Datenbeschreibung

RWI – Leibniz-Institut für Wirtschaftsforschung

FDZ Data Description:
Socio-Economic Data on Grid Level (RWI-GEO-GRID v16) – 2024

Dr. Philipp Breidenbach, Inga Heinze

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Herausgeber

RWI – Leibniz-Institut für Wirtschaftsforschung e.V.
Hohenzollernstraße 1–3 | 45128 Essen, Germany

Postfach 10 30 54 | 45030 Essen, Germany
Fon: +49 201–81 49-0 | E-Mail: rwi@rwi-essen.de
www.rwi-essen.de

Vorstand

Prof. Dr. Thomas K. Bauer (Vizepräsident)
Dr. Stefan Rumpf (Administrativer Vorstand)
Prof. Dr. Kerstin Schneider (Mitglied des erweiterten Vorstands)

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RWI Datenbeschreibung

Schriftleitung: Prof. Dr. Thomas K. Bauer
Gestaltung: Magdalena Franke, Claudia Lohkamp

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Contents

Abstract 5

1. Small-scaled Regional Data in Germany 6

2. Data Source and Anonymization 8

3. Data Description 9

3.1. Topics and Variables 9

4. Data Availability and Access 13

5. References 15

6. Appendix: Variable Description 16

6.1 Identifier 16
- 6.1.1 Year 16
- 6.1.2 R1_ID 16

6.2 Building Environment 16
- 6.2.1 Number of houses 16
- 6.2.2 Number of households 16
- 6.2.3 Number of commercial enterprises 17
- 6.2.4 Number of residential buildings 17
- 6.2.5 House type 17

6.3 Economic indicators 18
- 6.3.1 Purchasing power 18
- 6.3.2 Unemployment rate 18
- 6.3.3 Payment default: risk group 18

6.4 Household 19
- 6.4.1 Foreigner 19
- 6.4.2 Singles 19
- 6.4.3 Couples 19
- 6.4.4 Families 19
- 6.4.5 Children 20

6.5 Demography 20
- 6.5.1 Population 20
- 6.5.2 Male: Age categories 20
- 6.5.3 Female: Age categories 21
- 6.5.4 Language descent 21
- 6.5.5 Moving balance 22
- 6.5.6 Moving volume 22
- 6.5.7 Fluctuation 23

6.6 Mobility 23
- 6.6.1 Car density 23
- 6.6.2 Car brand 23
- 6.6.3 Car segments 24
- 6.6.4 Cars: Engine type 25

6.7 Special Issues 25
- 6.7.1 Milieus 25
- 6.7.2 Contribution probability 26

6.7.3 Occupational disability insurance 26
6.7.4 Households with online insurance 27
6.7.5 Households buying insurance of type X online 28
6.7.6 Supplementary health insurance 28
6.7.7 Terminating insurance 29
6.7.8 Life insurance 30
6.7.9 Private health insurance 30
6.7.10 Private pension insurance 31
6.8 Regional Information 32
6.8.1 German state 32
6.8.2 Municipality Identifier (AGS, 2015) 32
6.8.3 Municipality Identifier (AGS, 2019) 32
6.8.4 District Identifier (AGS, 2015) 33
6.8.5 District identifier (AGS, 2019) 33
6.8.6 Postal Code (2015) 33
6.8.7 Postal Code (2019) 33

List of tables

Table 1: Overview of the data 12

List of figures

Figure 1: Share of Electric Cars and Purchasing Power per household 7

Abstract

The FDZ Ruhr, in cooperation with microm - Micromarketing-Systeme und Consult GmbH, provides data on various socio-economic characteristics, at the level of 1-km² grid cells for Germany. Based on household data, the RWI-GEO-GRID contains information on e.g. population, building types, purchasing power, unemployment, demographics, ethnic background, and car use. The data set is available for the years 2005, 2009 – 2024, and it is intended to be continued for future years. With its unique combination of socio-economic data, high spatial resolution, and continuous multi-year coverage, the data set meets the growing demand for fine-grained data in Germany. The data set is provided for scientific research only. This data report offers a brief overview of the data set and its characteristics.

1. Small-scaled Regional Data in Germany

Quantitative research in economics and related social sciences has increasingly made use of small-scale regional data, allowing for the analyses of neighborhood effects, and controlling for local conditions. In Germany, existing regional data from statistical offices mostly do not fulfill the specific demands for research on small areas. Those data are commonly not provided below the level of municipalities (Gemeinden) or districts (Kreise).[1] Hence, these data cannot be used for research on inner-municipality or -district developments. Furthermore, data based on administrative boundaries come along with major shortcomings: (1) the regional units are very unequal in their size, and (2) territorial reforms (Gebietsstandsreformen), which have been frequent over Germany within the last decades, complicate comparisons over time.[2]

