Understanding when tourism enables sustained prosperity or merely a specialization into low-productivity is therefore relevant to assessing the effectiveness of many place-based policies in economic development.

We argue that the contrasting perspectives on tourism as either a local growth engine or a Dutch disease reflect distinct stages of structural transformation.² In its formative period, tourism investment can foster agglomeration and productivity growth by stimulating

¹The term *Dutch Disease* refers to the adverse effects on Dutch manufacturing of the natural gas discoveries of the 1960s (Corden, 1984).

²This argument is closely related to structural transformation and the cost disease, see e.g. (Baumol, 1967; Duernecker and Sanchez-Martinez, 2023).

demand for local services, infrastructure, and complementary sectors such as construction and transportation (e.g. [Glaeser and Gottlieb, 2009](#); [Moretti, 2010](#)). These linkages can anchor diversified local economies, sustaining employment and population growth over time. As economies advance, tourism remains labor-intensive and small-scale, with limited productivity growth (e.g. [Assaf and Tsionas, 2018](#); [Eurostat, 2025](#)). Persistent specialization in such activities may slow aggregate growth and hinder reallocation toward higher-productivity industries ([Ngai and Pissarides, 2007](#)). Moreover, the more recent expansion of tourism centers on rentals and second homes, particularly in Switzerland, which is tightening local housing markets ([Gerber and Bandi-Tanner, 2018](#); [Garcia-López et al., 2020](#)). In many alpine municipalities in Switzerland, second homes outnumber dwellings for locals ([ARE, 2025](#)), constraining labor supply in non-tourism sectors.³ Our empirical analysis quantifies how these mechanisms shape the effects of tourism.

Establishing the causal impact of tourism on local development is empirically challenging. Economic prosperity and tourism intensity often evolve in tandem: wealthier regions attract more visitors by cultivating specific attractions that further stimulate demand and facilitate investments in infrastructure and public services ([Lee and Chang, 2008](#)). Moreover, tourism development is a cumulative process where early advantages in accessibility, reputation, or natural beauty may persist for centuries ([Ma and Hassink, 2013](#)), generating strong path dependence through agglomeration forces ([Voth, 2021](#)). As a result, a simple correlation between tourism intensity and economic performance conflates cause and effect. This endogeneity can be addressed through exogenous historical variation, in this case, in tourism potential, which predates modern economic activity but continues to shape the economic geography today ([Nunn, 2020](#)).

This paper exploits Switzerland’s early tourism development —shaped largely by foreign travelers’ perceptions of Alpine “sublimity”—to obtain plausibly exogenous variation in initial tourism demand for a country with exceptionally stable institutions. Our first innovation is a municipality-level measure of original tourism attractiveness derived from the [Murray \(1867\) *Handbook for Travellers to Switzerland*](#). We digitize the text and use natural language processing and supervised machine learning to quantify historical attractiveness, arguably improving on proxies such as the presence of beaches or heritage sites used in earlier work (e.g. [Faber and Gaubert, 2019](#); [Linsenmeier, 2025](#)). We then use these

³National regulation, such as the 2012 Second Home Initiative, has had limited success in restoring balanced growth ([Hilber and Schöni, 2020](#)).

measures as instruments for both early and contemporary tourism to isolate the long-run impact of initial tourism development from its current economic effect, building on the framework of [Casey and Klemp \(2021\)](#). This identification strategy provides a transparent approach to studying persistence in a setting where both historical and contemporary forces are relevant.

We combine the guidebook-based attractiveness indices with historical hotel counts from the 1894 *Ragionenbuch* ([Orell Füssli, 1894](#)), Switzerland’s first national firm registry, and modern administrative sources on hotels, employment, population, and individual-level microdata on wages, yielding a balanced sample of 400 municipalities. The main specification is a two-stage least squares (2SLS) instrumental variable (IV) framework, in which the original tourism attractiveness instrument is the early and contemporary presence of tourism as measured by the number of open hotels in a municipality. This isolates exogenous variation in both the historical and contemporary components of tourism intensity, allowing us to examine the causal long-run development and contemporaneous effects of tourism on (sectoral) employment, wages, and population.

Our estimates show that tourism generates large and persistent differences in local development, but that its effects are time-varying. Municipalities that were more tourism-attractive in the nineteenth century remain more tourism-oriented today. In the IV specification with historical and contemporaneous channels, one additional hotel in 1894 raises contemporaneous employment by 10.5% and population by 8.7%, with gains concentrated outside the tourism sector. Conditional on this legacy, the contemporaneous expansion of tourism has a markedly different footprint: one additional current hotel increases tourism employment by 17.3% but reduces non-tourism jobs, implying a 3.5% decline in total employment and a 3.7% decline in population. A sectoral decomposition suggests that historical tourism is associated with employment growth beyond the sector itself, whereas contemporaneous tourism reallocates activity toward tourism and crowds out non-tourism employment. A wage decomposition indicates that average wage differences primarily reflect labor-force composition rather than municipality-level productivity premia. We further document that second-home intensity, treated as a contemporaneous mediator, is associated with lower employment, population, and wages, and that the negative contemporaneous effects are concentrated in Alpine municipalities.

The paper contributes to the literature on tourism-led development, historical persistence with partial mediation between historical and contemporaneous channels, and

place-based policy in high-income settings. The remainder of the paper proceeds as follows. Section 2 provides an overview of the historical and contextual background. Section 3 describes the data sources and construction of the historical tourism attractiveness indices. Section 4 outlines the empirical framework and identification strategy for the main analysis. Section 5 presents the results, and Section 6 discusses and concludes.

2 Background

2.1 Historical Evolution of Swiss Tourism

Tourism in Switzerland occupies a singular place in the global history of leisure and travel. As Tissot (2017) documents, Switzerland was not merely an early adopter but in many ways the birthplace of modern tourism. The Alps, once regarded as inhospitable terrain, were transformed during the 18th and 19th centuries into a symbol of the sublime, discovery, and modern leisure. Prior to this transformation, travel across the Alps served primarily utilitarian purposes and accommodation was rudimentary and functional. The decisive shift came with the *Grand Tour*, the educational journey of the European elite, during which Switzerland became a prominent stop. English travelers in particular played a formative role: they not only constituted the largest group of visitors but also framed the cultural and aesthetic interpretation of the Alpine landscape. Romantic writers such as Mary Shelley and Lord Byron elevated the Alps to an icon of moral and natural beauty, embedding Switzerland within the cultural geography of the 19th-century imagination (John, 1990).

This intellectual and emotional discovery of the Alps laid the foundations for a new form of economic activity. No country experienced the rise of modern tourism earlier or more profoundly than Switzerland, and no group influenced its emergence more than the English (Tissot, 2000). The founding of the British Alpine Club in 1857, six years before its Swiss counterpart, symbolizes this pioneering role. England's early industrialization provided the financial resources and the social desire to escape urban life, while Switzerland offered the combination of accessibility, political stability, and spectacular landscape that made tourism at scale feasible. The country thus became the laboratory of a new economic model: the commodification of natural scenery through infrastructure, hospitality, and experience.

The second half of the 19th century marked a significant expansion of tourism and

leisure travel in Switzerland, largely facilitated by the development of railways⁴ and steamships. This period saw a broadening of tourism beyond the elite, while still maintaining strong associations with naturalistic and romantic pursuits. During the Belle Époque—the period from the 1880s to the outbreak of the First World War—tourism underwent a profound transformation, shifting from an activity pursued by individuals or small groups to the beginnings of mass tourism. A key figure in this shift was the English travel entrepreneur Thomas Cook, who first organized a group tour to Switzerland in 1863 and strongly promoted this form of collective travel. During the Belle Époque, a wave of hotel construction began and continued unabated until the outbreak of the First World War (Flückiger-Seiler, 2003).

Early modern roads were initially constructed to link larger towns in the Swiss Plateau before extending into the Alpine regions. Steamboats began operating on lakes of particular tourist interest, and from the last quarter of the 19th century, railways offered faster and more convenient access to destinations. In 1871, Europe’s first cogwheel railway brought travelers to the summit of the Rigi, followed in 1889 by the world’s steepest cogwheel line on the Pilatus. Between these milestones came the opening of the Gotthard Tunnel in 1882, which connected north and south, bringing visitors from German-speaking Switzerland to Italian-speaking Ticino. By 1908, the first passenger cableway was in operation, and within just five years there were already 60 cableways in Switzerland, about a dozen of them dedicated hotel lines.⁵

Importantly, early Swiss tourism was almost entirely demand-driven and foreign-oriented. Until well into the 1930s, domestic demand played only a minor role (Tissot, 2017). British visitors and their intermediaries not only shaped the geography of travel but also influenced the institutions and image of Swiss tourism. Hotels, cable carts, and local enterprises followed external demand rather than domestic policy or capital. In this sense, the formative phase of Swiss tourism was characterized by a spatially uneven and largely independent diffusion of investment. The origin of modern tourism in Switzerland was thus the result of external perceptions and preferences that left a durable imprint on

⁴Switzerland’s first national railway line from Zurich to Baden opened in 1847.

⁵Alpine skiing as a form of tourism emerged later. Before 1940, only a few mountain access points existed, many of which had originally been constructed for military, mining, or local transport rather than tourism. Winter sports began to take shape in 1934 with the opening of the first T-bar lift in Davos and expanded rapidly after World War II, leading to ski areas equipped with lifts specifically designed for skiers (Bärtschi, 2015; Troxler et al., 2024).

regional economic structures.

To explain the historical origins of these different equilibria, we introduce the concept of *original tourism attractiveness*, which refers to the perceived appeal of a location to early travelers before large-scale domestic development or modern infrastructure was in place. This measure captures demand-side variation in early exposure to tourism and serves as an exogenous historical determinant of subsequent local specialization. Unlike physical geography, which influences both the general economy and the tourism industry in various ways, original attractiveness reflects how early travelers—predominantly English visitors—evaluated and publicized destinations within a specific cultural and technological context relevant for subsequent tourism development. In Switzerland, where modern tourism was first established and codified by these travelers, this measure provides unique insights into the emerging regional tourism economy.

2.2 The Murray Handbook as Historical Evidence

To operationalize original tourism attractiveness, we draw on the 1867 edition of John Murray’s *Handbook for Travellers in Switzerland* (Murray, 1867). Murray’s guides were the most influential travel manuals of the 19th-century, especially among British visitors, and the 1867 edition offers detailed and systematic coverage of Swiss destinations on the eve of mass tourism. The *Handbook* provides a consistent and contemporaneous record of how early travelers perceived and evaluated Swiss destinations before domestic tourism or purpose-built attractions became significant. Figure 1 shows example text from the *Handbook*.

In this era, the preparation, organization, and management of journeys relied mainly on guidebooks. The evolution of early travel guides to Switzerland, as described by Tissot (2017), illustrates how travelers’ needs and the representation of places became progressively standardized during the 19th century. Within this evolution, the London publishing house of John Murray played a pioneering role. Under John Murray II and III, the firm became a central producer of travel and exploration literature, publishing works by figures such as Darwin, Franklin, and Byron (Bell, 2013). In 1838, John Murray III issued the first edition of the *Handbook for Travellers*, which offered systematic and comprehensive coverage of Switzerland. Unlike contemporary competitors, Murray’s handbooks combined practical orientation with cultural and aesthetic sensibility, extending beyond well-known destinations and encouraging exploration of lesser-known regions. Their popularity and

Figure 1: Murray Handbook

(a) Berne

ROUTE 24.

LUCERNE TO BERNE, BY RAILWAY.

This, although involving a long détour, is still the quickest mode of reaching Berne from Lucerne, and takes about 5 hrs.

Lucerne to Olten. (See Rte. 4.)

Olten to Berne. (See Rte. 5.)

BERNE.—*Inns*: three large houses near the rly. and close to the Federal Hall: Zähringerhof and Schweizerhof, clean, good, and moderate; Bernerhof, first-class, fine view of the Alps; *H. Bellevue (Oswald), well managed and quite comfortable; H. de l'Europe, good. In the centre of the town are the Falke (Faucon), Br. 1½ fr.; tea, do.; B. 2½ fr.; table-d'hôte at 1, 3 fr.; at 5, 4 fr.;—H. du Maure (Zum Mohren), clean, good, and moderate; H. des Boulangers (Pfistern). The *Abbeyes*, or houses of the guilds, such

(b) Grindelwald

Grindelwald.—*Inns*: Bär (Bear) at the W. of the village; Adler (Eagle) at the E. end,—both very fair. The pension of the Adler is a charming residence. English Church Service in summer.

The village of Grindelwald, consisting of picturesque wooden cottages, widely scattered over the valley, stands at a height of 3250 ft. above the sea, from which cause, and from its vicinity to the glaciers, the climate of the valley is cold, and unstable even in summer. Its inhabitants are chiefly employed in rearing cattle, of which 6000 head are fed on the neighbouring pastures; and many act as guides. The younger females pick up a few halfpence by singing Ranz de Vaches at the inns, and most of the children

Notes: Examples of a) Route 24, with the beginning of the city of Berne's description and b) the description of the village of Grindelwald in the Bernese Alps, from the [Murray \(1867\)](#) Handbook.

translation into multiple languages established Murray's guides as the authoritative reference for 19th-century travel and a primary document of how early tourists perceived Swiss destinations.⁶

Using the Murray handbook for original tourism attractiveness has three advantages. First, it predates the large-scale expansion of modern tourism infrastructure, so its descriptions are plausibly exogenous to subsequent local development. Second, it records destination attributes as perceived by early foreign travelers at the moment when Swiss tourism was still emerging, rather than reflecting later, locally endogenous investments. Third, the handbook provides a standardized, nationwide description of destinations, which facilitates systematic measurement at fine spatial resolution. While the source reflects the perspective of a single publisher, Murray's handbooks were widely used and repeatedly revised, making them a credible and influential snapshot of early tourist perceptions.

⁶For instance, the first edition of the well-known Baedeker travel guidebook for Switzerland, published in 1844, was a direct translation of Murray's 1838 *Handbook*.

3 Data

3.1 Original Tourism Attractiveness

We utilize the [Murray \(1867\)](#) travel handbook to measure original tourism attractiveness. The book comprises approximately 370 pages, with the initial 70 pages dedicated to introductory information typical of the era. This preface includes details and recommendations for the most superior inns, baths, panoramas, scenic views, waterfalls, and more throughout Switzerland. The remainder of the handbook is structured along travel routes. For instance, Route 1 follows the journey from Basel to Bern, describing these two and all intermediate locations on the way. Each place is typically introduced with general information, including available accommodations and local features, followed by more detailed accounts of notable attractions, architectural landmarks, as well as natural and historical points of interest. In total, the guidebook provides descriptions for 400 present-day Swiss municipalities.⁷

We digitize the [Murray \(1867\)](#) Handbook for Travellers in Switzerland and process its municipality descriptions using a natural language processing (NLP) approach to quantify original tourism attractiveness. Based on recurring themes in the text, we distinguish three dimensions of appeal—nature, culture, and hospitality—capturing scenic quality, cultural landmarks, and accommodation amenities. We use a transformer-based language model (BERT), pre-trained and fine-tuned on nineteenth-century English, to obtain sentence-level embeddings. We then use these embeddings in a random forest supervised classification procedure, training on sentences from the preface. Each sentence for municipalities in the handbook is assigned probabilities for belonging to the three categories, and municipality-level scores are then based on sentences strongly associated with each dimension, computed as the sum of 90th-percentile excess probability. The resulting indices provide a contemporaneous measure of how foreign travelers perceived local attractiveness before the onset of modern tourism. A list of the labelled training sentences is provided in [Appendix A.2](#).

⁷With this, our analysis operates on a high spatial granularity, with Switzerland (41'285 km²) being subdivided into 2'212 municipalities in 2019. Note also that the places that have been described in [Murray \(1867\)](#) naturally coincide with the places of tourism activity today.

3.2 Tourism Data

Our measure of tourism in a municipality is the number of hotels and, in earlier periods, other establishments that primarily provided lodgings for travellers.⁸ The [Murray \(1867\)](#) travel guidebook provides the earliest information on inns, guesthouses, and hotels, which are listed consistently at the beginning of each place description. In total, the guidebook provides descriptions and hotel counts for the year 1867 in 400 present-day Swiss municipalities.⁹ Of these, 254 municipalities list one or more hotels, while in 146, none are mentioned. Since the completeness of these listings, particularly for municipalities without hotels, cannot be verified, we supplement the data with an additional historical source.

To this end, we digitized the *Schweizerisches Rationenbuch* from 1894 ([Orell Füssli, 1894](#)) - Switzerland's first comprehensive business registry. The timing of this registry, published after Murray's 1867 guidebook but still during the advent of Swiss tourism, is advantageous as it coincides with the onset of Switzerland's first period of hotel expansion and thus documents this development at an early stage ([HotellerieSuisse, 2023](#)). The source provides detailed information on the type of business for each entry. From this, we identify businesses that provide lodgings for travellers that would be considered hotels today.¹⁰ We identify 473 municipalities with at least one hotel in 1894, for a total of 1'467 hotels. Out of these, 1'126 (78%) are represented in the sample of 400 today's municipalities for which historical text descriptions are available in Murray's Guidebook.

To measure contemporaneous tourism, we use the tourist accommodation statistics (HESTA) from the Swiss Federal Statistical Office (FSO). HESTA reports the number of open hotels per municipality, which we pool for 2015-2019, ensuring consistent coverage for subsequent data on employment and wages. Given the significant impact of the COVID-19 pandemic on the economy and tourism in particular, 2019 is the most recent year in our dataset. We do not include non-hotel accommodations such as camping or commercial vacation rentals.

⁸Arguably, the number of overnight stays might be a more precise measure of tourism intensity as there might be considerable heterogeneity with respect to different establishments' size. However, these are generally not available for earlier periods and therefore not suitable for analysis.

⁹Over time, there have been numerous municipality changes - particularly mergers - in Switzerland. In 1867, there were 3'202 municipalities, but only 2'212 in 2019. Here and in the following, we always process the data at the original municipality level and then forward-trace it to the 2019 level of municipalities, taking into account any changes. See [Appendix A.1.7](#) for details.

¹⁰Particular care was given to the language differences in naming and describing a business, with German, French, and Italian used in different parts of Switzerland.

3.3 The Local Economy

Sectoral employment data are sourced from publicly available corporate structure statistics (STATENT) from the FSO, which provide full-time equivalent employment figures for each year from 2015 to 2019. This dataset provides municipality-level information on full-time equivalents (FTE) by two-digit sector.

