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Modeling the intra-destination travel behavior of tourists

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Dissertation

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All in all, given that I embarked upon this scientific journey having only vague idea of how the academia works, being unaware of research methods and even having very mediocre knowledge about statistics, the sole fact that I reached the finish line, can be called a lifetime accomplishment.

Abstract

In the face of a continuous increase in tourism demand in the Alpine countries, the associated traffic volumes, and the resulting negative externalities as well as social and environmental costs, there is an urgent need to design policies capable of managing tourist traffic efficiently and to invest in transport systems and infrastructure wisely, given the limited financial, spatial and environmental resources. Unfortunately, while there is a considerable research interest in long-distance travel and arrival/departure patterns of tourists, research on tourist mobility during the stay at the destination is almost non-existent. This prevents policy-makers from making informed decisions backed by scientific evidence. The dissertation attempts to fill this research gap and shed an "analytical" light on travel patterns of tourists at the destinations.

In the first instance, the transportation and tourism literature is researched and synthesized in order to identify factors that might be potentially influential on tourist decisions. The overview of the state of research on the three elementary choice components in travel behavior, destination, mode and route choice, the theory of joint decisions and the impact of weather serves as a basis for the design of a multipart bespoke travel-activity survey. A field report from the survey conducted in 2018 and 2019 in three tourist regions in the Austrian province of Tyrol is provided.

Following the descriptive analysis of the survey data highlighting differences between the summer and winter seasons, the thesis employs econometric models of choice for the analysis of tourist transport mode decisions. Based on the trips and activities of the respondents, and supplemented by data from external sources, Multinomial and Nested Logit specifications are used to find the impactful factors and measure their effect size within the collected sample.

Next, the proposed choice models are used to calculate values of the indicators for policy measures. Elasticities with respect to changes in travel time and travel cost are estimated for all alternatives. Furthermore, the Value of Travel Time Savings (VTTS) of tourist visitors are calculated for travel by car and on transit. Both the elasticities and VTTS of tourists are compared to values of local residents reported in Austrian and international studies.

Finally, the thesis recapitulates the findings and discusses their implications for science, economy and policy. It summarizes the performance of the models developed and provides clear recommendations for their application, taking into account the limitations at all stages of the research. In addition, new gaps in science are identified and further tasks are formulated that could advance the research on tourist mobility beyond the scope of this thesis.

KURZFASSUNG

Angesichts der ständig steigenden touristischen Nachfrage in den Alpenländern, des damit verbundenen Verkehrsaufkommens und der daraus resultierenden negativen Externalitäten sowie der sozialen und ökologischen Kosten ist es dringend notwendig, eine Verkehrspolitik zu entwerfen, die in der Lage ist, den Tourismusverkehr effizient zu steuern und in Anbetracht der begrenzten finanziellen, räumlichen und ökologischen Ressourcen umsichtig in die Verkehrssysteme und die Infrastruktur zu investieren. Während es ein deutliches Forschungsinteresse an Fernreisen und Ankunfts-/Abreisemustern von Touristen gibt, sind Forschungsarbeiten zur touristischen Mobilität während des Aufenthalts in der Urlaubsdestination leider so gut wie nicht vorhanden. Dies erschwert es den politischen Entscheidungsträgern, fundierte Entscheidungen zu treffen, die durch wissenschaftliche Erkenntnisse gestützt sind. Die vorliegende Dissertation versucht, diese Forschungslücke zu schließen und ein "analytisches" Licht auf das Reiseverhalten von Touristen am Reiseziel zu werfen.

Zunächst wird dazu der Stand des Wissens in der Verkehrs- und Tourismusliteratur recherchiert und zusammengefasst, um Faktoren zu identifizieren, die potenziell Einfluss auf Mobilitätsentscheidungen von Touristen haben könnten. Der Überblick über den Forschungsstand in den drei elementaren Wahlkomponenten im Reiseverhalten, der Ziel-, Verkehrsmittel- und Routenwahl sowie der Theorie der gemeinsamen Entscheidungen und den Auswirkungen des Wetters dient als Grundlage für die Gestaltung einer mehrteiligen, maßgeschneiderten Befragung zum Verkehrsverhalten. Weiteres wird über die durchgeführte Feldforschung basierend auf einer Umfrage, die in den Jahren 2018 und 2019 in drei Tourismusregionen im österreichischen Bundesland Tirol durchgeführt wurde, berichtet.

Nach der deskriptiven Auswertung der Befragungsdaten, die auch die Unterschiede zwischen Sommer- und Wintersaison hervorhebt, werden in der Dissertation ökonometrische Wahlmodelle für die Analyse von Entscheidungen über die Verkehrsmittelwahl von Touristen eingesetzt. Anhand der Wege und Aktivitäten der Befragten, ergänzt durch Daten aus externen Quellen, werden mittels Multinomial- und Nested-Logit-Spezifikationen die Einflussfaktoren ermittelt und deren Effektgröße in der erhobenen Stichprobe geschätzt.

Darauf aufbauend werden die vorgeschlagenen Wahlmodelle zur Berechnung der Indikatorwerte für politische Maßnahmen verwendet. Dabei werden für alle Alternativen Elastizitäten auf Änderungen in der Reisezeit und den Reisekosten geschätzt. Darüber hinaus wird der Wert der Reisezeitersparnis (VTTS) von Touristen für Reisen mit dem Auto und mit dem öffentlichen Verkehr berechnet. Sowohl die

Elastizitäten als auch die VTTS von Touristen werden mit den in österreichischen und internationalen Studien berichteten Werten für die Mobilität der ansässigen Bevölkerung verglichen.

Abschließend fasst die Dissertation die Ergebnisse zusammen und diskutiert ihre Implikationen für Wissenschaft, Wirtschaft und Politik. Sie resümiert die Leistungen der entwickelten Modelle und gibt klare Empfehlungen für ihre Anwendung unter Berücksichtigung der Grenzen aller Forschungsphasen. Zudem werden Lücken in der Wissenschaft identifiziert und weitere Aufgaben formuliert, die die Forschung zur touristischen Mobilität über den Rahmen dieser Arbeit hinaus voranbringen können.

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