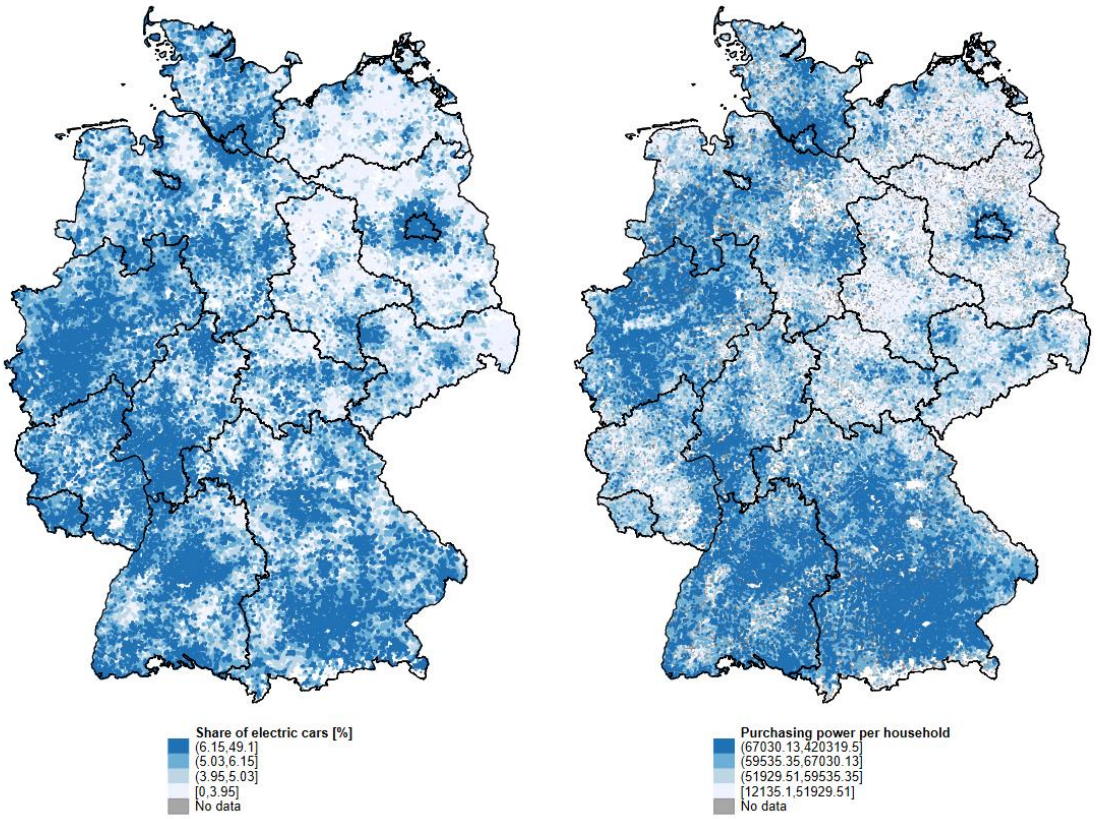
The RWI-GEO-GRID data provided by the FDZ Ruhr at RWI, contains data which can overcome the above-mentioned shortcomings. To the best of our knowledge, the RWI-GEO-GRID is unique in its composition of socio-economic data, spatial resolution, and continuous availability over an extended multi-year period for Germany. These data allow research insights into inner-city or -district distributions which cannot be contained from higher aggregated data. The data set is based on a grid which is uniformly defined by 1-km² grid cells. In contrast to administrative delineation, these grids are time-consistent and equally spread across the entire territory of Germany. They allow to transform territorial boundaries from different years into a harmonized base. The grid level is defined according to the EU directive standardized European projection system INSPIRE (Infrastructure for Spatial Information in Europe). In total, there are around 362,000 1-km² grids for Germany. The RWI-GEO-GRID data set provides data for grids in which residential or commercial property is located. In 2024, it covers 224,733 grids.

The data set offers a variety of research approaches for analysis in various fields of economics and other social sciences. Potential applications of the data come from a wide range of topics, allowing to exploit small-scale regional variation in socio-economic factors and neighborhood characteristics. It covers basic information on the number of buildings and households as well as building types in a grid. It further contains data on demographics such as gender and age structure, information on household characteristics regarding the economic situation, household and family structure and the share of foreigners and ethnic background. Additionally, the data provide information on house types and mobility, such as car density, as well as car brands, segments , and engine types. The detailed geographic resolution of the data allows socio-economic characteristics to be used at the grid level and merged with geocoded information from other data sets. For illustration purposes, Figure 1 visualizes the share of households with electric cars and the purchasing power per household in Germany in 2023.

[1] *An exception here is the census data from the statistical offices for the years 2011 and 2022, which shows specific information at the 100x100 meter level for Germany.*

[2] *Since the German reunification, the number of counties (including county-level cities) has decreased from 543 in 1990 to 400 in 2024, whereas the number of municipalities has decreased from 16,128 to less than 11,000 in the same period. These territorial changes mostly affect regions in East Germany.*

Figure 1: Share of Electric Cars and Purchasing Power per household (2023)



Source: Own illustration, Sozioökonomische Daten auf Rasterebene - Scientific Use File (V16). RWI-GEO-GRID.

2. Data Source and Anonymization

The data is collected by the commercial micro- and geo-marketing provider *Micromarketing-Systeme und Consult GmbH* (microm). Its main business is targeting marketing, the analysis of local market conditions, and multi-channel marketing. For this purpose, microm uses more than one billion individual data points for the aggregation of their data set. The data comes from various sources from official statistics to data from private providers. Most of the data are collected from companies acting in data-intensive environments such as Creditreform, bedirect, AZ Direct arvato services, and Deutsche Post. Data also comes from official institutions such as Kraftfahrt-Bundesamt, the Statistical Offices of the Federation and the Länder (Statistische Ämter des Bundes und der Länder), and the Federal Employment Agency (Bundesagentur für Arbeit).