Additionally, we incorporate individual-level earnings data from the Central Compensation Office (CCO) and the FSO’s structural survey (SE) for the years 2015–2019 to examine individual earnings. The income data encompass the universe of all Swiss earnings from 2015 to 2019, comprising a total of 45 million observations. Matching these earnings by pseudo social security number with the structural surveys enables us to assign earnings to municipalities based on place of work, rather than residence. The structural survey is an annual representative survey of more than 200,000 residents in Switzerland aged 15 and above, yielding a total of approximately 1 million observations from 2015 to 2019.¹¹ It further provides information about the type of work, including sector, education level, and other characteristics relevant to the job.¹²

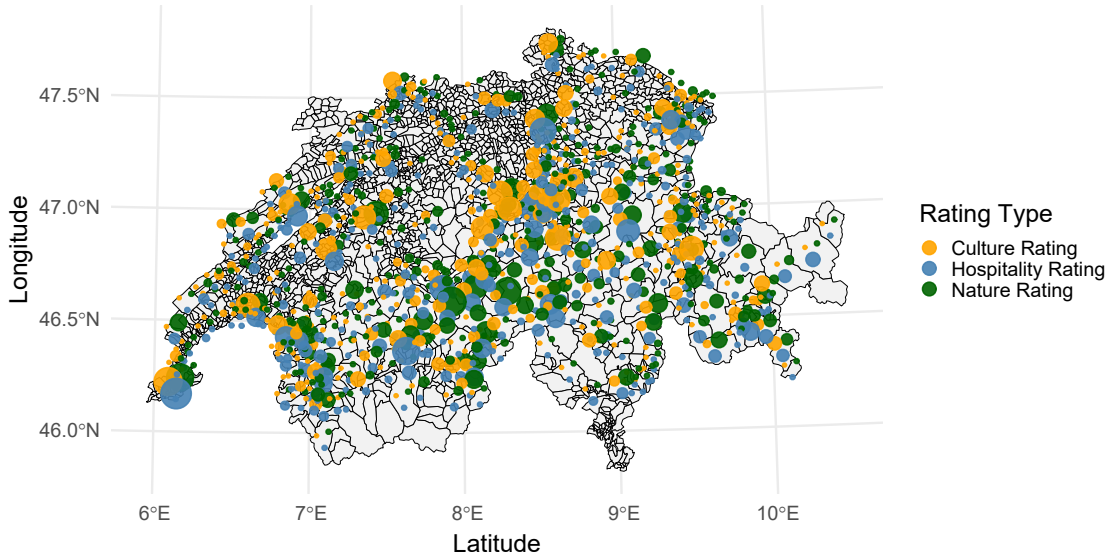
Municipality-level population data are obtained from the Swiss Census conducted by the FSO. These data are available at decennial intervals from 1850 to 2000, and annually from 2010 onwards. For the historical analysis, we use the year 1860, which is the closest available census year preceding the publication of the [Murray \(1867\)](#) handbook. As a contemporary measure of population, we use data for 2017 and do not pool over the period 2015-2019 as the population counts are a comprehensive census themselves.

We also consider the historical role of railway expansion and road infrastructure in facilitating early tourism and economic development (e.g., [Lahura and Sabrera, 2023](#); [Tissot, 2017](#)). Municipality-level market access measures is calculated with data on population and on the expansion of Switzerland’s transportation network using data from the ‘GIS-Dufour’ project, which provides a digital map of historic roads, railway, and water routes based on the first national map commissioned by Henri Dufour in 1850 and subsequent

¹¹The income of non-resident seasonal workers is therefore not captured by our earnings data. Seasonal workers are relevant in some types of tourism but are not captured by any administrative data in Switzerland.

¹²This approach preserves the highest possible spatial resolution necessary to capture localized tourism patterns in alpine areas while preserving data privacy requirements ($N \geq 5$). For two of the 400 municipalities, we have fewer than five observations in the structural survey; therefore, the subsequent analysis of wages is based on a sample of only 398 municipalities.

Figure 2: Map of Original Tourism Attractiveness



Notes: Map of the Original Tourism Attractiveness scores in Switzerland based on the method in Section 3.1. The larger the dots, the higher the attractiveness score. The highest score for nature is 9.2 for the municipality of Lauterbrunnen, the highest score for culture is 8.4 for Geneva, and the highest score for hospitality is 10.2, again for Geneva.

iterations (Egli et al., 2005).¹³ This data encompasses the period 1860 - 1913 for Switzerland with information on the year of construction. For 1867, there are 90 ship routes, 3'313 roads, and 364 railway lines. We connect these lines to create an 1867 Swiss transportation graph network, assuming travel speeds as suggested in the literature (see Appendix A.1.3 for details).¹⁴ Our analysis includes several other control variables to account for potential confounding factors, such as geographic features like a municipality's developable land and sunshine. These additional data sources and their specific construction are detailed in Appendix A.1. See Table 7 for the summary statistics of the data.

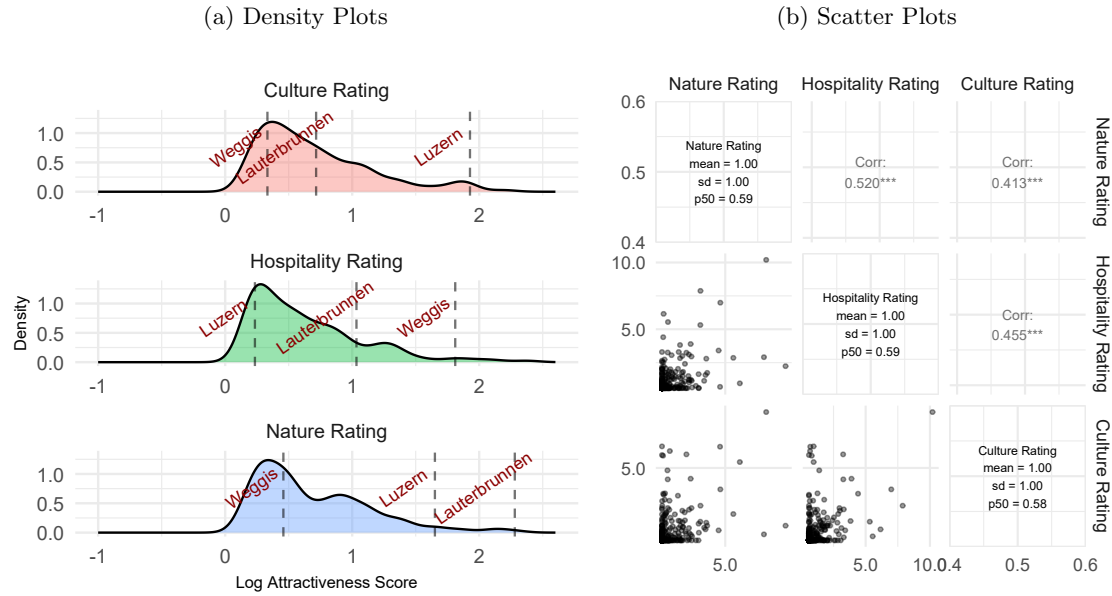
3.4 Descriptive Analysis

Figure 2 maps the resulting attractiveness scores across the 400 Swiss municipalities. The historical attractiveness measure captures how foreign travelers in the nineteenth century perceived the natural and cultural appeal of Swiss destinations before infrastructure and

¹³Büchel and Kyburz (2020) employed this data to study the effect of railway access on population growth in 19th-century Switzerland.

¹⁴To then calculate market access, we calculate, over all municipalities, the population weighted access or centrality with exponential decay of travel time and a half-life of 8 hours.

Figure 3: Density and Scatter Plot of Attractiveness Scores



Notes: Figure of original tourism attractiveness density plots in all three dimensions (a) and scatter plots of the bivariate relationship and correlation between the three dimensions (b). In panel (a), we report log attractiveness scores only of the non-zero entries of each respective score for readability.

policy interventions. As such, it reflects the underlying geography, scenic quality, and early accessibility that made certain municipalities focal points of early Alpine tourism. Locations rated highly in the Murray Handbook were typically characterized by a combination of dramatic mountain scenery, cultural significance, and the presence of lodging or other amenities, rather than by pre-existing economic prosperity. Most of the places and municipalities score low values of original tourism attractiveness, as the density plots in Figure 3 reveal. For one place having a high score in one dimension does not imply a high score in another: the bivariate scatter plots show correlation in the lower but not upper ends of the ratings' distributions.

For instance, the municipality of *Lauterbrunnen* situated in the Bernese Alps, whose name roughly translates to "(valley) of many fountains", achieves the high score of 9.2 in nature rating, but only a modest 2.2 for hospitality and 1.5 for culture. The city of Geneva, which at the time was slowly rising to the international city it is today, achieves the highest scores for hospitality (10.2) and culture (8.4). Other cities, such as Zurich, Lucerne, Lausanne, or Basel, generally have relatively high scores in hospitality and culture as well. Places in Inner Switzerland, such as Schwyz (6.0), Stans (5.8), and Altdorf (6.3), have high values of culture, reflecting not urban culture in the form of e.g. Museums and

Theaters, but more traditional cultural aspects, including local customs. High hospitality ratings are also found in places that have already established a reputation for catering to travellers' needs, such as Leukerbad (7.9), an alpine municipality with natural springs used since Roman times.

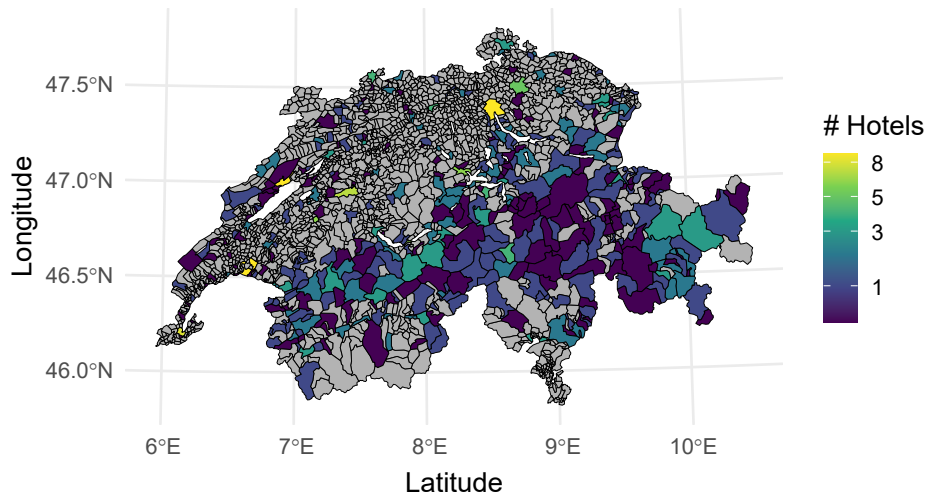
Figure 4 displays the distribution of hotels in 1867, 1894, and 2015-2019 for the 400 municipalities in our data. The Alpine areas of the country are well represented, as are major cities and towns. The distribution of hotels in 1867 primarily focused on the major cities of Geneva, Lausanne, Neuchâtel, Bern, and Zurich, indicating that lodgings were closely linked to economic activity and commerce. In 1894, there was a notable increase in hotels, particularly in eastern Switzerland. Between 2015 and 2019, the distribution of hotels became more even, with a larger share of hotels located in Alpine regions than previously.

It is also worthwhile to explore the descriptive characteristics of our data visually. Figure 5 shows various binscatter plots of key variables. The binscatter is a method for visualizing bivariate relationships when the number of observations is large enough to create a dense cloud of points, rendering them uninformative (Cattaneo et al., 2024). Instead, the support of the variable on the x -axis is partitioned into a smaller number of bins where, in the plot, each point displays the average outcome of y in that bin. The visual display of these bivariate relationships is helpful in guiding the empirical strategy and interpretation of results. The binscatters in Figure 5 show that the presence of hotels in a municipality in 1867 (a and b), 1894 (a and c), and 2015-2019 (b and c) is positively correlated, that the original tourism attractiveness score of nature (d), culture (e) and hospitality (f) are positively correlated with hotels 2015-2019, and that the number of hotels 2015-2019 in a municipality is positively correlated with the number of jobs (g), population (h), and wages (i).¹⁵ However, these relationships are unlikely to be causal, given potential reverse causality between tourism and local development as well as other sources of endogeneity. We therefore develop an identification strategy to credibly estimate the causal effects of past and present tourism on the local economy.

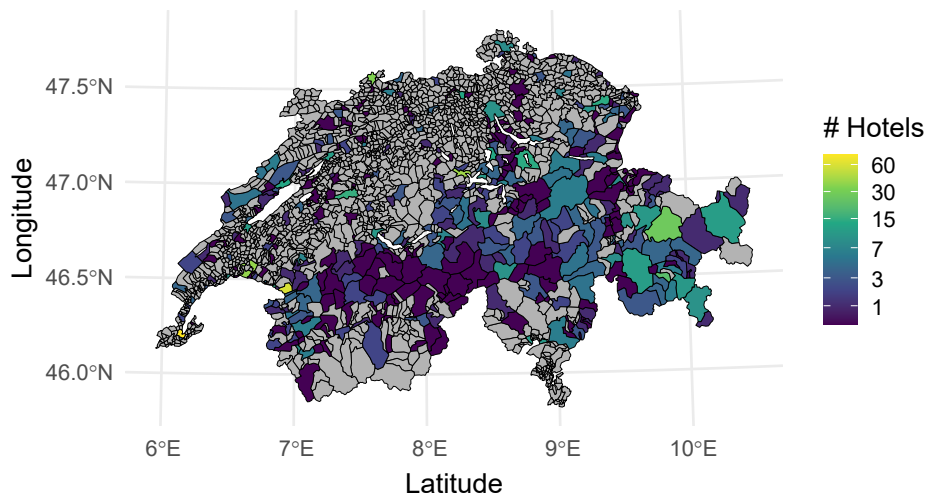
¹⁵Figure 10 in the Appendix further displays the relationship between the number of hotels 1894 and the scores of original tourism attractiveness as well as jobs, population, and wages. The results are similar to the ones in Figure 5 for the number of hotels 2015-2019, with positive associations throughout.

Figure 4: Hotel Distribution Maps

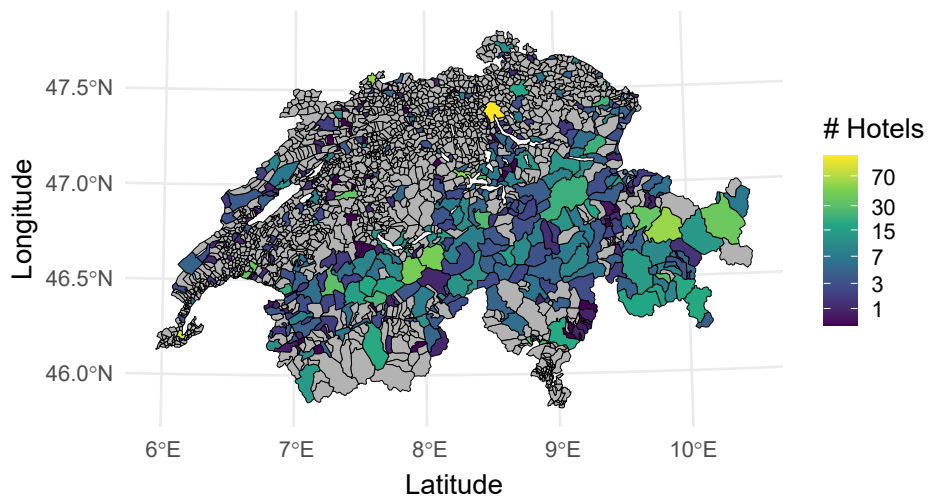
(a) 1867



(b) 1894

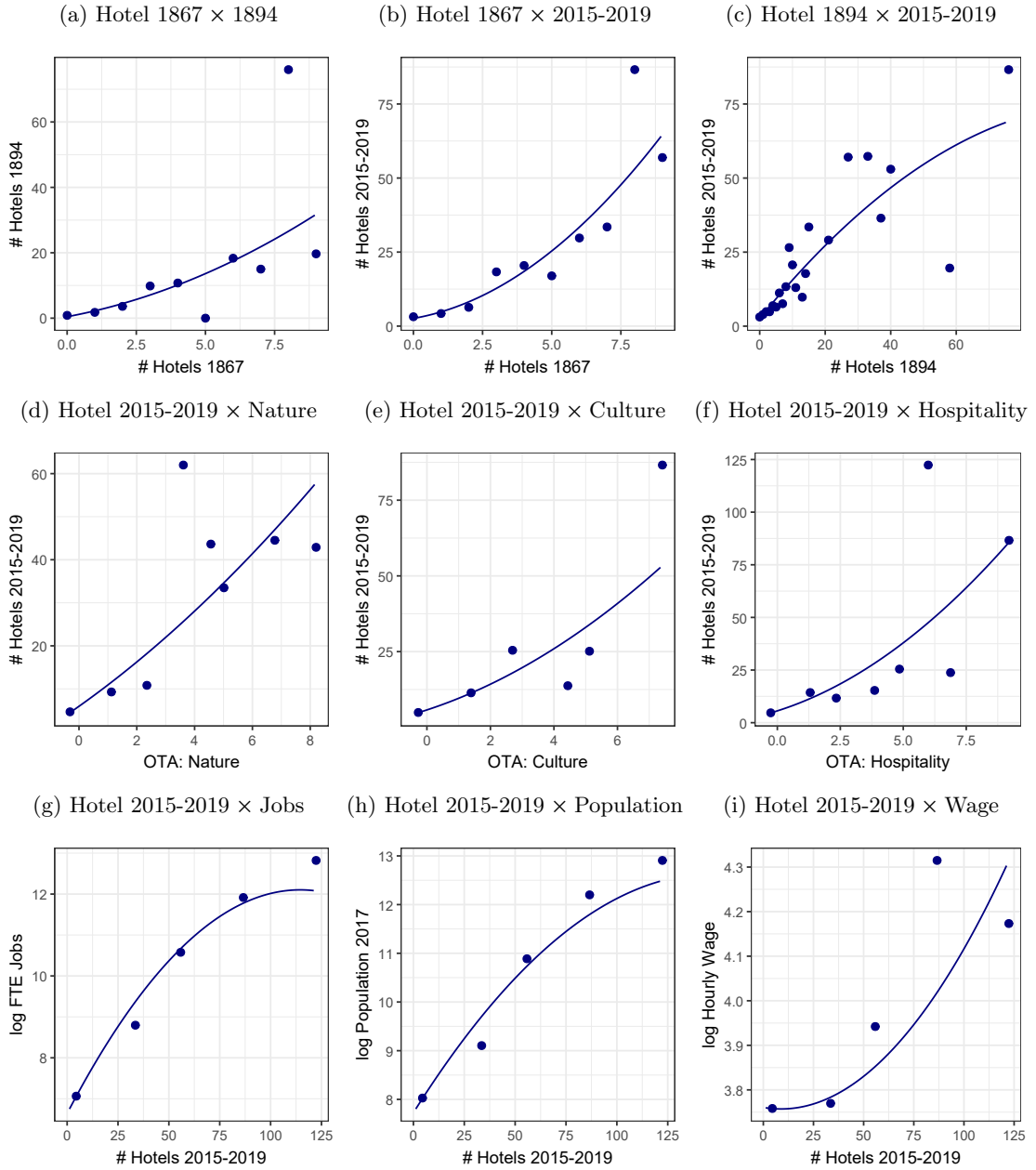


(c) 2015-2019



Notes: Maps depicting the distribution and number of hotels per municipality in our data for 1867 (a), 1894 (b), and 2015-2019 (c).

Figure 5: Binscatter Plots of Key Variables



Notes: Binscatter plots of different municipality characteristics using the method from [Cattaneo et al. \(2024\)](#). The binscatter is made by partitioning the support of the different characteristics into a smaller number of bins and showing a single point per bin, displaying the average outcome of the y-axis for observations within that bin.

