**Literature summary: Determinants of mobility and car ownership**

The studies in the present context examine the factors that influence car ownership and related mobility decisions. Four relevant papers are summarized below.

The paper "Determinants of Car Ownership among Young Households in the Netherlands" examines the factors that influence car ownership among young households in the Netherlands. It uses data from 2012 and 2013 combined from vehicle registration, population and income registers. The focus is on young adults aged 18 to 29 who live either alone, as a couple, in two-parent families or as single parents. Young adults who still live with their parents were excluded.

The significant factors for car ownership are:

**Urbanization, household composition, income, employment status, age, ethnic origin**

Before statistical analyses, the data were divided into specific categories: household composition was divided into four groups (young singles, young couples, young two-parent families and young single parents). Age of household members was grouped into four age categories (18–20 years, 21–23 years, 24–26 years, 27–29 years). Income data were divided into four quartiles (under €7,600, €7,600–€15,800, €15,800–€24,800, over €24,800). Urbanization was classified into five density levels based on the number of addresses per square kilometer (very high density to very low density). Employment status was divided into two categories: “unemployed” and “at least one employed household member”. Finally, the ethnic origin of the households was also divided into three groups: "Dutch households", "Western immigrants" and "non-Western immigrants".

The core message of the paper is that car ownership among young households is influenced primarily by urbanization and household structure, with car ownership being lowest in urban areas and among singles and single parents.

The paper "Modelling Car Ownership in Urban Areas: A Case Study of Hamilton, Canada" examines the factors that influence car ownership among households in the Census Metropolitan Area (CMA) of Hamilton, Canada. It uses data from an internet survey conducted in 2005 and looks at an over-representative group of middle- to high-income households. The households were divided into five categories according to their structure: single, couple without children, couple with children, single parents with children and extended families. Other important variables include employment status, type of housing, degree of urbanization and availability of public transport.

The significant factors for car ownership are:

**Urbanization, income, household composition, employment status, housing type** (single-family homes vs. other housing types), **public transport availability** (number of nearby bus stops), **density and land use** (mixed density and entropy index)

The data were grouped according to various criteria before the statistical analyses were performed. Households were divided into five categories based on their composition (single, couple, couple with children, single parent, extended family). Income data were divided into three categories (low, medium, high), and housing types were differentiated into single-family homes and other types of housing. Employment status was captured by the number of full-time and part-time employees in the households. In addition, the level of urbanization and the availability of public transport, measured by the number of nearby bus stops, were taken into account.

The key message of the paper is that car ownership in Hamilton is strongly influenced by housing type (particularly single-family homes) and employment status. Households with a higher proportion of full-time employees and those living in single-family homes tend to own more cars. The level of urbanization and proximity to public transportation reduce car ownership, indicating the importance of better public transportation infrastructure and diversified land use in reducing car dependency.

The paper by Le Vine et al. addresses the question of how socioeconomic factors such as income, education and family structure as well as spatial characteristics such as place of residence (urban vs. rural) and distance to the city center influence car ownership in China. A particular focus is on the differences between rural and urban households. The study is based on the China Household Finance Survey (CHFS) from 2011, which contains nationally representative data on households in China.

For the analysis, the data were grouped into different categories. Households were divided into income groups according to their place of residence (urban vs. rural) and their income. In addition, age groups were formed that divided the oldest household member into categories such as up to 39 years, 40 to 59 years and 60+ years. The level of education was grouped according to the highest degree achieved (e.g. high school or less, vocational training, university degree). Family composition was differentiated according to the number of children, employed and non-employed adults in the household. The results identify **income, place of residence, education, family composition, property ownership** and **age** as significant determinants of car ownership.

The forth paper analyzes mobility patterns and car ownership in California with a particular focus on households with limited vehicle availability, so-called "car-deficit households". The aim of the study is to identify differences in the travel habits and socioeconomic characteristics of these groups. The data come from the 2012 California Household Travel Survey (CHTS), which is representative of all 58 counties in California.

The data were divided into different categories before analysis. Households were grouped according to their vehicle availability, including households with no cars, those with fewer vehicles than drivers and households with at least one vehicle per driver. Household income was divided into discrete income groups. In addition, neighborhood types were defined that represent seven different residential environment types (e.g. urban, suburban, rural). Family structure was categorized based on the number of children and working adults in the household. The study highlights **income, number of employed people, neighborhood types, number of children** and **vehicle availability** as significant determinants of car ownership.

Modelling car ownership in urban areas: a case study of Hamilton, Canada

<https://www.sciencedirect.com/science/article/pii/S0966692307000099>

A nationwide study of factors associated with household car ownership in China

<https://www.sciencedirect.com/science/article/pii/S0386111217300614?via%3Dihub>

Determinants of car ownership among young households in the Netherlands: The role of urbanisation and demographic and economic characteristics

<https://www.sciencedirect.com/science/article/pii/S0966692316000119>

Car-deficit households: determinants and implications for household travel in the U.S.

<https://link.springer.com/article/10.1007/s11116-018-9956-6>