The data points are available for around 41.2 million households in Germany. Microm assigns all households registered with the same address to one house, such that the final data product contains information on approximately 21.6 million houses in the most recent wave. For data privacy reasons, houses within a residential environment are summed up to a virtual micro-geographic segment (so-called micro-cells) which comprises at least four households. Houses with a minimum of four households become a distinct micro-cell, while houses with less than four households are combined with similar houses (according to socio-demographics) in the same street.

Combined houses are as close as possible in spatial terms. Hence, the derived data do not contain information on the individual level since they are summed up to the micro-cells.[3] Structural indicators are aggregated on the micro-cell and subsequently household level averages are computed (microm Micromarketing-Systeme und Consult GmbH 2023)[4]. microm then aggregates the data to the 1x1 km grid level. The FDZ Ruhr augments the data with information on the geographical assignment of the grids to regional units, such as federal states, districts, municipalities, and postal codes. The assignment is based on official shapefiles of administrative boundaries (BKG 2015, 2019) and postal codes (Deutsche Post Direkt GmbH 2015, 2019).

The FDZ Ruhr provides on-site access to the full data set and off-site access to a de facto anonymized version of the full data set. The anonymization affects variables that report absolute numbers on population, number of houses, number of households, and on the share of children in a household. All other variables reporting shares remain untouched. For example, if the number of households in a grid is less than 10, the absolute number of households is anonymized (indicated by a -1 in the data set). However, the share of households with a foreign household head in the same grid remains in the data set. Thus, the researchers can continue to use the shares, but it is not possible to re-anonymize them. The anonymization process applies

[3] *Until the 2023 data update, the definition of the micro-cells was relatively stable. As a consequence, the micro-cells grew over time, when new houses were built within a micro-cell. With the 2023 wave, microm introduced a new procedure to update the micro-cells more dynamically, ensuring to keep the micro-cells as small as possible. For the RWI-GEO-GRID dataset, the changes will only play a marginal role, since the final dataset is provided on a 1x1 km grid level.*

[4] *microm has performed further validation steps by linking microm's small-scale regional data to information of the German Socio-Economic Panel (SOEP) (microm Micromarketing-Systeme und Consult GmbH 2023).*

to around 31.69 % of the grid cells. However, the off-site SUF file entails roughly 99.75 % of the total population and 99.33 % of the total number of households in the full data set.

3. Data Description

3.1. Topics and variables

The RWI-GEO-GRID data set contains socio-economic characteristics for each populated 1-km² grid in Germany. The reference date is December 31 of each year. Residential or commercial properties are located in more than 224,733 grids within Germany in 2024. In the first year of observations (2005), properties have been located in about 211,600 grids. The data is available for the years 2005 and 2009 – 2024. Future years are intended to be appended by availability. Table 1 provides an overview of the data by the subject area. Overall, the data set contains 238 variables, where some variables are only available in selected years. A detailed description of all variables including information on availability across waves is available (see section 6).

IDs: The data set includes identifiers for the year of observation and the unit of observation, the grid cells. The geographic identifier for a grid cell is unique within each year and constant across time. It is based on the uniform European projection system Lambert azimuthal projection (ETRS89-LAEA raster), in accordance with the EU INSPIRE directive.

BUILDING ENVIRONMENT: For each grid cell, RWI-GEO-GRID provides data on different topics, including the building environment. The respective variables contain information on the absolute number of houses, households, (residential) buildings, and commercial enterprises per grid. The number of houses represents a central unit for the data collection processes done by microm. The number of households is counted on the basis of different data sources and relies on address data as well as the last name. It captures every household that shows an economic activity, e.g. having a bank account, working or receiving post (microm Micromarketing-Systeme und Consult GmbH 2023. The data set further provides information on the house type, indicating the share of seven groups of housing types defined by the number of units. The groups range from 1-2 family houses to high-rise buildings with 20 or more units.

ECONOMIC CHARACTERISTICS: The variables referring to the economic context contain the grid level purchasing power in euros, the grid level unemployment rate and the share of households in different payment default risk groups. Purchasing power reflects household income. It comprises information on labour income, capital wealth, rental and leasing income minus taxes and social security contributions, including social transfers such as unemployment benefits, child-allowances and pensions and represented by grid. Data on disposable income at the municipality and zip code level is available from official statistical sources and from wage and income tax statistics. microm uses statistical models to break the data down to the grid level, including variables such as the microm typology, age, status, and car variables (microm Micromarketing-Systeme und Consult GmbH 2023). The data on unemployment is based on the indicator of the Federal Employment agency (microm Micromarketing-Systeme und Consult GmbH 2023). The variable payment default is based on the statistical probability of payment default for each house in Germany. It indicates the share of households that fall into nine equally sized default risk groups. The score is calculated based on information on negative criteria

provided by Creditreform and other characteristics, such as information about age and family structure as well as the residential environment (microm Micromarketing-Systeme und Consult GmbH 2023).

HOUSEHOLD: The data set offers information on the household structure, indicating the percent share of households with a foreign household head, the percent share of single, couple and family households as well as the percentage of children per household. The measures are mainly based on the size of the household and the number of children; the underlying data stems from Creditreform and zd:media services (microm Micromarketing-Systeme und Consult GmbH 2023).