4 Empirical Strategy

Our empirical strategy proceeds in three steps. We first document the persistence of tourism by relating early hotel development and original attractiveness to today’s hotel presence. We then examine reduced-form relationships between original attractiveness and current outcomes, such as employment. Finally, we move to an instrumental variables (IV) framework that separately identifies the long-run impact of early tourism and the contemporaneous effect of current tourism on a municipality’s employment, wages, and population.

4.1 Tourism persistence and original attractiveness

We begin by estimating the degree of persistence in tourism and the direct impact of original attractiveness on contemporary hotel presence. For municipality m , let $T_{H,m}$ denote early tourism intensity, measured by the number of hotels in 1894, and $T_{C,m}$ denote contemporary tourism, measured by the average number of hotels in 2015–2019. Let $Z_{H,m}$ be the vector of original attractiveness scores (nature, culture, hospitality) derived from the [Murray \(1867\)](#) Guidebook, and $W_{H,m}$ a vector of historical and geographic controls and fixed effects.¹⁶ We estimate the following baseline specification:

$$T_{C,m} = \delta T_{H,m} + \rho' Z_{H,m} + \kappa'_P W_{H,m} + \varepsilon_{T,m}. \quad (1)$$

The coefficient δ captures the persistence of tourism: the extent to which municipalities with more hotels in 1894 continue to host more hotels today. The vector ρ measures the direct effect of original attractiveness on contemporary tourism, conditional on historical hotel development and controls. A significant ρ indicates that the touristic appeal recorded in the 1867 Handbook continues to influence the spatial distribution of tourism, extending beyond its historical impact on early hotel investment.

4.2 Reduced-form effects

We next examine how original attractiveness relates to current economic outcomes, such as employment. Let $Y_{C,m}$ denote the municipality outcome in log. We estimate

$$Y_{C,m} = \pi' Z_{H,m} + \kappa'_{Y_C} W_{H,m} + u_{Z,m}. \quad (2)$$

¹⁶These are log population in 1860, log market access in 1867, log developable land, climate, longitude, latitude, and Grossregion fixed effects.

The coefficients π capture the effect of original attractiveness on outcomes, conditional on historical population, market access, geography, and climate. These reduced-form estimates provide insight into the long-term impact of early tourism appeal on local economies. Similarly, we can estimate the effect of contemporaneous tourism $T_{C,m}$ on outcomes $Y_{C,m}$:

$$Y_{C,m} = \beta T_{C,m} + \kappa'_{Y_C} W_{H,m} + u_{Y,m}. \quad (3)$$

However, Equation 3 does not identify the causal effect of contemporary tourism. Because tourism development is persistent, $T_{C,m}$ is correlated with early tourism intensity $T_{H,m}$. If early tourism has direct long-run effects on today's outcomes via alternative channels (e.g., through durable infrastructure, specialization, or the built environment), omitting $T_{H,m}$ induces omitted-variable bias and $\hat{\beta}$ conflates the effect of current tourism with the legacy of historical development. Simply including $T_{H,m}$ in 3 would address this particular source of bias, but it would not resolve the broader endogeneity problem: $T_{C,m}$ may still be correlated with unobserved contemporary shocks to productivity, amenities, or local policies that also affect $Y_{C,m}$, and outcomes may themselves influence tourism development via reverse causality. To assess the causal role of tourism and distinguish the legacy of early development from the effects of current tourism, we turn to an instrumental variable (IV) approach.

4.3 Two-channel IV specification

Our IV specification relates current economic outcomes to both early and contemporary tourism in its second stage:

$$Y_{C,m} = \beta_H \hat{T}_{H,m} + \beta_C \hat{T}_{C,m} + \kappa' W_{H,m} + u_m, \quad (4)$$

where $\hat{T}_{H,m}$ and $\hat{T}_{C,m}$ are fitted values of $T_{H,m}$ and $T_{H,c}$ from the first stage. Here, β_H captures the long-run effect of early tourism: how additional hotel capacity in 1894 translates into current employment, wages, and population, holding the current level of tourism fixed. The coefficient β_C measures the net contemporaneous effect of current tourism, given the historical level of tourism. The error term u_m is a composite term, which we derive in the structural equations in Appendix A.4. All regressions are estimated with spatial standard errors of Conley (1999) using a 100 km cutoff, as suggested by the empirical semivariogram in Appendix A.4.1.

Both $T_{H,m}$ and $T_{C,m}$ are endogenous. Municipalities that developed more hotels in 1894 may have had unobserved advantages (e.g. local entrepreneurship) that also affect long-run growth. Current hotel presence $T_{C,m}$ is likely to respond to factors that influence $Y_{C,m}$. To address this, we use original attractiveness $Z_{H,m}$ as an instrument for $(T_{H,m}, T_{C,m})$ in the first stage:

$$T_{H,m} = \pi'_H Z_{H,m} + \kappa'_H W_{H,m} + \nu_{H,m}, \quad (5)$$

$$T_{C,m} = \pi'_C Z_{H,m} + \kappa'_C W_{H,m} + \nu_{C,m}. \quad (6)$$

The fitted values $\hat{T}_{H,m}$ and $\hat{T}_{C,m}$ from 5 - 6 are then used in the second-stage Equation 4.¹⁷ An IV strategy that instruments only $T_{C,m}$ with $Z_{H,m}$ and omits $T_{H,m}$ would, in general, conflate the long-run legacy of early tourism with the contemporaneous effect of current tourism. In Appendix A.4, we formalize this point in a simple framework and show how our specification in 4-6 recovers interpretable parameters for both β_H and β_C .

Causal identification of (β_H, β_C) requires instrument relevance and the exclusion restriction. The *relevance* condition states that original attractiveness predicts variation in early and contemporary tourism, conditional on controls. Empirically, the Murray scores explain a substantial share of the cross-sectional variation in both $T_{H,m}$ and $T_{C,m}$, and first-stage F -statistics exceed conventional weak-instrument thresholds as we show in the results section.

Second, the *exclusion restriction* implies that, conditional on controls $W_{H,m}$, original attractiveness affects current outcomes only through its impact on tourism $T_{H,m}$ and $T_{C,m}$:

$$Z_{H,m} \perp\!\!\!\perp u_m \mid T_{H,m}, T_{C,m}, W_{H,m}.$$

This requires that nineteenth-century guidebook ratings of natural beauty, culture, and hospitality do not contain additional information about long-run economic development beyond what is captured by observable baseline geography and historical conditions. This assumption is plausible in our setting for three reasons. First, the Murray Handbook predates large-scale domestic tourism and major tourism-related infrastructure, and was written by a British publisher for foreign travelers, so the scores primarily reflect external perceptions of aesthetic and cultural appeal rather than local development prospects.

¹⁷In the structural system in Appendix A.4, contemporaneous tourism $T_{C,m}$ depends on both $T_{H,m}$ and $Z_{H,m}$. Because $T_{H,m}$ is itself endogenous and instrumented by the same vector $Z_{H,m}$, including $\hat{T}_{H,m}$ on the right-hand side of the first stage for $T_{C,m}$ would be redundant from the perspective of 2SLS estimation such that the first stage Equations 5-6 are appropriate.

Second, we control flexibly for historical population, 1867 market access, developable land, climate, and region fixed effects, which absorb key determinants of both tourism and long-run growth that might be correlated with our instruments. Third, the main alternative channel through which original attractiveness could matter economically, its effect on early tourism development, is explicitly captured by $T_{H,m}$ in 4.

5 Results

5.1 Tourism Persistence

We first estimate whether historical differences in local tourism attractiveness predict municipality-level tourism and whether tourism is persistent over time. Figure 5 shows a positive unconditional relationship between historical attractiveness and both early and modern hotel presence. Table 1 reports estimates of Equation 1 for hotel counts in 1894 and in 2015–2019, including baseline controls and regional fixed effects. The specifications that condition on earlier hotel counts isolate tourism persistence over 1867–1894 and into the present.

Table 1 shows that original tourism attractiveness predicts hotel presence in 1894. In column (1), a one-standard-deviation increase in cultural and hospitality attractiveness is associated with about 1.8 and 1.6 additional hotels, respectively, while the nature dimension is not statistically significant. Conditioning on hotels in 1867 (column (2)) attenuates these coefficients and yields strong evidence of persistence: one additional hotel in 1867 predicts roughly 1.3 more hotels in 1894, consistent with rapid hotel expansion during this period (Tissot, 2017).

Historical attractiveness also predicts modern hotel presence. In columns (3)–(5), nature and hospitality attractiveness are robustly positive predictors of the number of hotels in 2015–2019 (e.g., about 2–3 additional hotels per one-standard-deviation increase), whereas the cultural coefficient is smaller and less robust across specifications. Persistence is evident in that early hotel presence (1867 or 1894) significantly predicts hotel counts today, implying that municipalities with an early tourism base exhibit persistently higher levels of tourism activity.

Table 1: Regressions: Attractiveness and Persistence

Dependent Variables: Model:	Number of Hotels 1894		Number of Hotels 2015-2019		
	(1)	(2)	(3)	(4)	(5)
<i>Variables of Interest</i>					
# Hotels 1867		1.3** (0.52)		2.3*** (0.82)	
# Hotels 1894					0.59** (0.26)
OTA: Nature	0.51 (0.40)	0.40 (0.40)	2.4*** (0.67)	2.2*** (0.52)	2.1*** (0.75)
OTA: Hospitality	1.6** (0.72)	1.1 (0.77)	3.5*** (1.2)	2.6*** (0.97)	2.6** (1.0)
OTA: Culture	1.8*** (0.58)	1.3** (0.57)	1.2*** (0.40)	0.34*** (0.08)	0.15 (0.47)
<i>Controls</i>					
Log Population 1860	2.1*** (0.37)	1.5*** (0.41)	3.4*** (0.74)	2.3*** (0.52)	2.1*** (0.77)
Average Sunshine	-0.45*** (0.14)	-0.42*** (0.12)	-0.27 (0.28)	-0.23 (0.24)	-0.01 (0.18)
Log Market Access 1867	-0.08 (0.13)	-0.07 (0.12)	-0.44 (0.33)	-0.43** (0.21)	-0.39** (0.19)
Log Area Developable Land	-0.23 (0.29)	-0.15 (0.27)	0.27 (0.61)	0.41 (0.53)	0.40 (0.51)
Longitude	-0.35 (0.82)	-0.65 (0.71)	2.3 (1.8)	1.7 (1.5)	2.5* (1.4)
Latitude	-6.5*** (2.4)	-6.3*** (2.2)	-6.7** (3.0)	-6.3*** (2.4)	-2.9 (2.3)
<i>Fixed-effects</i>					
Grossregion	Yes	Yes	Yes	Yes	Yes
Observations	400	400	400	400	400
R ²	0.47804	0.51272	0.54417	0.58771	0.61014

Notes: Table of the main regression results of the effect of original tourism attractiveness and tourism persistence as in the model in Equation 1 for different time periods in the dependent variables. Conley (1999) with 100 km radius standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

5.2 Tourism Attractiveness Employment Effects

We next estimate reduced-form relationships between original tourism attractiveness in 1867 and municipality-level employment in 2015–2019, as in Equation 2. Table 2 reports results for total employment (FTE) and, separately, employment in tourism industries, with baseline controls and specifications that additionally include regional fixed effects.

For total employment, cultural and hospitality attractiveness are positively associated with jobs today. A one-standard-deviation increase in the culture score corresponds to an increase in total employment of about 14% across specifications, while a one-standard-deviation increase in hospitality is associated with roughly 4–6% higher total employment.¹⁸ In contrast, the nature score is small and statistically insignificant for total jobs.

For tourism employment, the pattern differs. Nature and hospitality attractiveness are both strong predictors of employment in tourism: a one-standard-deviation higher nature score is associated with approximately 25–30% higher tourism employment, and a one-standard-deviation increase in hospitality with roughly 30–35% higher tourism employment, depending on the specification. The culture score, by contrast, is not robustly related to tourism employment once controls and fixed effects are included.

5.3 Employment, Wages and Population from Tourism

We next estimate the effect of tourism on local employment, wages, and population. We begin with a static specification that treats tourism as a single, cumulative exposure, and then turn to a dynamic perspective that allows for time-varying effects consistent with path dependence and our IV strategy that separates historical and contemporaneous tourism.

Table 3 reports reduced-form estimates from Equation 3 (columns (1)–(3)) and the corresponding static IV estimates that instrument current hotel presence but do not condition on historical tourism $T_{H,m}$ (columns (4)–(6)). First-stage results are reported in Appendix A.5. In the reduced form, an additional hotel is associated with higher employment and population today: jobs increase by about 2.2% and population by 1.3%, while wages rise only marginally (about 0.1%). These reduced-form relationships reflect equilibrium outcomes and may conflate tourism-driven effects with sorting and reverse causality.

¹⁸Percentage changes discussed in the text from regressions with log dependent variables are computed as $(\exp(\beta) - 1) \times 100$.

Table 2: Regressions: Original Tourism Attractiveness Employment Effects

Dependent Variable: (all in log 2015 - 2019)	Total Jobs in a Municipality in FTE							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Variables</i>								
Constant	-1.6*** (0.51)		-1.3** (0.51)		-1.5*** (0.52)		-1.2** (0.51)	
<i>Variables of Interest</i>								
OTA: Nature	0.01 (0.02)	0.02 (0.03)					-0.06 (0.04)	-0.05 (0.06)
OTA: Culture			0.13*** (0.05)	0.13*** (0.04)			0.13** (0.06)	0.13*** (0.05)
OTA: Hospitality					0.06*** (0.01)	0.06** (0.03)	0.04** (0.02)	0.04 (0.03)
<i>Variables</i>								
Constant	-1.6*** (0.51)		-1.3** (0.51)		-1.5*** (0.52)		-1.2** (0.51)	
<i>Variables of Interest</i>								
OTA: Nature	0.43*** (0.11)	0.27*** (0.10)					0.28*** (0.09)	0.23*** (0.09)
OTA: Culture			0.20 (0.15)	-0.05 (0.15)			-0.06 (0.14)	-0.25 (0.20)
OTA: Hospitality					0.46*** (0.14)	0.29* (0.15)	0.34*** (0.10)	0.27* (0.14)
<i>Controls</i>								
Population	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Market Access	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Developable Land	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sun, Lon. & Lat.		Yes		Yes		Yes		Yes
<i>Fixed-effects</i>								
Grossregion		Yes		Yes		Yes		Yes
<i>Fit statistics</i>								
Observations	400	400	400	400	400	400	400	400
R ² Total Jobs	0.67396	0.69578	0.67967	0.70117	0.67539	0.69718	0.68057	0.70196
R ² Tourism Jobs	0.19588	0.25356	0.18763	0.24975	0.19734	0.25422	0.20053	0.25778

Notes: Reduced-form regressions of the original attractiveness scores on the number of total FTE and tourism jobs in a municipality. [Conley \(1999\)](#) SE with 100 km radius standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

The IV estimates isolate exogenous variation in tourism exposure induced by historical attractiveness. Relative to the reduced form, the implied effects are smaller and less

Table 3: Regressions: Employment, Wages and Population

Dependent Variables: (all in log 2015 - 2019)	Reduced Form Regression			Static IV Regression		
	Jobs (1)	Wage (2)	Population (3)	Jobs (4)	Wage (5)	Population (6)
<i>Variable of Interest</i>						
# Hotels 2015-2019	0.022*** (0.007)	0.001* (0.0006)	0.013*** (0.004)	0.012** (0.005)	0.002 (0.001)	0.002 (0.005)
Full controls	Yes	Yes	Yes	Yes	Yes	Yes
Grossregion FE	Yes	Yes	Yes	Yes	Yes	Yes
<i>Fit statistics</i>						
Observations	400	398	400	400	398	400
R ²	0.71197	0.29309	0.75412	0.70879	0.29105	0.74962
F-test (1st stage)				72.307	71.632	72.307

Notes: Table of the main regression results of the effect of original tourism attractiveness and tourism persistence as reduced form and static IV regression, ignoring potential path-dependency and alternative channels A_C , for the different dependent variables: number of full-time jobs, mean wage, and population per municipality. Conley (1999) with 100 km radius standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

precisely estimated for wages and population: the IV coefficient is statistically significant only for employment, with an effect of roughly 1.2% higher jobs per additional hotel. Consistent with a spatial equilibrium view, wage responses are comparatively muted relative to employment and population outcomes, which are more directly reflected in local labor-market size and residential location choices (Glaeser and Gottlieb, 2009).

5.4 Decomposition of Contemporaneous and Long-Run Effect

Table 3 summarizes the cumulative (static) relationship between tourism today and local outcomes. A policy-relevant parameter, however, is the *contemporaneous* effect of additional tourism holding fixed the long-run development path that tourism has already induced. As discussed in Section 4, our setting allows for such a decomposition by including an early-tourism measure alongside current tourism, separating a long-run legacy component from a contemporaneous effect.

Table 4 reports the second-stage estimates from this exercise. Columns (1)–(3) use hotel counts from the 1894 *Ragionenbuch* as the measure of early tourism, while columns

(4)–(6) instead use the 1867 Murray’s Handbook hotel counts. The 1867 count is conceptually closer to the onset of modern Swiss tourism but may suffer from incomplete reporting, whereas the administrative nature of the *Ragionenbuch* makes the 1894-based specification our preferred baseline. First-stage results are reported in Appendix A.5.

Table 4: Regressions: Employment, Wages and Population

Dependent Variables: (all in log 2015 - 2019)	1894 Hotel IV Regression			1867 Hotel IV Regression		
	Jobs (1)	Wage (2)	Population (3)	Jobs (4)	Wage (5)	Population (6)
<i>Variables of Interest</i>						
# Hotels 1867				0.474**	0.044***	0.406**
# Hotels 1894	0.100*** (0.030)	0.010* (0.005)	0.083*** (0.031)			
# Hotels 2015-2019	-0.036*** (0.012)	-0.003 (0.004)	-0.038*** (0.014)	-0.039** (0.019)	-0.003 (0.003)	-0.042** (0.018)
Full controls	Yes	Yes	Yes	Yes	Yes	Yes
Grossregion FE	Yes	Yes	Yes	Yes	Yes	Yes
<i>Fit statistics</i>						
Observations	400	398	400	400	398	400
R ²	0.65240	0.27548	0.70022	0.67193	0.25120	0.69160
F-test (1st s.), Hotels 1894	47.523	46.843	47.523			
F-test (1st s.), Hotels 2015-2019	72.307	71.632	72.307	72.307	71.632	72.307
F-test (1st s.), Hotels 1867				55.100	54.382	55.100

Notes: Table of the main regression results of the effect of original tourism attractiveness and tourism persistence as in the model in Equation 4 for the different dependent variables: number of full-time jobs, mean wage, and population per municipality. Conley (1999) with 100 km radius standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

Two patterns emerge. First, early tourism is strongly associated with higher employment and population. In the preferred 1894 specification, one additional hotel in 1894 increases today’s jobs by about 10.5%, wages by 1%, and population by 8.7%; using 1867 hotel counts yields even larger long-run estimates (about 61% for jobs, 4.5% for wages, and 50% for population). Second, conditional on early tourism, the estimated contemporaneous effect of additional hotels today is negative: an additional hotel in 2015–2019 reduces jobs by about 3.5–3.8% and population by about 3.7–4.1% across the two specifications, while wage effects are small and statistically insignificant.