DEMOGRAPHY: The variables provide information on demographic characteristics, from population size, gender and age composition over moving behaviour to linguistic origin. The data indicates the absolute number of inhabitants per grid as well as the percent share of the population by gender and 17 age groups. The number of inhabitants represents the base of the gender and age structure percentage value. Ages between 20 and 75 are divided into categories of 5 years each. For the elderly, the group is “75 years and older”. For children, the following categories are provided: infants in the age range of 0-3 years, 3-6 years, 6-10 years, 10-15 years, 15-18 years, and 18-20 years. The variables are mainly derived from data provided by Creditreform and additional sources (microm Micromarketing-Systeme und Consult GmbH 2023). Additionally, the data comprises information on moving behaviour. More specifically, it indicates the share of households with respect to 9 different levels of moving balance, moving volume and fluctuation. The data is mainly based on forwarding data provided by the Deutsche Post.

Further, it offers information on ethnic background based on the estimated linguistic origin of the population by 12 different ethnic groups. The original data set used by microm comprises information on fore- and surnames. microm analyses those names with respect to their linguistic origin, based on existing lists that assign to each name a specific origin as well as international lists of names (microm Micromarketing-Systeme und Consult GmbH 2023). As a remark, the variables on language descent and foreigners do not allow for conclusions about the actual number of persons with foreign origin, how long the individuals have already been in Germany, or the degree of social integration.

MOBILITY: The mobility data contains information on car density, car brands, car segments and engine types. Using geo-located data from the Federal Motor Vehicle Office (Kraftfahrtbundesamt), these data benefit from detailed information on cars registered in Germany. The variables on the car brand indicate the percent share of households for 14 different car brands: Audi, BMW, Fiat, Ford, Mazda, Mercedes, Nissan, Opel, Peugeot, Renault, Toyota, VW, other Asian brand and other brands. For the variable car segments, cars have been aggregated to classes that allow for conclusions about the socio-economic status. The data set comprises of 12 car segments: mini cars, compact cars, lower mid-range cars, mid-range cars, upper mid-range cars, top-of-the-range cars, ATVs, cabriolets, estate cars, vans, utility vehicles, other. Starting in 2017, the data also include information on the percent share of households with certain fuel types, differentiating between Petrol, diesel, electric, gas and other sources.

SPECIAL ISSUES: The 2019 wave contains additional variables on special issues. First, these entail information on different categories of social milieu. The idea of these milieus is to form

categories for persons that resemble each other in terms of general view of life and lifestyle. The categories range from “Conservative Established” over “Middle class” to “Hedonistically oriented”. Second, the data includes information on topics around different types of insurance in 2019. Please refer to section 6 for a detailed overview of all variables.

REGIONAL INFORMATION: The data set includes variables indicating the assignment of grids to regional units, such as federal states, districts, municipalities and postal codes – based on the German Official Municipality Key and postal codes as of the end of 2015 and 2019.[5] Each grid is assigned to exactly one regional unit according to the principle of the largest spatial overlap. More specifically, if a grid lies on the territory of multiple regional units, it is assigned to the unit that contains the largest share of its area. The FDZ Ruhr provides conversion factors that are proportional to the overlapping area upon request.

[5] *First wave containing the regional identifiers is v15.*

Table 1: Overview of the data

	Variable	Description
IDs	R1_ID	Geographic identifier (grid cell)
	Year	Year identifier
Building: environment	Number of households**	Number of households**
	Number of buildings** (including pure commercial buildings)	Absolute number
	Number of residential buildings (excluding pure commercial buildings)	Absolute number
	Number of commercial enterprises	Absolute number
	House types	Share of buildings (in %) w.r.t. different house types
Economc-indicators	Purchasing power	Sum per grid (in Euros)*
	Unemployment rate	Grid Share (in %)
	Payment default risk	Share of households (in %) w.r.t. different risk groups
Household	Foreigner	Share of households (in %)
	Singles	Share of households (in %)
	Couples	Share of households (in %)
	Families	Share of households (in %)
	Children	Share of households (in %)
Demography	Population**	Absolute number of inhabitants*
	Gender and age structure	Population share w.r.t. gender and 17 age groups
	Ethno: Language descent	Population share w.r.t. gender and 17 age groups
	Moving balance	Share of households (in %)
	Moving volume	Share of households (in %)
	Fluctuation	Share of households (in %)
Mobility	Car density	Number of cars per household
	Car brands	Share of households (in %)
	Car segments	Share of households (in %)
	Engine type	Share of households (in %)
Special issues	The RWI-GEO-GRID 2019 wave contains additional selected variables with information on insurance and social milieus. Please find detailed information on the variable names and labels (see section 6).	
Regional infor-mation	Federal states	AGS
	District Identifier	AGS (2015, 2019)
	Municipality Identifier	AGS (2015, 2019)
	Postal Code	2015, 2019

*Anonymized in the offsite Scientific Use File if the population or number of households is 10 or less in a specific grid

**These variables represent the basis for the shares. In combination, they allow to calculate absolute numbers. For example, the share of single households multiplied with the absolute number of households in a grid yields the absolute number of single households in the grid.

Source: own illustration.

3.2. Availability and Comparability across waves

Since the data is reported on grid level, the spatial units of all variables are constant over time. Most variables on the building environment, the economic indicators, household context and demography are available for all waves. The information on moving balance, volume and fluctuation is available for 2018, 2020 – 2024. Data on car density is available for all years, data on car segments is available from 2005 – 2021 and data on car brands is provided for all waves but 2018 and 2019. In 2022, microm included new variables for additional car brands. The information on engine types is available from 2017 onwards.

For comparability across waves, data users have to bear in mind that some of the variables rely on administrative data that is provided on higher levels than the grid level. For those variables, microm uses its collection of data sources to approximate grid level information the most accurately possible. The models used by microm are not publicly available and small changes in the models might not be fully disclosable just by looking at the data. There was a disruption in the estimation strategy for the language descent in 2017, where microm made changes concerning the database used for estimating the percent shares as well as concerning the estimation strategy itself. Time comparisons of the language descent across the break are not recommended.

In 2024, the Federal Statistical Office of Germany published results of the census 2022. Census data includes information on population, housing and heating at spatial resolutions of 100 x 100 m[6]. For the 2023 wave, microm uses the recently published information to validate and calibrate its data generating process. Therefore, there is a methodological break regarding the variables in the 2023 wave. This especially affects the number of houses and the number of households, but it is also reflected in other variables.

4. Data Availability and Access

The FDZ Ruhr at RWI provides the data as Scientific Use File (SUF) in a "full" onsite version (without further anonymization steps for grids below 10 households) and an offsite version. The onsite data set is available in the Data Secure Room of the FDZ Ruhr in Essen. Researchers can obtain the offsite data set for processing in their respective scientific institutions. The data can be obtained in multiple fomats, including Stata® (.dta), Parquet (.parquet), and CSV (.csv) files. Data access to any version requires a signed data use agreement. Both versions are restricted to non-commercial research, and only researchers of scientific institutions are eligible to apply for data access. Since the data is purchased from microm, users are charged with a processing fee of 200 € plus VAT.

Data access is provided by the Research Data Centre Ruhr at the RWI – Leibniz-Institute for Economic Research (FDZ Ruhr) and can be requested online at https://www.rwi-essen.de/datarequest. The application form includes a brief description and title of the project, potential cooperation, information on the applying department, expected duration of data usage, as well as

[6] *The results are publicly available at https://atlas.zensus2022.de/*

further participants in the project. We collaborate with different Research Data Centers to enable the use of our data in combination with other datasets that are restricted to usage in other data secure rooms. Please consult our website for all available cooperations.

Data users shall cite the datasets properly with the respective DOIs. In addition, publications and research reports making use of the datasets should send an e-mail including the reference to their publication to fdz@rwi-essen.de. Recommended citations for the current version of the datasets (V16) are listed below:

Scientific Use File – Onsite version

RWI – Leibniz Institute for Economic Research, & microm Micromarketing-Systeme und Consult GmbH. (2026). *Socio-economic data on grid level (SUF On-site)* (Version 16) [Data set]. RWI – Leibniz Institute for Economic Research. https://doi.org/10.7807/MICROM:V16

Scientific Use File – Offsite version

RWI – Leibniz Institute for Economic Research, & microm Micromarketing-Systeme und Consult GmbH. (2026). *Socio-economic data on grid level (SUF Off-site)* (Version 16) [Data set]. RWI – Leibniz Institute for Economic Research. https://doi.org/10.7807/MICROM:SUF:V16

5. References

BKG (2015), GeoBasis-DE.

BKG (2019), GeoBasis-DE.

Deutsche Post Direkt GmbH (2015).

Deutsche Post Direkt GmbH (2019).

microm Micromarketing-Systeme und Consult GmbH (2023), KNOW-HOW.

6. Appendix: Variable Description

6.1 Identifier

6.1.1 Year

Variable label	Year
Variable name	year
Data type	Numeric
Availability	All years
Detailed description	The variable indicates the sample year of the observation.

6.1.2 R1_ID

Variable label	R1_ID
Variable name	r1_id
Data type	String
Availability	All years
Detailed description	The variable reports the ID for every grid cell according to ETRS89-LAEA (Pan-European Grid) with 1000 meter edge length. It provides the coordinates of the lower left corner of the corresponding grid cell.

6.2 Building Environment

6.2.1 Number of houses

Variable label	Number of houses (including pure commercial buildings)
Variable name	r1_mba_a_haeuser
Data type	Numeric
Availability	All years
Detailed description	The variable reports the absolute number of houses per grid. It represents the corresponding base for the shares indicated by some of the variables contained in the dataset.

6.2.2 Number of households

Variable label	Number of households
Variable name	r1_mba_a_haushalt
Data type	Numeric
Availability	All years
Detailed description	The variable indicates the absolute number of households, based on address data. The data captures every household that shows an economic activity (e.g. having a bank account, work, receiving post). Therefore, deviations from other data sources that use a different definition of household are possible. The number of households represents the corresponding base for the shares indicated by some of the variables contained in the dataset.

6.2.3 Number of commercial enterprises

Variable label	Number of commercial enterprises
Variable name	r1_mba_a_gewerbe
Data type	Numeric
Availability	All years
Detailed description	The variable indicates the absolute number of commercial enterprises.

6.2.4 Number of residential buildings

Variable label	Number of residential buildings
Variable name	r1_mba_a_wohngeb
Data type	Numeric
Availability	All years
Detailed description	The variable contains the absolute number of residential buildings.