Taken together, the economic impact of tourism depends on *when* tourism develop-

ment occurred. Municipalities that experienced early tourism expansion exhibit persistently higher employment and population today, consistent with a long-run development legacy (e.g., agglomeration or durable local amenity and infrastructure investments). In contrast, places where tourism expands more recently exhibit patterns consistent with limited spillovers and potential crowding out of non-tourism activity, as reflected in lower employment and population conditional on historical tourism.

A natural interpretation is that the local general-equilibrium response to tourism has changed over time. In the late nineteenth century, local tourist demand likely generated stronger local multipliers because market integration was lower and a smaller share of value added leaked to outside suppliers. In a more integrated modern economy, peripheral tourism demand may generate fewer local linkages and more leakage, consistent with core-periphery mechanisms (e.g. [Krugman, 1991](#)). Moreover, the composition of accommodation has shifted: while early tourism relied predominantly on hotels ([Tissot, 2017](#)), second homes have become a major form of touristic accommodation and are associated with tighter local housing markets and land-use constraints ([Gerber and Bandi-Tanner, 2018](#)). In many Alpine destinations, second-home shares exceed the stock available to local residents ([ARE, 2025](#)), potentially limiting in-migration and labor supply for non-tourism sectors; related regulation following the 2012 initiative has not fully resolved these constraints ([Hilber and Schöni, 2020](#)).

5.5 Validation of Attractiveness Scores

A potential concern is that attractiveness ratings extracted from the 1867 guidebook are text-based objects that may not align with the intended underlying dimensions. To provide an external validation, we test whether the *nature* rating is systematically related to predetermined physical-geographical attributes that should be reflected in a landscape-driven notion of touristic appeal. For comparison, we report the same exercise for the hospitality and culture ratings, for which a strong relationship with physical geography is less expected by construction.

Specifically, we estimate

$$Z_{H,m}^N = \alpha + \beta_1 Peaks_m^{close} + \beta_2 Peaks_m^{panorama} + \beta_3 Waterfalls_m + \beta_4 Glacier_m + \beta_5 River_m^{distance} + \beta_6 Lake_m^{distance} + \varepsilon_m, \quad (7)$$

where the regressors capture nearby high peaks and mountain panoramas, waterfalls,

historical glacier presence, and distances to rivers and lakes.¹⁹ To assess the relevance of these physical features beyond statistical significance, we complement the coefficient estimates with a Shapley–Owen (LMG) attribution of the regression R^2 , which measures each regressor’s average incremental contribution to explained variance across all orderings (Israeli, 2007).

Table 5: Regressions: Physical-Geographical Attributes and Attractiveness

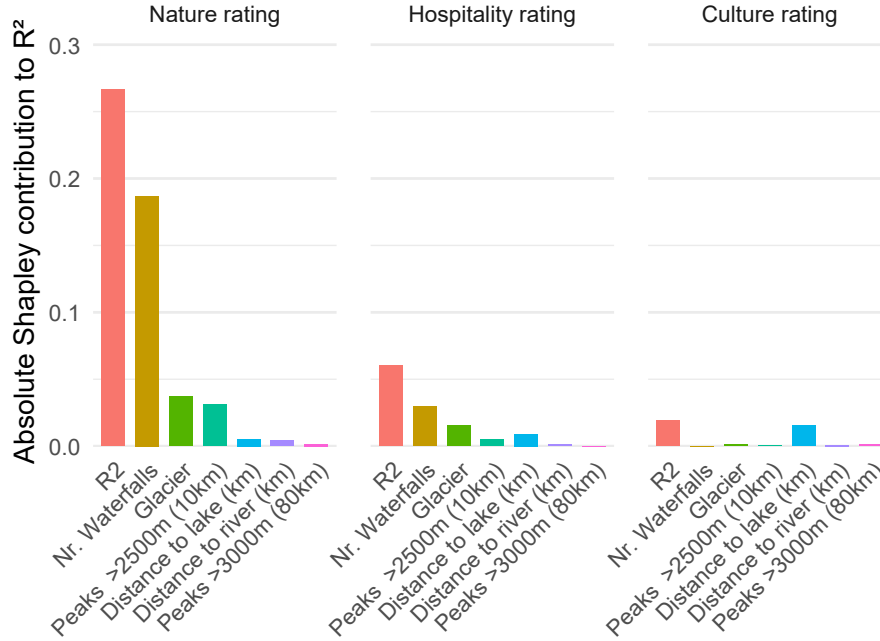
Dependent Variables: Model:	OTA: Nature (1)	OTA: Culture (2)	OTA: Hospitality (3)
Constant	0.86*** (0.09)	1.1*** (0.02)	1.0*** (0.11)
Peaks $\geq 2500\text{m}$ (10km)	0.02** (0.01)	0.01 (0.01)	0.003 (0.005)
Mountain Panorama ($\geq 3000\text{m}$, 80km)	0.003 (0.002)	0.001 (0.002)	-0.0003 (0.002)
Nr. Waterfalls	0.04*** (0.005)	0.0003 (0.002)	0.02*** (0.004)
Glacier	0.36 (0.23)	-0.18 (0.14)	0.34** (0.13)
Distance to river (km)	-0.06*** (0.01)	0.02 (0.04)	-0.03 (0.04)
Distance to lake (km)	-0.007*** (0.002)	-0.01** (0.005)	-0.009** (0.004)
<i>Fit statistics</i>			
Observations	400	400	400
R^2	0.266	0.019	0.060

Notes: Table reports regressions of physical-geographical attributes on the guidebook-based attractiveness scores as in Equation 7. Conley standard errors (100km cutoff) in parentheses (Conley, 1999). * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 5 reports the coefficient estimates for the nature rating and, as comparisons, for the hospitality and culture ratings. Figure 6 shows the corresponding Shapley (LMG) contributions. The nature score loads primarily on waterfalls, nearby high peaks, and glacier

¹⁹Concretely, $Peaks_m^{close}$ counts peaks above 2,500m visible from the municipality center within 10km; $Peaks_m^{panorama}$ counts peaks above 3,000m visible within 80km; $Waterfalls_m$ counts waterfalls in the municipality; $Glacier_m$ indicates whether a glacier in 1850 lies within 4km of the municipality center; $River_m^{distance}$ and $Lake_m^{distance}$ are distances (km) to the nearest river and lake, respectively. We report Conley standard errors with a 100km cutoff (Conley, 1999).

Figure 6: Shapley (LMG) Decomposition of Explained Variance in Attractiveness Ratings



Notes: Absolute Shapley (LMG) contributions to R^2 from regressions as in Equation 7 with nature, hospitality, and culture ratings as dependent variables. Bars sum to the regression R^2 within each outcome.

presence, consistent with the interpretation of the nature rating as capturing landscape-driven touristic appeal. In contrast, the same physical attributes have limited explanatory power for hospitality and culture. This is reflected in the explained variance: $R^2 \approx 0.27$ for nature, compared to $R^2 \approx 0.06$ for hospitality and $R^2 \approx 0.02$ for culture. The nature R^2 being substantial but far from one is expected, as guidebook descriptions reflect additional dimensions of scenic appeal and amenities that are not captured by our coarse physical measures, and our geographic covariates necessarily aggregate heterogeneous objects into broad categories.

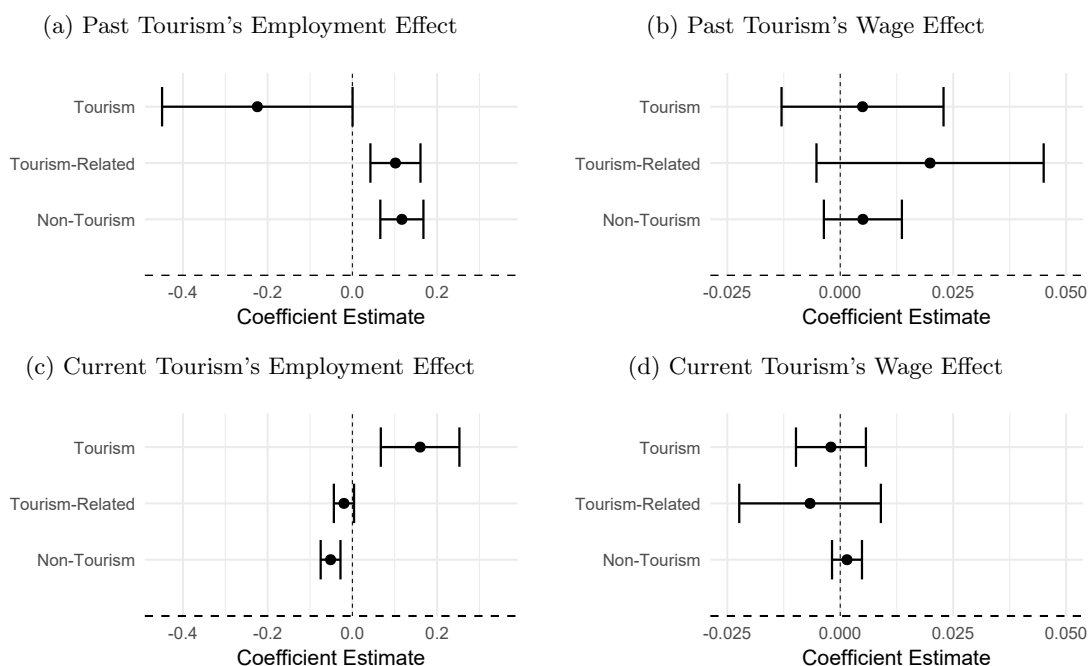
5.6 Heterogeneity and Mechanisms

Decomposition by industry’s tourism-relatedness To shed light on the channels behind the aggregate employment and wage effects, we examine heterogeneity by industry. We classify 2-digit industries into *Tourism*, *Tourism-Related*, and *Non-Tourism* based on the tourism share of their output, using input–output based tourism shares from BFS (2022).²⁰ We then re-estimate the IV specification from Section 4.3 separately for each

²⁰Industries are classified as *Tourism* if the tourism share exceeds 85%, *Tourism-Related* if it lies between 15% and 85%, and *Non-Tourism* otherwise. *Tourism*: accommodation, air travel, passenger ship services,

group.

Figure 7: Estimates of tourism’s effect on employment and wages.



Notes: Estimates are separately for tourism, tourism-related, and non-tourism sectors. 95% confidence bands, coefficient estimates in log.

Figure 7 summarizes the results. Past tourism (1894 hotels) predicts higher employment outside the tourism sector: employment increases in tourism-related and non-tourism industries (about 11% per additional 1894 hotel), while the long-run effect on tourism employment itself is small and slightly negative conditional on current tourism. By contrast, the contemporaneous effect of tourism operates primarily within tourism: an additional hotel today raises tourism employment (about 17%) but is associated with lower non-tourism employment (around -5%), with no clear effect on tourism-related employment. Wage effects by sector are imprecisely estimated: coefficients are generally small and not statistically significant for both past and current tourism.

Second homes as a contemporaneous mediator A salient difference between nineteenth-century and modern tourism development is the rise of second homes as a form of accommodation (Stricker, 2022). Because second homes are land-intensive and can constrain local housing supply, they may mediate the relationship between tourism activity and local employment and population (Gerber and Bandi-Tanner, 2018). To assess travel agencies & tour operators. *Tourism-Related*: gastronomy, rail and road travel, car rental, culture, sports and entertainment, gas stations.

this channel, we augment the baseline IV specification by controlling for a municipality’s second-home share (full specifications and descriptive evidence are reported in Appendix A.6).

Table 10 in the Appendix reports the resulting estimates. Including second-home intensity attenuates the hotel coefficients relative to the baseline IV. The employment effect remains statistically significant, while the population effect becomes less precisely estimated. Second-home share is strongly negatively associated with local outcomes: a 1-percentage-point increase in second-home share is associated with roughly 1.3% lower employment and population, and about 0.2% lower wages. This pattern is consistent with second homes constraining resident housing availability and, in turn, local labor supply and non-tourism activity.

Alpine destinations vs. non-alpine municipalities We assess whether the long-run legacy and contemporaneous effects of tourism differ between Alpine destinations and non-Alpine municipalities. We interact both the endogenous tourism measure and the instruments with an indicator for Alpine municipalities ($Alpine_m$) based on the official FSO classification, a standard approach to estimating group-specific IV effects (e.g. Duflo, 2001; Black et al., 2005). Estimates are reported in Appendix A.7.

The results indicate that the main patterns are concentrated in the Alps. In Alpine municipalities, contemporaneous hotels are associated with significantly lower employment and population (about -3.4% and -4.8% per hotel), while historical hotels predict substantially higher employment and population today (about $+13.7\%$ and $+12.7\%$ per 1894 hotel). In non-Alpine municipalities, the corresponding coefficients are smaller and statistically insignificant, and wage effects are not statistically significant in either group. Descriptively, tourism is similarly prevalent for the municipalities in our sample but much more concentrated in the Alps relative to local economic size: Alpine municipalities have roughly one hotel per 317 jobs and 677 residents, compared to one hotel per 2,236 jobs and 3,328 residents in non-Alpine areas. Overall, the evidence suggests that tourism has been a formative force for long-run development primarily in Alpine local economies, whereas in non-Alpine areas it plays a more complementary role.

Decomposition of wage effects To shed light on the wage channel, we decompose wage differences into (i) a *compositional* component capturing variation in worker characteristics across local labor markets and (ii) a *productivity* component capturing residual municipal wage premia conditional on composition. The decomposition follows Blinder

(1973) and Oaxaca (1973), building on the Mincer earnings framework (Mincer, 1974) and subsequent decomposition literature (Fortin et al., 2011).

In the first step, we estimate an individual-level Mincer equation with municipality fixed effects,

$$\log(w_{im}) = \beta X_{im} + \delta_m + \varepsilon_{im}, \quad (8)$$

where w_{im} denotes hourly wages of worker i in municipality m , X_{im} collects individual characteristics,²¹ and δ_m are municipality fixed effects. Aggregating to the municipality yields (a) the *compositional component* $\hat{C}_m = \frac{1}{n_m} \sum_{i \in m} \hat{\beta} X_{im}$ and (b) the *productivity component* $\hat{P}_m = \hat{\delta}_m$. We then use \hat{C}_m and \hat{P}_m as outcomes in the IV specification from Section 4.3.

Table 6: Regressions: Wage Effect Decomposition

Dependent Variables: (all in log)	Compositional Effect (1)	Productivity Effect (2)
<i>Variables of Interest</i>		
# Hotels 1894	0.014** (0.006)	0.004 (0.004)
# Hotels 2015-2019	-0.007*** (0.002)	-0.001 (0.003)
Full controls	Yes	Yes
Grossregion FE	Yes	Yes
<i>Fit statistics</i>		
Observations	381	381
R ²	0.20135	0.21750
F-test (1st stage), Hotels 1894	44.640	44.640
F-test (1st stage), Hotels 2015-2019	72.366	72.366

Notes: Table of the regression results decomposing the effect of tourism on wages into a compositional and a productivity part from Equation 8 and in the model in Equation 4. The number of municipalities is lower in the wage effect decomposition, since estimating Equation 8 requires more individual-level observations to meet the minimum individual-level observations per data point. Conley (1999) with 100 km radius standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

Table 6 shows that wage effects operate primarily through composition rather than

²¹These include weekly hours, firm size, sex, learned occupation (2-digit ISCO-08), current occupation (4-digit ISCO-08), socio-professional status, professional status, highest completed education, full-time indicator, and survey-year indicators.

productivity. One additional hotel in 1894 increases the compositional component by about 1.4%, while an additional hotel today decreases it by about 0.7%, implying offsetting effects on average composition. By contrast, tourism has no statistically or economically meaningful effect on the productivity component. These results suggest that early (current) tourism shifts the local workforce toward higher-wage (lower-wage) occupations, while municipal wage premia are comparatively stable, consistent with spatial wage equalization (Combes et al., 2008).

5.7 Discussion of Magnitudes and Interpretation

To gauge economic magnitudes, we translate the estimated elasticities into back-of-the-envelope changes at salient points of the distribution for Alpine municipalities, where the effects are concentrated. Moving from the 50th to the 75th percentile of 1894 hotel presence (about one to three hotels) raises total employment today by roughly 27% and population by about 25%, corresponding to approximately 526 additional jobs (FTE) and 1,040 additional residents in the average Alpine municipality. By contrast, an analogous increase in contemporary hotels from the 50th to the 75th percentile (3.5 to 7.2 hotels)²² reduces total employment by about 13% and population by about 18%, corresponding to roughly 241 fewer jobs and 728 fewer residents. These magnitudes underscore that early tourism left a substantial long-run legacy, while recent tourism expansions are associated with net reallocation away from non-tourism activity.

Wage effects are smaller in aggregate but informative about mechanisms. Consistent with the wage decomposition in Table 6, differences in average pay are driven primarily by workforce composition rather than municipality-level wage premia: moving from the 50th to the 75th percentile in 1894 hotel presence raises average hourly wages by about 2% overall, largely reflecting a positive compositional shift, while the corresponding change for contemporary hotels implies a compositional decline of about 1.5%. Put differently, municipalities with stronger early tourism exposure tend to employ a mix of occupations and worker characteristics associated with higher average wages today, whereas more recent tourism expansions are associated with a shift toward lower-wage service employment. The absence of a robust productivity-premium response suggests that wage differentials are largely arbitrated away, and that the economic adjustment to tourism is reflected more

²²For contemporary hotel counts, percentiles need not be integers because we average over 2015–2019 and thus capture openings and closures.

in the composition of local employment and in quantities (jobs and population) than in place-specific wage premia.

Finally, we illustrate the long-run legacy of tourism on regional economic development through a counterfactual exercise in which the “sublime” component of nineteenth-century natural appeal (glaciers and high peaks) does not contribute to the Nature tourism attractiveness index. This exercise is not a structural or general-equilibrium reallocation of tourism. Rather, it propagates a clearly defined change in early tourism-demand exposure through the estimated first-stage relationships to generate counterfactual hotel presence in 1894 and today, and then maps the implied outcome changes using the baseline static IV. The details are reported in Appendix A.8. The resulting maps show that the implied reductions in hotel exposure and modern outcomes are concentrated in the set of high-Alpine destinations, while non-Alpine municipalities experience zero changes. Beyond serving as a robustness-oriented illustration, the counterfactual highlights the geographic concentration of long-run tourism legacies and helps connect the reduced-form estimates to a concrete historical narrative. Early tourist demand shocks, amplified by how the Alps were described and valued, plausibly shaped the spatial distribution of tourism development that persists into the present.

6 Conclusion

This paper shows that tourism leaves a persistent but time-varying effect on local economic development. Using an 1867 guidebook as an exogenous measure of original attractiveness, we instrument both early and contemporary hotel presence to separate long-run legacies from contemporaneous effects at the municipality level in Switzerland.