6.2.5 House type

Variable label	House type: house type (in %)
Variable name	See description below
Data type	Numeric
Availability	All years
Base	Absolute number of houses
Detailed description	The variable house type indicates the percent share of the corresponding house type per grid. It is based on the number of households and firms per building and distinguishes between single- and two-family homes in homogenous road sections (only residential buildings) and heterogenous road sections (residential and commercial buildings) (microm, 2023, p. 44). The following variables are available: r1_mbe_p_haustyp_1 *House type: single- and two-family homes in homogenous road sections (in %)* r1_mbe_p_haustyp_2 *House type: single- and two-family homes in heterogeneous road sections (in %)* r1_mbe_p_haustyp_3 *House type: 3-5 family homes (in %)* r1_mbe_p_haustyp_4 *House type: 6-9 family homes (in %)* r1_mbe_p_haustyp_5 *House type: blocks of flats with 10-19 households (in %)* r1_mbe_p_haustyp_6 *House type: multi-storey buildings with 20 and more households (in %)* r1_mbe_p_haustyp_7 *House type: mainly commercially used houses (in %)*

6.3 Economic indicators

6.3.1 Purchasing power

Variable label	purchasing power
Variable name	r1_kkr_w_summe
Data type	Numeric
Availability	All years
Base	-
Detailed description	The variable indicates the purchasing power in euros. It comprises information on labour income, capital wealth, rental and leasing income minus taxes and social security contributions, including social transfers such as unemployment benefits, child-allowances and pensions.

6.3.2 Unemployment rate

Variable label	Unemployment rate (in %)
Variable name	r1_alq_p_quote
Data type	Numeric
Availability	All years
Base	-
Detailed description	The variable unemployment rate gives the percent share of unemployed persons in the civilian labor force in a grid (those working or searching for employment), based on the indicator of the German Federal Employment agency (microm Micromarketing-Systeme und Consult GmbH 2023).

6.3.3 Payment default: risk group

Variable label	Payment default in %: risk group
Variable name	See description below
Data type	Numeric
Availability	All years
Base	Total number of households
Detailed description	The variable payment default is based on the statistical probability of payment default for each household in Germany. Each variable indicates the percent share of households belonging to a certain payment default risk group per grid. In total, there are nine equally sized payment default risk groups, where group 1 indicates the lowest payment default risk and group 9 indicates the highest payment default risk. The groups are categorized based on data from Creditreform and information on age, family and the surrounding housing structure. The most important information is the number of households with payment issues (microm Micromarketing-Systeme und Consult GmbH 2023). The following variables are available: r1_mri_p_risiko_1 — *Payment default in %: risk group 1 (lowest probability)* r1_mri_p_risiko_2 — *Payment default in %: risk group 2* r1_mri_p_risiko_3 — *Payment default in %: risk group 3*

	r1_mri_p_risiko_4	*Payment default in %: risk group 4*
	r1_mri_p_risiko_5	*Payment default in %: risk group 5*
	r1_mri_p_risiko_6	*Payment default in %: risk group 6*
	r1_mri_p_risiko_7	*Payment default in %: risk group 7*
	r1_mri_p_risiko_8	*Payment default in %: risk group 8*
	r1_mri_p_risiko_9	*Payment default in %: risk group 9 (highest probability)*

6.4 Household

6.4.1 Foreigner

Variable label	Foreigner (in %)
Variable name	r1_mso_p_ausland
Data type	Numeric
Availability	All years
Base	Total number of households
Detailed description	The variable indicates the percent share of households with a foreign head of the household. The measure is calculated based on the last name and adjusted using administrative data on the municipality level (Gemeinde).

6.4.2 Singles

Variable label	Singles (in %)
Variable name	r1_mso_p_singles
Data type	Numeric
Availability	All years
Base	Total number of households
Detailed description	The variable contains the percent share of single households.

6.4.3 Couples

Variable label	Couples (in %)
Variable name	r1_mso_p_paare
Data type	Numeric
Availability	All years
Base	Total number of households
Detailed description	The variable contains the percent share of couple households.

6.4.4 Families

Variable label	Families (in %)
Variable name	r1_mso_p_familien
Data type	Numeric
Availability	All years
Base	Total number of households
Detailed description	The variable indicates the percent share of family households.

6.4.5 Children

Variable label	Children (in %)
Variable name	r1_mso_w_kinder
Data type	Numeric
Availability	All years
Base	-
Detailed description	The variable indicates the percentage of children per household.

6.5 Demography

6.5.1 Population

Variable label	Population
Variable name	r1_ewa_a_gesamt
Data type	Numeric
Availability	All years
Detailed description	The variable indicates the total population per grid. It represents the corresponding base for the shares indicated by some of the variables contained in the dataset.

6.5.2 Male: Age categories

Variable label	Male: Age group (in %)
Variable name	See description below
Data type	Numeric
Availability	All years
Base	Population
Detailed description	The variables indicate the percent share of inhabitants identified as male in the corresponding age group per grid, for 17 different age groups: r1_eag_p_m00bis03 *Male: 0-3 years (in %)* r1_eag_p_m03bis06 *Male: 3-6 years (in %)* r1_eag_p_m06bis10 *Male: 6-10 years (in %)* r1_eag_p_m10bis15 *Male: 10-15 years (in %)* r1_eag_p_m15bis18 *Male: 15-18 years (in %)* r1_eag_p_m18bis20 *Male: 18-20 years (in %)* r1_eag_p_m20bis25 *Male: 20-25 years (in %)* r1_eag_p_m25bis30 *Male: 25-30 years (in %)* r1_eag_p_m30bis35 *Male: 30-35 years (in %)* r1_eag_p_m35bis40 *Male: 35-40 years (in %)* r1_eag_p_m40bis45 *Male: 40-45 years (in %)* r1_eag_p_m45bis50 *Male: 45-50 years (in %)* r1_eag_p_m50bis55 *Male: 50-55 years (in %)* r1_eag_p_m55bis60 *Male: 55-60 years (in %)* r1_eag_p_m60bis65 *Male: 60-65 years (in %)* r1_eag_p_m65bis75 *Male: 65-75 years (in %)* r1_eag_p_m75undgr *Male: 75 years and older (in %)*

6.5.3 Female: Age categories

Variable label	Female: Age group (in %)
Variable name	See description below
Data type	Numeric
Availability	All years
Base	Population
Detailed description	The variables indicate the percent share of inhabitants identified as female in the corresponding age group per grid, for 17 different age groups: r1_eag_p_w00bis03 *Female: 0-3 years (in %)* r1_eag_p_w03bis06 *Female: 3-6 years (in %)* r1_eag_p_w06bis10 *Female: 6-10 years (in %)* r1_eag_p_w10bis15 *Female: 10-15 years (in %)* r1_eag_p_w15bis18 *Female: 15-18 years (in %)* r1_eag_p_w18bis20 *Female: 18-20 years (in %)* r1_eag_p_w20bis25 *Female: 20-25 years (in %)* r1_eag_p_w25bis30 *Female: 25-30 years (in %)* r1_eag_p_w30bis35 *Female: 30-35 years (in %)* r1_eag_p_w35bis40 *Female: 35-40 years (in %)* r1_eag_p_w40bis45 *Female: 40-45 years (in %)* r1_eag_p_w45bis50 *Female: 45-50 years (in %)* r1_eag_p_w50bis55 *Female: 50-55 years (in %)* r1_eag_p_w55bis60 *Female: 55-60 years (in %)* r1_eag_p_w60bis65 *Female: 60-65 years (in %)* r1_eag_p_w65bis75 *Female: 65-75 years (in %)* r1_eag_p_w75undgr *Female: 75 years and older (in %)*

6.5.4 Language descent

Variable label	Ethnicity (in %)
Variable name	See description below
Data type	Numeric
Availability	All years
Base	Population
Detailed description	The variable gives the percent share of the population with respect to the language descent. For the assignment of the linguistic origin, the first and last name are analyzed. The assignment is based on lists that assign to each name a linguistic origin, supplemented by international name directories (microm Micromarketing-Systeme und Consult GmbH 2023). Changes in the database and estimation strategy in 2017 limit comparisons to preceding years. The following variables are available: r1_met_p_deutschl *Germans (in %)* r1_met_p_italien *Italians (in %)* r1_met_p_tuerkei *Turks (in %)* r1_met_p_griechen *Greeks (in %)* r1_met_p_spanport *Spaniard/Portuguese (in %)* r1_met_p_balkan *Balkan (in %)*

	r1_met_p_osteurop	*East Europeans (in %)*
	r1_met_p_afrika	*Africans (in %)*
	r1_met_p_islam	*Islam (in %)*
	r1_met_p_asien	*Asians (in %)*
	r1_met_p_uebrige	*Other ethnic origin (in %)*
	r1_met_p_spaetaus	*Late repatriate (in %)*

6.5.5 Moving balance

Variable label	Moving balance: category
Variable name	See description below
Data type	Numeric
Availability	2018, 2020 – 2024
Base	Total number of households
Detailed description	The variable indicates the percent share of households with a certain category of moving balance per grid. The moving balance indicates whether the population in an area is increasing or decreasing due to relocation. There are nine different categories, ranging from 1 strongly negative to 9 highest positive moving balance. The following variables are available: r1_mmo_p_saldo_1 *Moving balance: strongly negative* r1_mmo_p_saldo_2 *Moving balance: negative* r1_mmo_p_saldo_3 *Moving balance: slightly negative* r1_mmo_p_saldo_4 *Moving balance: balanced* r1_mmo_p_saldo_5 *Moving balance: slightly positive* r1_mmo_p_saldo_6 *Moving balance: positive* r1_mmo_p_saldo_7 *Moving balance: strongly positive* r1_mmo_p_saldo_8 *Moving balance: very strong positive* r1_mmo_p_saldo_9 *Moving balance: highest positive*

6.5.6 Moving volume

Variable label	Moving volume: category
Variable name	See description below
Data type	Numeric
Availability	2018, 2020 – 2024
Base	Total number of households
Detailed description	The variable indicates the percent share of households with a certain category of moving volume per grid. There are nine different categories, ranging from lowest (1) to highest (9) moving volume. The following variables are available: r1_mmo_p_volumen_1 *Moving volume: lowest* r1_mmo_p_volumen_2 *Moving volume: far below-average* r1_mmo_p_volumen_3 *Moving volume: below average* r1_mmo_p_volumen_4 *Moving volume: slightly below-average* r1_mmo_p_volumen_5 *Moving volume: average* r1_mmo_p_volumen_6 *Moving volume: slightly above-*

	average r1_mmo_p_volumen_7 *Moving volume: above-average* r1_mmo_p_volumen_8 *Moving volume: well above average* r1_mmo_p_volumen_9 *Moving volume: highest*