Three main findings emerge. First, early tourism has a sizeable and persistent impact: one additional hotel in 1894 is associated today with about 10.5% higher employment, 8.7% higher population, and 1% higher wages, with gains concentrated outside the tourism sector. Second, conditional on this historical legacy, the contemporaneous effect of tourism is negative in the aggregate: one additional current hotel reduces total employment by roughly 3.5% and population by 3.7%, while raising tourism-sector jobs by 17.3%. Third, wages adjust through labor force composition, but not productivity premia. Our decomposition shows that average pay differences reflect shifts toward higher-wage occupations for more hotels in 1894 and more lower-wage occupations for contemporaneous

hotels rather than municipality-level wage premia.

Mechanisms are consistent with a standard economic geography and structural-change view. During the formative period, hotel-based tourism established broad local linkages with limited market integration, fostering diversified activities that persist. In the modern period, stronger integration and a second-home intensive tourism model have led to a decline in local multipliers. We document that second homes are strongly associated with lower employment, population, and wages. The contrast between the large, positive legacies of early tourism and the negative, net contemporaneous effects is especially pronounced in Alpine municipalities; estimates in non-Alpine areas are small and statistically indistinguishable from zero. The main limitation of this paper is typical of persistence studies, in which external validity is constrained by institutional and spatial context. Results should therefore be interpreted with caution when applied to countries with different tourism development.

The analysis serves to inform ongoing policy debates around tourism in Switzerland, specifically, and in Europe in general. Tourism can drive early-stage economic development, but expanding tourism alone today, especially when second homes dominate, does not deliver widespread benefits in a high-income economy and may crowd out other local economic activities. Policies that strengthen local value-chain linkages and relax housing constraints are more promising than indiscriminate promotion of tourism itself. More broadly, our results relate to persistence and path-dependency. The impact of tourism in the relatively sudden change of Switzerland from a relatively inhospitable center of Europe to a favourable destination depends on how sectoral productivity and spatial linkages evolve, a lesson likely to generalize to other countries.

References

- Aken, Betty Van, Benjamin Winter, Alexander Löser, and Felix A Gers**, “How does bert answer questions? a layer-wise analysis of transformer representations,” in “Proceedings of the 28th ACM international conference on information and knowledge management” 2019, pp. 1823–1832.
- ARE**, “Second Home Shares by Municipality,” <https://www.are.admin.ch/are/de/home/raumentwicklung-und-raumplanung/raumplanungsrecht/zweitwohnungen/wohnungsinventar.html> 2025. Federal Office for Spatial Planning.
- Assaf, A George and Mike Tsionas**, “The estimation and decomposition of tourism productivity,” *Tourism Management*, 2018, *65*, 131–142.
- Baedeker, Karl**, *A Handbook for Travellers on the Rhine, from Holland to Switzerland*, Karl Baedeker, 1864.
- Banerjee, Abhijit and Lakshmi Iyer**, “History, institutions, and economic performance: The legacy of colonial land tenure systems in India,” *American economic review*, 2005, *95* (4), 1190–1213.
- Baumol, William J**, “Macroeconomics of unbalanced growth: the anatomy of urban crisis,” *The American economic review*, 1967, *57* (3), 415–426.
- Bell, Bill**, “Authors in an Industrial Economy: The Case of John Murray’s Travel Writers,” *Romantic Textualities: Literature and Print Culture, 1780–1840*, 2013, (21), 9–29.
- BFS**, “Bundesamt für Statistik - Aufkommen und touristische Verwendung in der Schweiz – 2017 (Satellitenkonto Tourismus) [Excel table],” Online; Excel-Tabelle 2022. Freie Nutzung. Quellenangabe ist Pflicht. Kommerzielle Nutzung nur mit Bewilligung des Datenlieferanten.
- Black, Sandra E, Paul J Devereux, and Kjell G Salvanes**, “The more the merrier? The effect of family size and birth order on children’s education,” *The Quarterly Journal of Economics*, 2005, *120* (2), 669–700.
- Bleakley, Hoyt and Jeffrey Lin**, “Portage and path dependence,” *The quarterly journal of economics*, 2012, *127* (2), 587–644.

- Blinder, Alan S**, “Wage discrimination: reduced form and structural estimates,” *Journal of Human resources*, 1973, pp. 436–455.
- Brida, Juan Gabriel, Isabel Cortes-Jimenez, and Manuela Pulina**, “Has the tourism-led growth hypothesis been validated? A aceature review,” *Current Issues in Tourism*, 2016, *19* (5), 394–430.
- Büchel, Konstantin and Stephan Kyburz**, “Fast track to growth? Railway access, population growth and local displacement in 19th century Switzerland,” *Journal of economic geography*, 2020, *20* (1), 155–195.
- Bärtschi, Hans-Peter**, “Bergbahnen,” 2015. Historisches Lexikon der Schweiz (HLS), Version vom 11.02.2015.
- Casey, Gregory and Marc Klemp**, “Historical instruments and contemporary endogenous regressors,” *Journal of Development Economics*, 2021, *149*, 102586.
- Cattaneo, Matias D, Richard K Crump, Max H Farrell, and Yingjie Feng**, “On binscatter,” *American Economic Review*, 2024, *114* (5), 1488–1514.
- Combes, Pierre-Philippe, Gilles Duranton, and Laurent Gobillon**, “Spatial wage disparities: Sorting matters!,” *Journal of urban economics*, 2008, *63* (2), 723–742.
- Conley, Timothy G**, “GMM estimation with cross sectional dependence,” *Journal of econometrics*, 1999, *92* (1), 1–45.
- Corden, Warner Max**, “Booming sector and Dutch disease economics: survey and consolidation,” *oxford economic Papers*, 1984, *36* (3), 359–380.
- Dell, Melissa and Benjamin A Olken**, “The development effects of the extractive colonial economy: The dutch cultivation system in java,” *The Review of Economic Studies*, 2020, *87* (1), 164–203.
- Donaldson, Dave and Richard Hornbeck**, “Railroads and American economic growth: A “market access” approach,” *The Quarterly Journal of Economics*, 2016, *131* (2), 799–858.
- Duernecker, Georg and Miguel Sanchez-Martinez**, “Structural change and productivity growth in Europe—Past, present and future,” *European Economic Review*, 2023, *151*, 104329.

- Duflo, Esther**, “Schooling and labor market consequences of school construction in Indonesia: Evidence from an unusual policy experiment,” *American economic review*, 2001, *91* (4), 795–813.
- Egli, Hans-Rudolf, Philipp Flury, Thomas Frey, and Hans-Ulrich Schiedt**, “GIS-Dufour: Verkehrs-und Raumanalyse auf historischer Grundlage,” *Géomatique Suisse*, 2005, *102* (5), 246–249.
- Eurostat**, “Businesses in the accommodation and food services sector,” Statistics Explained (Eurostat) 2025.
- Faber, Benjamin and Cecile Gaubert**, “Tourism and economic development: Evidence from Mexico’s coastline,” *American Economic Review*, 2019, *109* (6), 2245–2293.
- Flückiger-Seiler, Roland**, *Hotel Paläste zwischen Traum und Wirklichkeit: schweizer Tourismus und Hotelbau, 1830-1920, hier+ jetzt*, 2003.
- Fortin, Nicole, Thomas Lemieux, and Sergio Firpo**, “Decomposition methods in economics,” in “Handbook of labor economics,” Vol. 4, Elsevier, 2011, pp. 1–102.
- 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.
- Gerber, Jean-David and Monika Bandi-Tanner**, “The role of Alpine development regimes in the development of second homes: Preliminary lessons from Switzerland,” *Land use policy*, 2018, *77*, 859–870.
- Glaeser, Edward L and Joshua D Gottlieb**, “The wealth of cities: Agglomeration economies and spatial equilibrium in the United States,” *Journal of economic literature*, 2009, *47* (4), 983–1028.
- Hilber, Christian AL and Olivier Schöni**, “On the economic impacts of constraining second home investments,” *Journal of Urban Economics*, 2020, *118*, 103266.
- Hosseini, Kasra, Kaspar Beelen, Giovanni Colavizza, and Mariona Coll Ardanuy**, “Neural language models for nineteenth-century english,” *arXiv preprint arXiv:2105.11321*, 2021.

- HotellerieSuisse**, “Swiss Historic Hotels,” <https://swiss-historic-hotels.ch/pdf/downloads/shh-booklet-2023-de-en-downloads-swiss-historic-hotels.pdf> 2023. Accessed: 2025-08-29.
- Inchausti-Sintes, Federico**, “Tourism: Economic growth, employment and Dutch disease,” *Annals of Tourism Research*, 2015, *54*, 172–189.
- Israeli, Osnat**, “A Shapley-based decomposition of the R-square of a linear regression,” *The Journal of Economic Inequality*, 2007, *5* (2), 199–212.
- Jedwab, Remi and Alexander Moradi**, “The permanent effects of transportation revolutions in poor countries: evidence from Africa,” *Review of economics and statistics*, 2016, *98* (2), 268–284.
- John, Urry**, “The tourist gaze: Leisure and travel in contemporary societies,” *Collection Theory, culture and society, London, Sage Publications*, 1990, pp. 172–186.
- Kim, Yoo Ri, Allan M Williams, Sangwon Park, and Jason Li Chen**, “Spatial spillovers of agglomeration economies and productivity in the tourism industry: The case of the UK,” *Tourism management*, 2021, *82*, 104201.
- Kjell, Oscar, Salvatore Giorgi, and Hansen Andrew Schwartz**, “The text-package: An R-package for analyzing and visualizing human language using natural language processing and transformers,” *Psychological methods*, 2023, *28* (6), 1478–1498.
- Krugman, Paul**, “Increasing returns and economic geography,” *Journal of political economy*, 1991, *99* (3), 483–499.
- Lahura, Erick and Rosario Sabrera**, “The effect of infrastructure investment on tourism demand: a synthetic control approach for the case of Kuelap, Peru,” *Empirical Economics*, 2023, *65* (1), 443–478.
- Lee, Chien-Chiang and Chun-Ping Chang**, “Tourism development and economic growth: A closer look at panels,” *Tourism management*, 2008, *29* (1), 180–192.
- Linsenmeier, Manuel**, “Deforestation and Structural Change: The Case of Tourism in Brazil,” 2025. Working paper.
- Ma, Mulan and Robert Hassink**, “An evolutionary perspective on tourism area development,” *Annals of tourism research*, 2013, *41*, 89–109.

- Mincer, Jacob**, “Schooling, experience, and earnings.,” 1974.
- Moretti, Enrico**, “Local multipliers,” *American Economic Review*, 2010, *100* (2), 373–377.
- Murray, John**, *A Handbook for Travellers in Switzerland, and the Alps of Savoy and Piedmont*, John Murray, 1867.
- Ngai, L Rachel and Christopher A Pissarides**, “Structural change in a multisector model of growth,” *American economic review*, 2007, *97* (1), 429–443.
- Nunn, Nathan**, “The historical roots of economic development,” *Science*, 2020, *367* (6485), eaaz9986.
- **and Diego Puga**, “Ruggedness: The blessing of bad geography in Africa,” *Review of Economics and Statistics*, 2012, *94* (1), 20–36.
- Oaxaca, Ronald**, “Male-female wage differentials in urban labor markets,” *International economic review*, 1973, pp. 693–709.
- Orell Füssli**, *Schweizerisches Ragionenbuch: Offizieller Firmenführer* 1894.
- Stricker, Luzius**, “Restricting the construction of second homes in tourist destinations: an effective intervention towards sustainability?,” *Swiss Journal of Economics and Statistics*, 2022, *158* (1), 9.
- Tabellini, Guido**, “Culture and institutions: economic development in the regions of Europe,” *Journal of the European Economic association*, 2010, *8* (4), 677–716.
- tesseract**, *tesseract* 2018. The R package version 4.0 is written and maintained by Jeroen Ooms.
- Tissot, Laurent**, *Naissance d’une industrie touristique: les Anglais et la Suisse au XIXe siècle*, Lausanne: Payot, 2000.
- , *Histoire du tourisme en Suisse au XIXe siècle: Les Anglais à la conquête de la Suisse*, Livreo-Alphil, 2017.
- Troxler, Pascal, Marcus Roller, and Monika Bandi Tanner**, “The development of ski areas and its relation to the Alpine economy in Switzerland,” *Swiss Journal of Economics and Statistics*, 2024, *160* (1), 10.

Voth, Hans-Joachim, “Persistence—myth and mystery,” in “The handbook of historical economics,” Elsevier, 2021, pp. 243–267.

WTTC, “Travel & Tourism Economic Impact 2023,” 2023. Economic Impact Research (EIR) series.

A Appendix

A.1 Data

A.1.1 Natural Language Processing

We digitize the handbook scans and match each location description to its corresponding present-day municipality.²³ From the handbook’s introductory section, we then construct three vocabulary sets out of several sentences representing key determinants of tourism attractiveness: *nature*, *culture*, and *hospitality*. These categories were inductively derived from recurring themes and emphases in the text. The *culture* dimension encompasses references to historical architecture, artistic and religious landmarks, and local customs and traditions. The *nature* dimension includes descriptions of scenic landscapes and natural beauty. The *hospitality* dimension reflects evaluations of accommodation quality, including cleanliness, friendliness, and service standards. These vocabulary sets serve as benchmarks for the upper bounds of perceived attractiveness. To avoid bias, we exclude any location-specific identifiers—such as place names—that could directly link the vocabulary to particular municipalities. While we aim to include full sentences, location-specific content, or content not relating to a specific category has been excluded. The full list of vocabulary representing the three key dimensions of tourism attractiveness is listed in Table 8 in the Appendix.

We then apply a Bidirectional Encoder Representation from Transformers (BERT), specifically the context-sensitive *Livingwithmachines* model fine-tuned on historical English books from 1760-1900 (Hosseini et al., 2021). This model is the product of the *Living with Machines* project, a collaboration of the Alan Turing Institute, the British Library, and several research institutes from the UK.²⁴ Trained on approximately 5.1 billion tokens, this model captures linguistic patterns and vocabulary specific to that period. It is accessible via the R package *text* (Kjell et al., 2023), which interfaces with the *Huggingface* model repository. BERT generates contextualized word embeddings that encode both syntactic and semantic information across multiple hidden layers. For our analysis, we extract sentence-level embeddings using the two final layers (layers 11 and 12, each consisting of 768 dimensions), which have been shown to effectively capture sentiment and meaning (Van Aken et al., 2019). We compute embeddings for each sentence in the munic-

²³For this, we employ the [tesseract \(2018\)](#) optical character recognition (OCR) in *R*.

²⁴See here the project website: <https://www.turing.ac.uk/research/research-projects/living-machines>

ipality descriptions as well as for each sentence in the three vocabularies introduced above, representing the categories of tourism attractiveness: *nature*, *culture*, and *hospitality*. To enhance robustness, we additionally introduce a fourth category, labeled *neither*, which consists of 200 randomly selected sentences from the handbook.

Using these labeled embeddings, we train a random forest classifier with 500 trees to predict the category of each sentence of the three vocabularies. The trained model is then applied to each sentence of the municipality descriptions, yielding probabilities for each of the four categories. For each municipality, we calculate a score for *nature*, *culture*, *hospitality*, and *neither* by summing up the threshold exceedances when a sentence’s predicted probability for the respective category exceeds 90%. The *neither* category serves as a residual class for sentences that do not strongly align with any of the predefined dimensions representing attractiveness. This yields our attractiveness score for each of the three dimensions per municipality. This method inherently adjusts for text length, reflecting the intensity of interest expressed by the original author: the more relevant sentences written for a municipality, the higher the potential scores. This index captures perceived appeal across the dimensions of *nature*, *culture*, and *hospitality*, that subsequently influenced a large number of further travelers. Figure 2 presents a map of the resulting attractiveness scores across more than 400 of the 2’212 Swiss municipalities today.

A.1.2 Rationenbuch

The *Schweizerisches Rationenbuch* from 1894 (Orell Füssli, 1894) provides detailed information on the type of business for each entry, which we structured into four fields: *municipality*, *owner*, *company type*, *other information*. We manually added canton identifiers and extracted the number of hotels at the municipal level. To identify hotels, we created a binary indicator (1 = hotel, 0 = otherwise), based on an iteratively refined keyword list of accommodation-related terms in German, French, and Italian (e.g., *hotel*, *maison d’hôtes*, *albergo*, *Kurhotel*, *Pension*, *Ferienhaus*), which we compiled while reviewing the Rationenbuch. In addition, we developed an exclusion list of terms (e.g., *Zimmerei*, *horloger*, *Möbel*) to avoid misclassifications where such words appeared alongside accommodation-related terms in non-tourism businesses.

A.1.3 Market Access

We use data from the 'GIS-Dufour' project to create the 1867 Swiss transportation graph. To this end, we combine the various polygons in nodes by first segmenting them from start to endpoint with a 2 km length for the railroad, 200 m for roads, and only the start and endpoints for the ship routes. If two segments of a feature intersect within 1'000 m, we connect them together. We assume that changing the mode of transport incurs a time cost of 1 h. We further assume travel speeds of 30 km/h for railroads, 20 km/h for steam ships, 15 km/h for highways with stagecoaches, 8 km/h for highways without stagecoaches, 6 km/h for main roads, 4 km/h for roads suitable for carts and 3 km/h for pure footpaths. These travel times are based upon the elaboration in [Murray \(1867\)](#) and echoed in [Baedeker \(1864\)](#). We then calculate the travel time-weighted population centrality of each municipality using an exponential decay function based on distance for market access. We choose a half-life of the exponential function corresponding to 8 hours of travel, which is approximately the average travel time between any two Swiss municipalities.

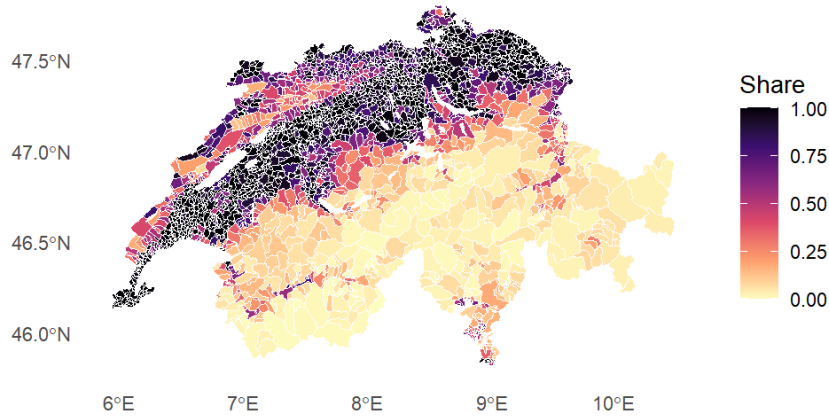
A.1.4 Developable Land

The measure of developable land is constructed as in [Troxler et al. \(2024\)](#). We begin by aggregating a Federal Office of Topography (Swisstopo) shapefile to a spatial resolution of 158×158 meters to facilitate computational efficiency. We then exclude all grid cells located on lakes and all grid cells with an average slope exceeding 15 degrees or an elevation above 2000 m.a.s.l., as such terrain is generally unsuitable for large-scale residential or industrial development. Notably, no municipality centers in Switzerland are located above 1900 meters, reinforcing this threshold. Subsequently, we intersect the filtered data with municipal boundary polygons from GEOSTAT from the year 2019. We exclude cells that differ in elevation by more than 200 meters from the respective municipality center. In the 19th-century, land situated far from the center would have posed significant challenges for development. The center coordinate of a municipality corresponds to the location of its principal socio-economic center, rounded to the nearest 100 meters.

Unlike [Troxler et al. \(2024\)](#), we calculate not the proportion but the absolute number of grid cells within each municipality's jurisdiction that meet all criteria. We use the absolute area instead of the share because the share shows little variation beyond the broad distinction between alpine, pre-alpine, and non-alpine regions, as can be seen in

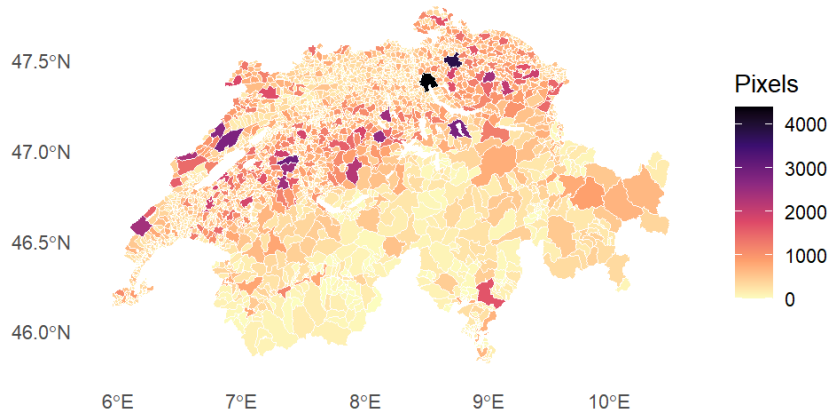
the Figure 8. In contrast, our resulting metric of the absolute number of pixels (see Figure 9) captures meaningful differences in the realistically developable land area between municipalities within the same region, thereby providing a more differentiated picture.

Figure 8: Share of Developable land per Municipality



Note: Based on slope, elevation, proximity to center, and lakes. The data is sourced from Swisstopo and GEOSTAT.

Figure 9: Absolute Pixels of Developable land per Municipality



Note: Based on slope, elevation, proximity to center, and lakes. One pixel equals 158x158 meters. The data is sourced from Swisstopo and GEOSTAT.

A.1.5 Alpine and Non-Alpine

To distinguish between alpine and non-alpine municipalities, we rely on the binary classification of mountain regions provided by the FSO. In this definition, a municipality is considered alpine if the majority of its territory lies at higher elevations or within rugged terrain. This implies that municipalities located in valley floors but extending

far into alpine areas, as well as low-lying municipalities dominated by steep slopes, are also classified as alpine. The BFS methodology aligns with approaches developed at the international level. For our analysis, we used the publicly available *Raumgliederung der Gemeinden* dataset and specifically the variable *MONT2019*, which designates the 2019 delineation of mountain regions on the municipality level.

A.1.6 Sunshine

Sunshine data are obtained from the *Spatial Climate Analyses* provided by the Federal Office of Meteorology and Climatology (MeteoSwiss). Specifically, we use the variable *SnormY9120*, which represents the mean annual relative sunshine duration based on the climatological norm from 1991 to 2020. A value of 100% corresponds to uninterrupted sunshine during all daylight hours (i.e., when the sun is above the horizon). By combining this dataset with GEOSTAT spatial data, we extract sunshine values at the center coordinates of municipalities using a 1 km resolution grid.

A.1.7 Municipality Data

To analyse data spanning roughly 150 years, we harmonise all observations to the 2019 municipal structure. We rely on GEOSTAT’s *municipality inventory (Gemeindestand)*, a comprehensive record of every municipal creation, merger, and split since 1848. The key identifiers—*BFS municipality number*, *historisation number* (time-specific entity ID), and the mutation links (*mutation number* for the new unit; *mutation number cancellation* for the abolished units)—allow us to trace boundary changes over time.

We take the 2019 municipalities as the reference because Swiss municipalities predominantly merge rather than split, and aggregation to merged units is methodologically clearer than disaggregating from splits (for which no unique allocation rule exists). To match our text descriptions and hotel counts from Murray (1867) to the *BFS municipality number*, we first align historical place names to the 2019 municipality register. Where a historical entry corresponds to municipalities that later merged, we sum their hotel counts into the 2019 unit. For any historical year t , we then construct a time slice of the municipality inventory containing all units valid at t (identified by their *historisation number*). For each 2019 municipality, we traverse the mutation links backwards to recover its set of ancestor municipalities at t and aggregate variables from these ancestors to the 2019 boundaries. Applying this ancestor-tracing to the Swiss census (1860), we identify—for

each 2019 municipality—the set of 1860 ancestors (by *historisation number*) and sum the municipality values to obtain values on 2019 boundaries. In the very few cases where a historical municipality later split into multiple successors, we allocate using district totals, dividing evenly across municipalities. Two specific cases (Göschenen and Kandersteg) follow well-documented historical adjustments.²⁵

For the *Schweizerisches Rationenbuch* (Orell Füssli, 1894), an extra step is required because the 1894 register lists municipalities but does not include the inventory identifiers. We standardise municipality names (by canton and a cleaned name key), match them to the 1894 slice to obtain the unique *historisation number* (with a few manual corrections), and then use the same trace-back logic to map these 1894 units to their 2019 successors and aggregate to the 2019 municipality.

For variables pooled over 2015–2019 (notably hotel counts and overnight stays from HESTA, population from the Swiss Census, and wage data from the COO), we apply the same harmonisation within that window: we identify many-to-one mergers via the mutation links, sum year-specific values from all predecessor municipalities into the successor’s *BFS municipality number*, drop abolished units, and then compute pooled means for 2015–2019. Importantly, between 2015 and the end of 2019 there were *no* splits of political municipalities in Switzerland; changes in this period consisted almost exclusively of mergers and minor boundary adjustments.

²⁵Göschenen was part of Wassen between after 1850 and before 1880; we therefore use its 1850 census value (348). The municipality experienced a boom in the 1870s and a decline in the 1880s due to the Gotthard tunnel construction. Kandersteg was part of Kandergrund until 1908; Kandersteg reports 406 inhabitants in 1880. Given that Kandergrund had 1,052 inhabitants in 1860, this is a reasonable proxy for 1860.

Table 7: Summary Statistics

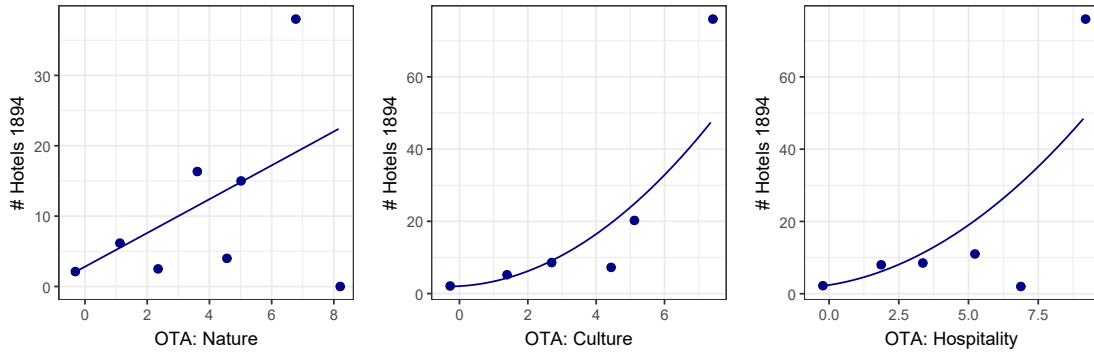
Characteristics	Mean	St. Dev.	Min	Max
# Hotels 1894	2.82	6.45	0	76
# Hotels 1867	1.10	1.34	0	9
# Hotels 2015-2019	6.15	10.66	0.00	122.37
OTA: Nature	1.00	1.00	0.59	9.20
OTA: Culture	1.00	1.00	0.58	8.41
OTA: Hospitality	1.00	1.00	0.59	10.20
Average Hourly Wage	43.66	7.41	24.91	74.80
Average Hourly Wage in Tourism	34.32	8.28	17.62	72.66
Average Hourly Wage in Tourism-Related	35.79	10.98	19.38	118.07
Average Hourly Wage in Non-Tourism	44.63	7.45	26.90	77.03
Jobs in FTE	5'704.04	23'524.18	20.92	370'166.70
Jobs in Tourism in FTE	137.15	508.96	0.00	6'757.17
Jobs in Tourism-Related in FTE	443.23	1'954.16	1.60	29'920.82
Jobs in Non-Tourism in FTE	5'123.67	21'135.67	12.12	333'488.70
Longitude	8.18	1.03	6.14	10.43
Latitude	46.83	0.40	46.03	47.70
Market Access 1867	38.96	29.40	0.00	100.00
Area of Developable Land (158m x 158m)	492.69	528.08	0.00	4'386.00
Population 1860	2'567.52	5'041.72	62.00	54'009.00
Average Sunshine in h/month	46.44	4.52	38.70	58.69
Average Rainfall in mm/h	1'197.49	275.38	561.96	2'136.62
Average Temperature in C°	8.28	2.45	-1.14	13.92

Notes: Summary statistics: The mean, standard deviation, minimum, and maximum in the data are reported in the corresponding columns.

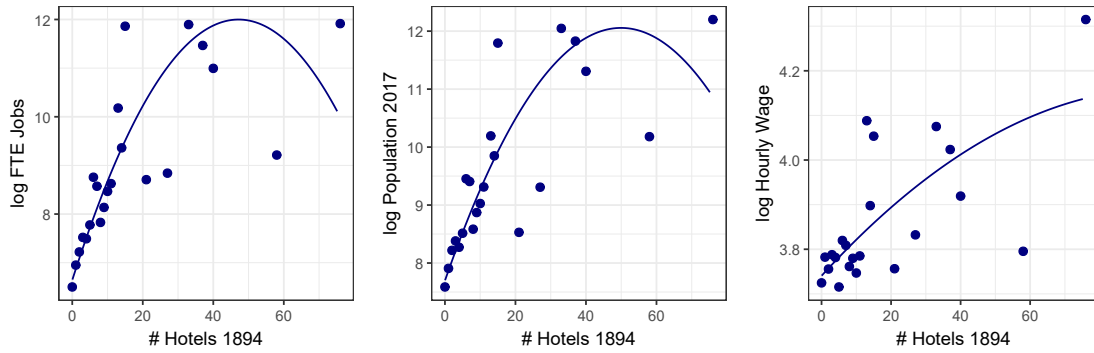
A.1.8 Additional Binscatter Plots

Figure 10: Binscatter Plots of Key Variables

(a) Hotel 1894 \times OTA: Nature (b) Hotel 1894 \times OTA: Culture (c) Hotel 1894 \times OTA: Hospitality



(d) Hotel 1894 \times Jobs (e) Hotel 1894 \times Population (f) Hotel 1894 \times Wage



Notes: Binscatter plots of different municipality characteristics using the method from Cattaneo et al. (2024). The binscatter is made by partitioning the support of the different characteristics into a smaller number of bins and showing a single point per bin, displaying the average outcome of the y-axis for observations within that bin.

A.2 Labelled Vocabulary

Table 8: Labelled Vocabulary

Category	ID	Sentence
Nature	N001	Routes by bridle-paths and carriage roads include most of the remarkable scenery of the Central Alps.
Nature	N002	This is a highly interesting pass, both from the geological phenomenon of its Bergfall, or mountain slip, and for the extreme picturesqueness of its scenery.
Nature	N003	Switzerland owes the sublimity and diversified beauty of its scenery, which it possesses in a greater degree perhaps than any other country of the globe, to the presence of the Alps—the loftiest mountains of Europe, the dorsal ridge or backbone, as it were, of the Continent.
Nature	N004	From the brow of the hill, at the further extremity of a landscape composed of undulating country—woods, hills, villages, lakes, and silvery, winding rivers—sufficient of itself to rivet the attention, he will discover what, if he has not before enjoyed the glorious spectacle of a snowy mountain, he will probably take for a border of fleecy cloud floating along the horizon.
Nature	N005	The eye, unaccustomed to objects of such magnitude, fails at first to convey to the mind the notion, that these clearly defined white masses are mountains 60 or 70 meters off. Distance and the intervening atmosphere - have little effect in diminishing the intense white of the snow; it glitters pure and unsullied as if it had just fallen close at hand.
Nature	N006	There are many points of view whence the semicircular array of Alpine peaks, presented at once to the eye, extends for more than 120 miles, and comprises between 200 and 300 distinct summits, capped with snow, or bristling with bare rocks, having their interstices filled with perpetual glaciers.
Nature	N007	Of these the [] is probably the finest [mountain], as it is certainly one of the most accessible. some give the preference to [other mountains], from their proximity to the High Alps rising close at hand.
Nature	N008	For a near view of Alpine scenery, amidst the recesses of the mountains, the spots which afford a concentration of the most grand and sublime objects are... It is in these districts that the combination of fine forms and great elevation in the mountains—of vast extent of glaciers and snow-fields, with the accompaniments of the roar of the avalanche and the rush of the falling torrent—are most remarkable.

Continued on next page

Category	ID	Sentence
Nature	N009	Here, in particular, the glaciers, the most characteristic feature of this country, are seen to greatest advantage, not only those fantastically fractured masses of iceberg which descend into the low grounds, but those vast fields of ice called Mers de Glace.
Nature	N010	Amongst the remarkable points from whence a near view of grand Alpine scenery may be obtained, the following may be selected:
Nature	N011	The glacier of [] is celebrated for its extreme purity, and the dark blue colour of its chasms.
Nature	N012	An interesting account of excursions and ascents in some of the wildest and grandest parts is found.
Nature	N013	Madame de Staél has somewhere remarked, on the proximity of lakes to mountains, that Nature seems to have placed them in the midst of her grandest scenes, at the foot of the Alps, in order to serve as mirrors to them, and to multiply their enchanting forms.
Nature	N014	Lakes are very numerous in Switzerland, and they certainly add a principal charm to its scenery.
Nature	N015	It is difficult to classify them according to their respective merits, as almost every one has some peculiarity which characterises it and renders it worthy of attention.
Nature	N016	The most remarkable [lakes], which exhibit in perfection savage grandeur and sublimity [].
Nature	N017	[The lake], possesses such high claims to notice, that no traveller should omit to visit it.
Nature	N018	distinguished for its great extent, and for the diversified character it presents, being at one end rugged and sublime, at the other soft and smiling
Nature	N019	Their [lakes] character is rather smiling than frowning; they are blessed with a southern climate, in addition to their own attractions ; their thickets are groves of orange, olive, myrtle, and pomegranate ; and their habitations are villas and palaces.
Nature	N020	[The lake] distinguished for its great extent, and for the diversified character it presents, being at one end rugged and sublime, at the other soft and smiling.
Nature	N021	A fine waterfall is, indeed, a magnificent spectacle.
Nature	N022	The surrounding landscape is charming.
Nature	N023	That extraordinary glen, in whose depths the Baths [] are sunk - one of the most wonderful scenes in Switzerland—also deserve mention.

Continued on next page

Category	ID	Sentence
Nature	N024	None of these defiles at all approach the Ravine of [], one of the most sublime and terrific scenes anywhere among the Alps.
Nature	N025	[The waterfall] combines a graceful shoot with great elevation; an abounding river, and a grand situation. It may be said to attain almost to perfection.
Nature	N026	The principal and most interesting of the Swiss Alpine Carriage Passes are [these], regarding at once their scenery, and the magnificent and skilfully constructed carriage-roads which have been made over them.
Nature	N027	Especially deserving of notice are some of the avenues leading up to these passes; in many instances mere cracks or fissures, cleaving the mountains to the depth of several thousand feet.
Nature	N028	None of these defiles at all approach the Ravine of [], one of the most sublime and terrific scenes anywhere among the Alps, [] and that extraordinary glen, in whose depths the Baths of Pfeffers are sunk—one of the most wonderful scenes in Switzerland—also deserve mention.
Nature	N029	The most beautiful Swiss Valleys are those [] distinguished for their quiet pastoral character, and the softness and luxuriance of their verdure “The rock-embosomed lawns, and snow-fed streams,” spoken of by Shelley.
Nature	N030	And here it may be remarked that the traveller in Switzerland must not suppose that beauty of scenery is confined to the High Alps: the intermediate undulating country, which, though still greatly elevated above the sea, may be called the Low-lands, in reference to the Highlands of Switzerland, abounds in peculiar and unobtrusive beauties - hills tufted with woods, among which picturesque masses of bare rock project at intervals, slopes bursting with rills, and meadows which, by the aid of copious irrigation, yield three crops of grass a-year, presenting at all seasons a carpet of the liveliest verdure, and of a texture like velvet, equal to that of the best kept English lawns;—such are the beauties of these lowland scenes.
Nature	N031	The frequent hedge-rows, the gardens before the cottages, and the neatness of the dwellings—the irregular, [] there are many scenes of great grandeur.
Nature	N032	With regard to the natural beauties of Switzerland, there can be but one sentiment of admiration.
Nature	N033	There are many mineral springs in Switzerland, much resorted to by the Swiss themselves and by foreigners.
Nature	N034	The variety and sudden transition presented by such a route are highly interesting.

Continued on next page

Category	ID	Sentence
Nature	N035	Amidst some of the most magnificent scenery of the globe, where Nature seems to have put forth all her powers in exciting emotions of wonder and elevation in the mind, [].
Nature	N036	[The lake] has high claims to admiration. It also provides great variety of scenery.
Nature	N037	One of the most remarkable phenomena attending the avalanche is the blast of air which accompanies it.
Nature	N038	From beneath the snow-bed, and on the very verge of the glacier, the profusion of flowers, their great variety, and surpassing beauty, are exceedingly surprising. Some of the greatest ornaments of our gardens, here born to blush unseen,—gentians, violets, anemones, and blue-bells, intermixed with bushes of the red rhododendron, the loveliest production of the Alps, scattered over the velvet turf, give it the appearance of a carpet of richest pattern.
Nature	N039	The insect world is not less abundant and varied,—thousands of winged creatures are seen hovering over the flowers, enjoying their short existence.
Nature	N040	Above this region of spring, with its gush of springs, its young herbage and vivid greensward, its hum of insects just burst forth, and its natural flower-beds glittering with rain-drops, that of winter in Lapland or Siberia succeeds.
Nature	N041	The agreeable murmur of falling water, which has accompanied the traveller hitherto incessantly, here ceases,—all is solitude and silence, interrupted only by the shrill whistle of the marmot, or the hoarse cawing of an ill-omenedraven, the ptarmigan starts up from among the broken rocks on the verge of the snow-field at the traveller's approach, and the lammergeyer (the condor of the Alps), disturbed in his repast on the carcass of sheep or cow, may sometimes be seen upwards in a succession of corkscrew sweeps till he gains the ridge of the Alps, and then disappears.
Nature	N042	Such are the remarkable gradations which the stranger encounters in the course of a few hours, on a single pass of the Alps ;
Nature	N043	The bright verdure of the meadows which clothe the valleys of Switzerland is one of the distinguishing features of the country.
Nature	N044	The Glaciers are amongst the most remarkable objects in nature: to them Alpine scenery owes much of its strangeness and sublimity.

Continued on next page

Category	ID	Sentence
Nature	N045	These fields or tracts of uninterrupted glacier have been called “Seas of Ice” (Mers de Glace, Eismeeren). As it approaches a steeper declivity or precipice, the entire mass is cleft by deep and wide fissures, which generally intersect each other, leaving crags, obelisks, and towers of ice of the most fantastic shapes, varying in height from 20 to 80 ft.
Nature	N046	The crevasses exhibit in perfection the beautiful azure blue colour of the glacier; the cause of which has not been satisfactorily accounted for. It is the same tint of ultramarine which the Rhone exhibits at Geneva, after leaving all its impurities behind it in the lake; and the writer has even observed the same beautiful tint in footmarks and holes made in fresh- fallen snow, not more than a foot deep, among the high Alps.
Nature	N047	It is highly interesting to consider how important a service the glaciers perform in the economy of nature.
Nature	N048	It is not a place of any considerable trade or manufactures, but their absence is more than compensated by the exquisitely beautiful scenery in which it is situated on the borders of the finest and most interesting of the Swiss lakes.
Nature	N049	The summit is, indeed, the perfection of wild scenery.
Nature	N050	This is one of the most magnificent passes in Switzerland. It is a hard day’s work, and the descent of the glacier is very difficult, but the grandeur of its scenery will well repay any traveller who may explore it in fine weather.
Nature	N051	The traveller reaches it, situated in the midst of the most stern but magnificent scenery of the whole pass. The current leaps down into the head of this savage gorge in a lofty cataract, and in the very midst of its spray. Very precipitous rocks of granite, remarkable for the stern nakedness of their surface, hem in the bed of the river on both sides.
Nature	N052	In descending the grand views of the surrounding peaks are for a time concealed, and their place supplied by some wild rock scenery in the steep and narrow glen through which a torrent rushes [] in the main valley below.
Nature	N053	In the background rises the grey head with its chaplet of snow: the whole landscape is splendid and full of variety.

Continued on next page

Category	ID	Sentence
Nature	N054	From the brow of the hill, at the further extremity of a landscape composed of undulating country—woods, hills, villages, lakes, and silvery, winding rivers—sufficient of itself to rivet the attention, he will discover what, if he has not before enjoyed the glorious spectacle of a snowy mountain, he will probably take for a border of fleecy cloud floating along the horizon. The eye, unaccustomed to objects of such magnitude, fails at first to convey to the mind the notion, that these clearly defined white masses are mountains.
Hospitality	H001	The approach to one of the first-rate hotels in the large towns, in the height of summer, exhibits rather a characteristic spectacle. The street before it is usually filled with several rows of vehicles of all sorts, [].
Hospitality	H002	[Switzerland] is well provided with excellent inns.
Hospitality	H003	There are excellent hotels with english church service.
Hospitality	H004	Swiss innkeepers are very respectable men, and no difficulties with them arise.
Hospitality	H005	It may be laid down as a general rule, that the wants, tastes, and habits of the English are more carefully and successfully studied in the Swiss inns than even in those of Germany.
Hospitality	H006	At most of the inns, in addition to the 1 o'clock dinner, there is a late table-d'hôte dinner at 4 or 5 o'clock; and tea may always be had tolerably good.
Hospitality	H007	Several wealthy innkeepers have even gone so far as to build English chapels for their guests, as an inducement to English travellers to pass the Sunday with them.
Hospitality	H008	Cleanliness is to be met with almost everywhere.
Hospitality	H009	The Salles-a-manger in the larger Swiss inns are handsome, clean, and airy apartments.
Hospitality	H010	Smoking is not allowed in them, and in consequence of this, many more persons take breakfast, tea, and supper, and the society is more select, and may be enjoyed in comfort, the guests being almost exclusively tourists.
Hospitality	H011	At some of the small inns in remote valleys the charges are absurdly low.
Hospitality	H012	English is spoken in the large hotels.
Hospitality	H013	[], even the smallest and most remote village inns are exemplary in their neatness and can satisfy even the most fastidious travelers.

Continued on next page

Category	ID	Sentence
Hospitality	H014	Among the mountains, the traveller may obtain, in perfection, the small alpine Trout, which are of great excellence; sometimes, also, chamois venison; wild strawberries are very abundant, and, with a copious admixture of delicious cream,—the staple commodity of the Alps,—are by no means to be despised.
Hospitality	H015	These are good inns, close to fine scenery and pleasant walks, suitable for a stay of some days.
Hospitality	H016	These are good mountain-quarters.
Hospitality	H017	Local Guides are, as a general rule, indispensable.
Hospitality	H018	There are no passports, no custom-houses, no tolls, no gengarmes; none of those ridiculous restrictions to prevent people from incurring danger which are so annoying in France and Germany ; and no interference whatever with individual absolute freedom, whilst there are nearly everywhere good inns, good roads, and tolerable means of locomotion.
Hospitality	H019	Guides by profession abound in Switzerland; many of them have acquired a wide-spread and well-earned reputation.
Hospitality	H020	Those who have earned a character for especial skill and intrepidity are usually engaged during the entire season by members of the Alpine Club or other adventurous travellers.
Hospitality	H021	Men may be found who, having frequently made the tour, have a good general knowledge of the whole country.
Hospitality	H022	A trustworthy guide is worth securing. He makes himself useful, not only in pointing out the way, but in acting as Interpreter to those unacquainted with the language of the country, and also in relieving the traveller of the weight of his knapsack or travelling, and in fact acts as courtier, but at a cheaper rate, and generally with more honesty.
Hospitality	H023	the guides may be said to be obliging, intelligent, and hard-working men. Few who have employed them cannot bear testimony to their coolness, intrepidity, and tact, in moments of danger. It is in such situations that their knowledge of the mountains, their experience of the weather, their strong arm and steady foot, are fully appreciated.
Hospitality	H024	The best cheeses are made upon pastures 3000 ft. above the sea-level, in the valleys of Simmen and Saanen and in the Emmenthal
Hospitality	H025	What an agreeable contrast to reach a well-appointed chalet of the better sort, where delicious milk cooled in the mountain stream, fresh butter, bread, and cheese, are spread out on a clean napkin before.

Continued on next page

Category	ID	Sentence
Hospitality	H026	The dining rooms (salles-à-manger) in larger inns are generally spacious, clean, and well-ventilated.
Hospitality	H027	Thirsty travelers should try limonade gazeuse, a beverage like ginger beer but more acidic and refreshing, ideal for hot days.
Hospitality	H028	[Hotel] with a large, handsome, comfortable house, with a reading-room.
Hospitality	H029	A 2nd house, a quieter hotel, with garden and all English comforts, close to the lake, with a fine view.
Hospitality	H030	These are two of the best Inns in Switzerland, and the proprietor is the most polite and attentive of landlords.
Hospitality	H031	The hotel on the lake is very good. There is a good café restaurant in the Hotel.
Hospitality	H032	Pleasant gardens extending to the [river], and fine view.
Hospitality	H033	[The hotel] is situated opposite the Thermal Establishment or Bath-rooms. This favourite and first-rate Hotel affords extensive accommodation of the best description for a large number of visitors, is delightfully situated, and will be found most comfortable for Families or Gentlemen.
Hospitality	H034	The Kursaal, designed after the fashion of those at the German Baths, with restaurant, reading-rooms, a ball and concert room, play-tables, was opened by some of the inn
Hospitality	H035	The springs, to the number of 10 or 12, rise in and around the village, and nine-tenths of them run off into the Dala torrent without being used. The chief spring of [] bursts forth out of the ground between the inn and the bath-house—a rivulet in volume at its source, with a temperature of 124 ° Fahr. It is used for the baths after being slightly cooled. The other springs vary somewhat in temperature, but little in contents.
Culture	C001	[], succeeded by a more equitable government, extending to all the same privileges, and dividing among all alike the public burden.
Culture	C002	the music of the cow-bells, borne along by the evening breeze, is one of the sweetest sounds that greet the traveller's ear.
Culture	C003	they are in many respects deserving of admiration, as being the only nation in continental Europe where practical liberty has been continually enjoyed since the peace in 1815.

Continued on next page

Category	ID	Sentence
Culture	C004	The inhabitants of the twenty-two cantons are interesting on every ground to the general intelligent public of Europe. But to one whose studies lie in the contemplation and interpretation of historical phenomena they are especially instructive; partly from the many specialities and differences of race, language, religion, civilization, wealth, habits, &., which distinguish one part of the population from another; partly from the free and unrepressed action of the people, which brings out such distinctive attributes in full relief and contrast.
Culture	C005	We are so accustomed to look upon Switzerland as the land of liberty, [].
Culture	C006	[], and they wished to be let alone—a feeling in which most Englishmen will sympathise.
Culture	C007	what was the nature of this freedom, [] to foster nobility of sentiment and public spirit among the people?
Culture	C008	The cow-herds of [] so nobly, and with so much moderation, emancipated themselves from a foreign yoke.
Culture	C009	The old mountain cantons were perfectly contented with their forms of government.
Culture	C010	It must be admitted that hitherto they have behaved with moderation, and have effected many excellent changes.
Culture	C011	The stately building left on the height surrounded by vineyards is a Kelterhaus (wine-press) of the convent [].
Culture	C012	The New Museum, a handsome building, the most interesting contents of which are a collection of Paintings and Drawings
Culture	C013	[there are] none of those ridiculous restrictions to prevent people from incurring danger; and no interference whatever with individual absolute freedom.
Culture	C014	The works of Nature, however, will not entirely occupy the attention tad wonder of the wanderer in such a pass; at least a share will be demanded for admiration of the works of man.
Culture	C015	These proud constructions of art [roads and bridges] thread the valleys, cross the débris of rivers on long causeways, skirt the edge of the precipice, with walls of rock tottering over them, and torrents thundering below.
Culture	C016	So skilful is their construction, with such easy bends and so gradual a slope, that in many Alpine roads the postilions, with horses accustomed to the road, trot down at a rapid pace.
Culture	C017	The Towns of Switzerland exhibit many interesting marks of antiquity: their buildings are frequently found unchanged since a very early period.

Continued on next page

Category	ID	Sentence
Culture	C018	the feudal fortifications, with battlements and watch-towers, remain perfectly preserved.
Culture	C019	They [monuments] usually consist of a Gothic ornamented pillar, surmounted by the figure of a man, usually some hero of Swiss history, either Tell, the dauntless crossbowman, or Winkelried, with his “sheaf of spears.” Sometimes the figures of animals are substituted for the human form.
Culture	C020	One characteristic and very pleasant feature are the Fountains, the never-failing ornament of every Swiss town and village.
Culture	C021	The Swiss, as compared with other nations on the Continent, have a respect for antiquity which we in England should consider decidedly an aristocratic feeling.
Culture	C022	The old heroes of the country are held in great veneration, and there is no feeling of hatred for the former noble families.
Culture	C023	Ranz de Vaches [] Almost every valley has an air of its own, producing homesickness in the heart of the Swiss mountaineer.
Culture	C024	These national melodies are particularly wild in their character, yet full of melody; the choruses consist of a few remarkable shrill notes, uttered with a peculiar falsetto intonation in the throat.
Culture	C025	The system of irrigating the meadows is carried to a very great extent and perfection.
Culture	C026	The Clock Tower in the market-place is stated by the guide-books to be a Roman work.
Culture	C027	The debates are open to the public.
Culture	C028	The lowest [brige] is decorated with paintings, though many are almost completely washed out, depicting the Dance of Death.
Culture	C029	In the upper story is the Picture Gallery. It contains some modern paintings by Swiss and French artists [].
Culture	C030	The great charm of the city is the view of the Alps, which the town and every eminence in its neighbourhood command in clear weather.
Culture	C031	The industry of the people and their struggles for subsistence, in some of the high valleys, are truly wonderful.
Culture	C032	An Englishman accustomed to buy everything, can hardly realise the domestic economy of a Swiss peasant. The interior economy of a Swiss village is very interesting: it is only by ingenious contrivances for saving labour and by amazing industry that it is possible for the inhabitants to maintain themselves in such a climate.

Continued on next page

Category	ID	Sentence
Culture	C033	No part of the Alps is more interesting, in an historical point of view, than the passable gaps or notches in the ridge of the great chain, and the minor mountain buttresses branching from it, whereby alone this colossal wall of mountains may be scaled, and a direct sage and communication maintained between northern and southern Europe, as well as between one valley and another.
Culture	C034	Swiss towns retain their medieval fortifications, complete with battlements and watchtowers. Fountains, often adorned with statues of Swiss heroes like William Tell or Arnold von Winkelried, are a common and charming feature in every town and village.
Culture	C035	The Swiss hold their history and traditions in high esteem, and each canton proudly displays its coat of arms wherever appropriate. Respect for historical figures and a sense of continuity with the past are deeply ingrained in the Swiss psyche.
Culture	C036	A unique cultural practice, known as Sociétés de Dimanche or Sunday Societies, forms an essential part of Swiss social life.
Culture	C037	Traditional costumes, once widespread, are now mostly seen in regions like the Bernese Oberland. Women in many areas still wear distinctive head-dresses, though men have abandoned traditional garb for plain, homespun clothing.
Culture	C038	if credit is to be given to tradition, it was on the open square in the centre of [] that William Tell shot the apple from off his son's head. The place where he stood to take aim is marked by 2 plaster statue of Tell.

A.3 Causal Framework

This appendix formalizes the causal structure underlying the empirical specification in Section 4. In settings where historical instruments are used to identify the effects of contemporary variables, a long time gap separates the moment the instrument Z_H was determined from the period in which the endogenous variable and the outcome are measured. As shown by Casey and Klemp (2021), this temporal structure can generate violations of the exclusion restriction when the instrument affects current outcomes through multiple historical and contemporaneous channels.

In our context, original attractiveness Z_H influences historical tourism T_H , which in turn affects both contemporary tourism T_C and longer-run economic conditions.²⁶ This implies an indirect path $Z_H \rightarrow T_H \rightarrow T_C \rightarrow Y_C$, as well as an alternative channel $Z_H \rightarrow T_H \rightarrow A_C \rightarrow Y_C$, where A_C represents persistent economic forces rooted in early tourism (e.g. historical population growth, infrastructure, or sectoral shifts). At the same time, Z_H also has a direct effect on T_C through features of natural and cultural appeal that remain relevant today. Thus T_H acts as a *partial mediator*: both direct and indirect paths from Z_H to T_C coexist.

If one were to estimate a conventional IV regression using Z_H as an instrument for T_C alone, the estimated effect would generally mix the contemporaneous impact of tourism with long-run effects operating through T_H and A_C , violating the exclusion restriction. This motivates the two-channel IV design in the main text, which includes both T_H and T_C as endogenous regressors and uses Z_H as a vector of instruments to separately identify their respective causal effects.

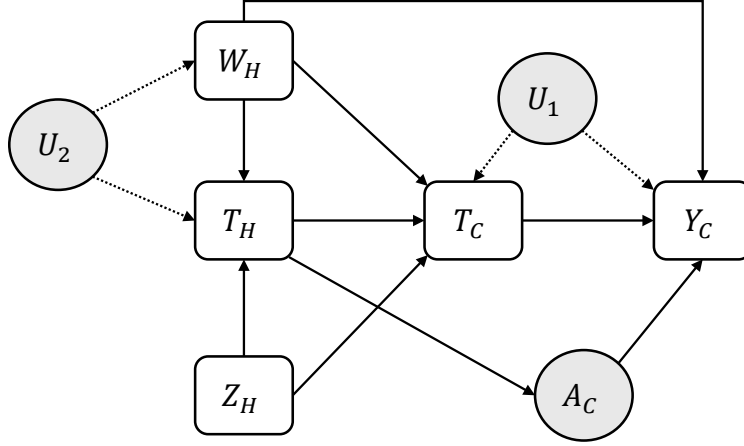
A.3.1 Directed Acyclic Graph (DAG)

Figure 11 illustrates how the historical instrument Z_H (original attractiveness) affects historical tourism T_H , contemporary tourism T_C , and current outcomes Y_C , while accounting for observed historical confounders W_H and an unobserved alternative channel A_C .

The DAG contains both a direct channel from Z_H to T_C and an indirect channel operating through T_H . In addition, early tourism may influence economic development through longer-run mechanisms captured by A_C . Because Z_H affects Y_C through both T_H and T_C , a conventional IV strategy that instruments only T_C with Z_H will generally mix long-run and contemporaneous effects. The two-channel IV specification in the main text

²⁶In the Appendix, we suppress municipality index m for clarity of exposition.

Figure 11: Directed Acyclic Graph of Tourism Development



Notes: Directed acyclic graph (DAG) our structural model that map the data generating process from Equation 9 to 12. Variables in rectangles are observed, whereas variables in circles are unobserved. As in Casey and Klemp (2021), the unobserved alternative channel A_C captures economic persistence channels caused by historical tourism. In addition, we have two sources of latent confounding U_1 and U_2 such that $T_C \leftarrow U_1 \rightarrow Y_C$ and $T_H \leftarrow U_2 \rightarrow W_H$.

corresponds to a valid adjustment set implied by the DAG.

A.3.2 Structural Equations

For clarity, we present a stylized structural system consistent with the DAG:

$$T_H = \psi Z_H + \kappa_H W_H + \varepsilon_{T_H}, \quad (9)$$

$$T_C = \delta T_H + \rho Z_H + \kappa_C W_H + \varepsilon_{T_C}, \quad (10)$$

$$A_C = \gamma T_H + \varepsilon_{A_C}, \quad (11)$$

$$Y_C = \beta_C T_C + \beta_{A_C} A_C + \kappa_{Y_C} W_H + \varepsilon_{Y_C}. \quad (12)$$

Here, ψ measures the effect of attractiveness on historical tourism, δ captures persistence, ρ reflects the direct effect of attractiveness on contemporary tourism, and $\gamma\beta_{A_C}$ is the total long-run channel effect. The contemporaneous effect of tourism is β_C .

Substituting equations (9)–(11) into (12) produces a reduced-form model in which both T_H and T_C enter the outcome equation. This corresponds to the estimating equation in the empirical strategy:

$$Y_{C,m} = \alpha + \beta_C T_{C,m} + \beta_H T_{H,m} + \kappa W_{H,m} + u_m, \quad (13)$$

where $\beta_H = \gamma\beta_{A_C}$, and $u_m = \beta_{A_C}\varepsilon_A + \varepsilon_Y$.

A.4 Bias in Conventional IV

Because Z_H influences T_C via two channels, and T_H may influence Y_C through an alternative channel A_C , the standard IV estimand $\hat{\beta}_C^{IV}$ that assumes $Z_H \rightarrow T_C \rightarrow Y_C$ will generally not equal our parameter of interest β_C . We derive the standard IV estimand under our model to understand this bias. Without loss of generality, we abstract from the observed confounding factors W_H for simplicity of exposition. Substituting Equation 9 in 10, we find:

$$T_C = \delta(\psi Z_H + \varepsilon_{T_H}) + \rho Z_H + \varepsilon_{T_C} = (\delta\psi + \rho)Z_H + (\delta\varepsilon_{T_H} + \varepsilon_{T_C}) \quad (14)$$

with $\pi = \delta\psi + \rho = \partial T_C / \partial Z_H$ the total effect of historical attractiveness on current tourism. Intuitively, $\delta\psi$ is the portion mediated through historical tourism (the indirect effect of Z_H on T_C), while ρ is the direct effect of Z_H on T_C bypassing T_H . The reduced-form relationship of the instrument to the outcome can be obtained by substituting all structural equations into Y_C . Substituting Equation 11 in 12:

$$Y_C = \beta_C T_C + \beta_{A_C}(\gamma T_H + \varepsilon_{A_C}) + \varepsilon_{Y_C} = \beta_C T_C + \beta_{A_C}\gamma T_H + (\beta_{A_C}\varepsilon_{A_C} + \varepsilon_{Y_C}), \quad (15)$$

and then substitute for T_C in Equation 10 and T_H in Equation 9:

$$Y_C = \beta_C(\delta\psi + \rho)Z_H + \beta_{A_C}\gamma\psi Z_H + \beta_C(\delta\varepsilon_{T_H} + \varepsilon_{T_C}) + \beta_{A_C}(\gamma\varepsilon_{T_H} + \varepsilon_{A_C}) + \varepsilon_{Y_C}. \quad (16)$$

Collecting the terms that involve Z_H , the total effect of the instrument on the outcome Y_C is given by:

$$\frac{\text{Cov}(Z_H, Y_C)}{\text{Var}(Z_H)} = \beta_C(\delta\psi + \rho) + \beta_{A_C}\gamma\psi. \quad (17)$$

The first part $\beta_C(\delta\psi + \rho)$ is the mediated effect of Z_H on Y_C that works through current tourism T_C .²⁷ The second part $\beta_{A_C}\gamma\psi$ is the effect of Z_H on Y_C that works through the alternative channel A_C .²⁸ If the exclusion restriction of conventional IV holds, we have

²⁷Since $\delta\psi + \rho = \partial T_C / \partial Z_H$ and multiplying by β_C gives $\partial Y_C / \partial Z_H$ via T_C .

²⁸Since ψ is Z_H 's effect on T_H , γ is T_H 's effect on A_C , and β_{A_C} is A_C 's effect on Y_C , the product $\psi\gamma\beta_{A_C} = \partial Y_C / \partial Z_H$ via the $T_H \rightarrow A_C$ path.

$\beta_{AC} = 0$ and hence no Z_H effect on Y_C outside of T_C . However, with $\beta_{AC} \neq 0$, $\hat{\beta}_1^{IV}$ is biased as it equals the ratio of the reduced-form to first-stage coefficients:

$$\hat{\beta}_C^{IV} \xrightarrow{p} \frac{\frac{Cov(Z_H, Y_C)}{Var(Z_H)}}{\frac{Cov(Z_H, T_C)}{Var(Z_H)}} = \frac{Cov(Z_H, Y_C)}{Cov(Z_H, T_C)} = \frac{\beta_C(\delta\psi + \rho) + \beta_{AC}\gamma\psi}{\delta\psi + \rho}. \quad (18)$$

Define the total effect of T_H on Y_C as $\eta \equiv \beta_C\delta + \beta_{AC}\gamma$:

$$\hat{\beta}_C^{IV} = \frac{\beta_C(\delta\psi + \rho) + \beta_{AC}\gamma\psi}{\delta\psi + \rho} = \frac{\beta_C\delta\psi + \beta_{AC}\gamma\psi}{\delta\psi + \rho} + \frac{\beta_C\rho}{\delta\psi + \rho} \quad (19)$$

$$= \frac{\eta\psi}{\delta\psi + \rho} + \beta_C \frac{\rho}{\delta\psi + \rho} \quad (20)$$

$$= \beta_C \frac{\rho}{\delta\psi + \rho} + \frac{\eta}{\delta} \frac{\delta\psi}{\delta\psi + \rho} \quad (21)$$

This formula reveals that the IV estimand $\hat{\beta}_1^{IV}$ is a weighted average of the contemporaneous effect β_C itself and the long-run effect η/δ . To see this, define the weights $w = \frac{\delta\psi}{\delta\psi + \rho}$ and $(1 - w) = \frac{\rho}{\delta\psi + \rho}$ ²⁹ and rewrite Equation 21:

$$\hat{\beta}_C^{IV} = (1 - w)\beta_C + w \left(\frac{\eta}{\delta} \right) \quad (22)$$

The weight w is exactly the share of the first-stage coming from the historical channel. When all first-stage variation is via T_H and $w = 1$, β_C^{IV} collapses to η/δ – purely the long-run effect. When a substantial portion of first-stage variation is directly via T_C and w is small, β_C^{IV} leans more toward the true contemporaneous effect β_C . Thus, interpreting $\hat{\beta}_C^{IV}$ as the causal parameter of interest can be misleading in a setting where historical persistence and dynamics matter, which motivates the two-channel IV estimator in the main text.

A.4.1 Spatial Correlation in Outcomes

Our three main outcome variables - jobs, wages, and population in a municipality - have a natural spatial correlation due to (economic) geography and potentially correlation in the regression residuals that decay with distance. We account for this with Conley (1999) spatial robust standard errors. To this end, we have to select a bandwidth for the Bartlett kernel that corresponds to the distance beyond which spatial correlation becomes negligible.

²⁹So $0 < w < 1$ unless $\rho = 0$ or $\rho \rightarrow \infty$. Also, the two weights add up to one, as can simple algebra demonstrate: $\frac{\delta\delta}{\delta\delta + \rho} + \frac{\rho}{\delta\delta + \rho} = \frac{\delta\delta + \rho}{\delta\delta + \rho} = 1$.

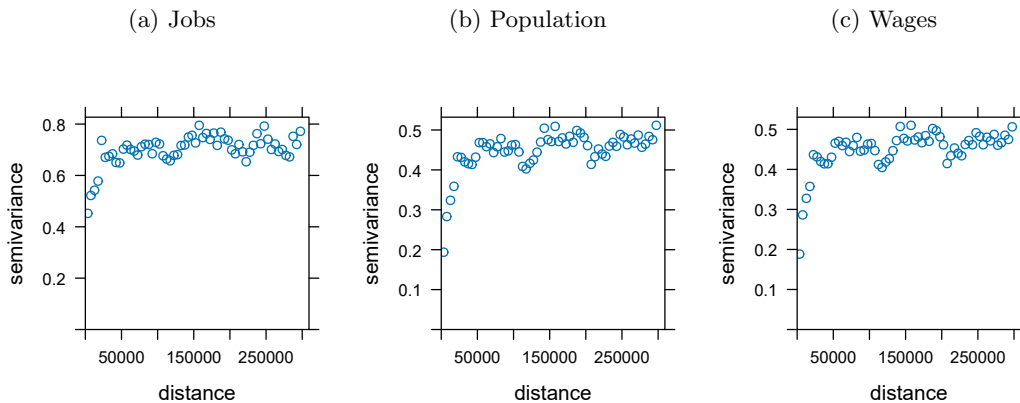
Figure 12 shows the semivariogram for our three main outcome variables. The semivariogram plots the average squared difference between residuals as a function of the distance between observations. We use the following reduced form regression:

$$Y_{C,m} = \alpha_{Y_C} + \pi Z_{H,m} + \kappa'_{Y_C} W_{H,m} + \varepsilon_{Y_{C,m}} \quad (23)$$

which includes the instruments from the first stage in lieu of the two-staged variables of interest. The advantage of this single-stage process lies in its direct use of residuals. The semivariogram then plots the semivariance of residuals for distance bins with increasing distance. If the semivariance increases with distance, this points towards spatial correlation. However, if the semivariance flattens out and no longer increases with distance, this indicates that for distances across that bandwidth, no spatial correlation occurs.

The three semivariograms in Figure 12 indicate that sharp rise in semivariance in distances below 80 km to 100 km. Thus, we choose a bandwidth of 100 km, above which no spatial correlation occurs.

Figure 12: Semivariogram for Jobs, Wages and Population



Notes: Semivariogram for jobs, wages and population with residuals from a reduced form regression as in Equation 23. Distances on the x-axis are in meters.

A.5 First Stage

Table 9: First Stage: Employment, Wages and Population

Dependent Variables: Model:	Hotels 1894 (1)	Hotels 2015-2019 (2)	Hotels 1867 (3)
<i>Instruments</i>			
OTA: Nature	0.51 (0.40)	2.4*** (0.67)	0.09 (0.07)
OTA: Hospitality	1.6** (0.72)	3.5*** (1.2)	0.38*** (0.07)
OTA: Culture	1.8*** (0.58)	1.2*** (0.40)	0.38*** (0.14)
<i>Controls</i>			
Log Population 1860	2.1*** (0.37)	3.4*** (0.74)	0.46*** (0.14)
Average Sunshine	-0.45*** (0.14)	-0.27 (0.28)	-0.02 (0.02)
Log Market Access 1867	-0.08 (0.13)	-0.44 (0.33)	-0.003 (0.02)
Log Area Developable Land	-0.23 (0.29)	0.27 (0.61)	-0.06 (0.06)
Longitude	-0.35 (0.82)	2.3 (1.8)	0.24*** (0.08)
Latitude	-6.5*** (2.4)	-6.7** (3.0)	-0.18 (0.13)
<i>Fixed-effects</i>			
Grossregion	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	400	400	400
R ²	0.47804	0.54417	0.49338
F-test (1st stage)	47.523	72.307	55.100

Notes: Table of the first stage results of the effect of original tourism attractiveness and tourism persistence as in the model in Equation 4 for the different dependent variables: number of full-time jobs, mean wage, and population per municipality. Conley (1999) with 100 km radius standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

A.6 Second-Homes

Given our empirical framework in Section 4, it is important to discuss the role of a municipality’s second-home share in the causal chain for consistent identification. We argue that second home intensity is influenced by the contemporary tourism equilibrium and may mediate some of the effects of hotels on local economic outcomes, such that both $T_C \rightarrow \text{SecondHomes} \rightarrow Y_C$ and $T_C \rightarrow Y_C$. Alternatively, one might suggest that our instruments of original tourism attractiveness directly influence second home shares in a municipality. As a descriptive check, we regress both the share of second homes and the number of hotels on the historical tourism-attractiveness ratings that form the basis of our instruments. The historical ratings explain in a simple regression a substantial share of the variation in contemporaneous hotel counts ($R^2 \approx 0.44$) in $T_{C,m} = \alpha_{T_C,m} + Z_{H,m} + \varepsilon_{T_C,m}$, but very little in second-home shares ($R^2 \approx 0.06$) in the equivalent $\text{SecondHomes}_{C,m} = \alpha_{T_C,m} + Z_{H,m} + \varepsilon_{T_C,m}$.³⁰ This difference suggests that our instruments capture historical tourism potential relevant for hotel development rather than later patterns of residential or second-home construction. Accordingly, we treat the share of second homes as a contemporaneous mediator rather than an endogenous variable linked to the instrument.

³⁰Full results not reported.

Table 10: Regressions: Second Home Share

Dependent Variables: (all in log)	Employment (1)	Hourly Wage (2)	Population 2017 (3)
<i>Variables</i>			
<i>Variables of Interest</i>			
# Hotels 1894	0.087** (0.039)	0.008 (0.006)	0.069 (0.044)
# Hotels 2015-2019	-0.026* (0.016)	-0.001 (0.004)	-0.027 (0.021)
<i>Controls</i>			
Second Home Share	-0.013*** (0.004)	-0.002*** (0.0007)	-0.013*** (0.004)
Log Population 1860	0.944*** (0.126)	0.026*** (0.008)	0.839*** (0.075)
Average Sunshine	0.020 (0.036)	-0.001 (0.005)	0.045 (0.038)
Log Market Access 1867	0.011 (0.038)	0.009*** (0.002)	0.042 (0.038)
Log Area Developable Land	0.132 (0.083)	-0.012*** (0.003)	0.133** (0.062)
Longitude	0.368*** (0.126)	-0.038 (0.025)	0.206* (0.123)
Latitude	0.134 (0.427)	-0.016 (0.075)	0.402 (0.478)
<i>Fixed-effects</i>			
Grossregion	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	400	398	400
R ²	0.68882	0.33108	0.74425
F-test (1st stage), Hotels 1894	47.216	46.460	47.216
F-test (1st stage), Hotels 2015-2019	69.764	68.925	69.764

Notes: Table of the regression results, including the municipality's second home share as an additional control in the model in Equation 4 to investigate its potential role as mediator. Conley (1999) with 100 km radius standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

A.7 Alpine vs. Non-Alpine

Table 11: Regressions: Alpine vs. Non-Alpine

Dependent Variables: (all in log)	Employment (1)	Hourly Wage (2)	Population 2017 (3)
<i>Variables</i>			
<i>Variables of Interest</i>			
Hotels 2015-2019, <i>Alpine</i> = 0	-0.030 (0.047)	0.0010 (0.002)	-0.020 (0.030)
Hotels 2015-2019, <i>Alpine</i> = 1	-0.035*** (0.011)	-0.003 (0.004)	-0.049*** (0.014)
Hotels 1894, <i>Alpine</i> = 0	0.076 (0.064)	0.003 (0.004)	0.048 (0.040)
Hotels 1894, <i>Alpine</i> = 1	0.128* (0.065)	0.008 (0.008)	0.120* (0.064)
<i>Controls</i>			
Log Population 1860	0.982*** (0.100)	0.036*** (0.008)	0.871*** (0.058)
Average Sunshine	0.033 (0.040)	0.0009 (0.005)	0.061 (0.041)
Log Market Access 1867	0.039 (0.040)	0.015*** (0.005)	0.069 (0.051)
Log Area Developable Land	0.136** (0.061)	-0.011*** (0.003)	0.143*** (0.054)
Longitude	0.221** (0.087)	-0.057* (0.031)	0.094 (0.095)
Latitude	0.560 (0.348)	0.034 (0.065)	0.813* (0.445)
<i>Fixed-effects</i>			
Grossregion	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	400	398	400
R ²	0.64775	0.30391	0.69296

Notes: Table of the regression results exploring the heterogeneity of alpine vs. non-alpine municipalities by interacting instruments and endogenous first stage variables of interest in the model in Equation 4 with a dummy *Alpine*. Conley (1999) with 100 km radius standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

A.8 Alternative Development Scenario

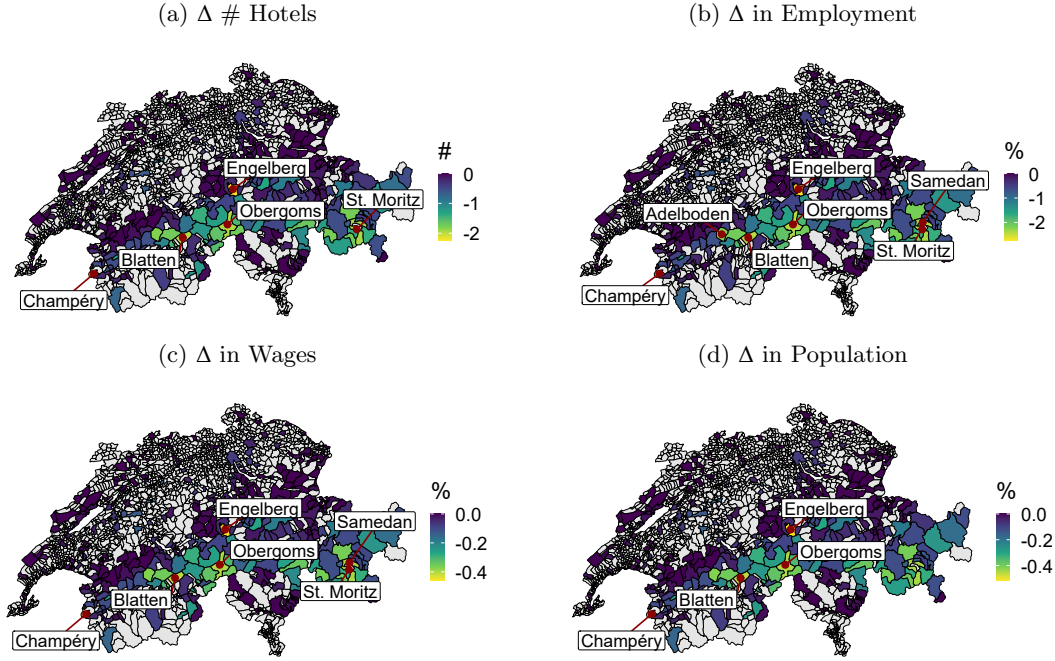
After this analysis of the nature rating, we conduct a partial-equilibrium simulation in which the ‘sublime’ component of nineteenth-century natural appeal - proxied by glaciers and high peaks - does not contribute to the Nature attractiveness index. This is a partial-equilibrium, scenario-based simulation of a change in early tourism-demand exposure, where the Alps and their dangerous features would not have been romanticized. Mechanically, we remove the glacier and near-peak component from the Nature score and propagate this change through the estimated first-stage relationships to obtain counterfactual hotel exposure in 1894 and today. Applying the baseline static IV, which absorbs the cumulative effect of tourism attractiveness with a single endogenous variable $T_{c,m}$ for today’s tourism, yields municipality-level estimates of counterfactual changes in employment, population, and wages. These results describe the spatial distribution of outcomes to a potential and an alternative tourism-demand shock, not a true historical alternative path with a structural model of preferences or an equilibrium tourism reallocation.

Figure 13 summarizes the implied counterfactual changes. The first panel shows that the reduction in predicted hotel presence is sharply concentrated in well-known Alpine destinations—including Lauterbrunnen, Grindelwald, Kandersteg, Blatten, and Anniviers—while most non-Alpine municipalities experience changes close to zero. This spatial concentration mechanically translates into heterogeneous effects on local economic outcomes. The employment, wage, and population maps exhibit the largest declines in the same high-Alpine regions, whereas municipalities outside the core mountain tourism areas show little response. The resulting pattern is consistent with a geographically concentrated tourism-demand shock: locations that are most exposed to the glacier/near-peak component of perceived natural appeal experience the largest counterfactual reductions in tourism activity and, consequently, in modern economic outcomes.

A natural interpretation is that the guidebook’s emphasis on glaciers and proximate high peaks amplified early tourism demand in a small set of municipalities that later became focal Alpine destinations, and that this demand persisted through the hotel-development channel. At the same time, the exercise should not be read as a literal historical alternative path. By construction, it holds fixed the estimated relationships between attractiveness, hotel presence, and outcomes and abstracts from general-equilibrium adjustments, such as the reallocation of tourism activity toward other Swiss regions or changes in local prices and amenities. Thus, the maps quantify the local exposure and

implied outcome effects under a clearly defined counterfactual shock, rather than the equilibrium national effect of a different historical trajectory.

Figure 13: Counterfactual Development: No “Sublimity”



Notes: Maps of counterfactual changes in hotel presence and modern outcomes under the scenario that glaciers and nearby high peaks do not contribute to the Nature attractiveness index. Counterfactual hotel exposure is obtained by propagating the modified Nature score through the estimated first stage; outcome changes are computed using the baseline static IV with a single endogenous variable $T_{c,m}$ (Section 4.3). This is a partial-equilibrium accounting exercise that holds fixed estimated relationships and abstracts from general-equilibrium reallocation of tourism, hotels, and labor across municipalities.