6.5.7 Fluctuation

Variable label	Fluctuation: category
Variable name	See description below
Data type	Numeric
Availability	2018, 2020 – 2024
Base	Total number of households
Detailed description	The variable indicates the percent share of households in a certain fluctuation category per grid. Fluctuation is a combination of the moving volume as well as the moving balance. The highest fluctuation values arise from a high moving volume and a negative moving balance. The lowest fluctuation values arise from a low moving volume and a positive moving value. The fluctuation categories range from lowest (1) to highest (9) fluctuation (microm Micromarketing-Systeme und Consult GmbH 2023) . The following variables are available: r1_mmo_p_fluktu_1 *Fluctuation: lowest* r1_mmo_p_fluktu_2 *Fluctuation: very low* r1_mmo_p_fluktu_3 *Fluctuation: well below average* r1_mmo_p_fluktu_4 *Fluctuation: below average* r1_mmo_p_fluktu_5 *Fluctuation: slightly below average* r1_mmo_p_fluktu_6 *Fluctuation: average* r1_mmo_p_fluktu_7 *Fluctuation: slightly above average* r1_mmo_p_fluktu_8 *Fluctuation: above average* r1_mmo_p_fluktu_9 *Fluctuation: highest*

6.6 Mobility

6.6.1 Car density

Variable label	Car density: number of cars per household
Variable name	r1_mpi_w_dichte
Data type	Numeric
Availability	All years
Base	Total number of households
Detailed description	The variable indicates the number of cars per household (car density).

6.6.2 Car brand

Variable label	Car brand: brand (in %)
Variable name	See description below
Data type	Numeric
Availability	2005, 2009 – 2017, 2020 – 2024
Base	Total number of households
Detailed description	The variables indicate the percent share of households with a

	corresponding car brand, for 14 different car brands until 2021 and for 17 different car brands from 2022 onwards The following variables are available (across all years): r1_mpm_p_audi Car brand: Audi (in %) r1_mpm_p_bmw Car brand: BMW (in %) r1_mpm_p_fiat Car brand: Fiat (in %) r1_mpm_p_ford Car brand: Ford (in %) r1_mpm_p_mazda Car brand: Mazda (in %) r1_mpm_p_mercedes Car brand: Mercedes (in %) r1_mpm_p_nissan Car brand: Nissan (in %) r1_mpm_p_opel Car brand: Opel (in %) r1_mpm_p_peugeot Car brand:Peugeot (in %) r1_mpm_p_renault Car brand: Renault (in %) r1_mpm_p_sonasien Car brand: other asian brand (in%) r1_mpm_p_sonmarke Car brand: other brand (in %) r1_mpm_p_toyota Car brand: Toyota (in %) r1_mpm_p_vw Car brand: VW (in %) The following variables are available from 2022 onwards: r1_mpm_p_seat Car brand: Seat (in %) r1_mpm_p_skoda Car brand: Skoda (in %) r1_mpm_p_tesla Car brand: Tesla (in %)

6.6.3 Car segments

Variable label	Car segments: segment (in %)
Variable name	See description below
Data type	Numeric
Availability	2005, 2009 – 2017, 2020 – 2024
Base	Total number of households
Detailed description	The variables indicate the percent share of households with a car belonging to the corresponding car segment per grid, for 12 different car segments. In 2022, the categories convertible and shooting brake drop out. The category lower mid-range car is renamed to compact cars. SUVs enter as a new category. The following variables are available in all years: r1_mps_p_gelaende *Car segments: off-road vehicle (in %)* r1_mps_p_kleinwag *Car segments: small car (in %)* r1_mps_p_miniwag *Car segments: mini car (in %)* r1_mps_p_mittel *Car segments: mid-range car (in %)* r1_mps_p_obmittel *Car segments: upper mid-range car (in %)* r1_mps_p_ober *Car segments: top-of-the-range car (in %)* r1_mps_p_sonsegme *Car segments: other segment (in %)* r1_mps_p_utility *Car segments: utility (in %)* r1_mps_p_van *Car segments: van (in %)*

	The following variables are available until 2021: r1_mps_p_cabrio *Car segments: convertible (in %)* r1_mps_p_kombi *Car segments: shooting brake (in %)* r1_mps_p_unmittel *Car segments: lower mid-range car (in %)* The following variables are available from 2022 onwards: r1_mps_p_suv *Car segments: SUV (in %)* r1_mps_p_kompakt *Car segments: Compact (in %)*

6.6.4 Cars: Engine type

Variable label	Cars with corresponding engine type (in %)
Variable name	See description below
Data type	Numeric
Availability	2017 - 2024
Base	Total number of households
Detailed description	The variables indicate the percent share of households with a car of fuel type X, for 5 different fuel types: r1_mpa_p_benzin *Cars with gas/petrol engine (in %)* r1_mpa_p_diesel *Cars with diesel fuel (in %)* r1_mpa_p_elektro *Cars with electric engine (in %)* r1_mpa_p_gas *Cars with LPG/CNG engine (in %)* r1_mpa_p_sonstige *Cars with other engine (in %)*

6.7 Special Issues

6.7.1 Milieus

Variable label	Share of the corresponding milieu
Variable name	See description below
Data type	Numeric
Availability	2019
Base	Population
Detailed description	The variable reflects the percent share of people who can be assigned to a certain social milieu. The following variables are available: r1_mgm_p_ket *Share of Conservative Established (%)* r1_mgm_p_lib *Share Liberal Intellectual orientation (%)* r1_mgm_p_per *Performer share (%)* r1_mgm_p_epe *Share of expeditives (%)* r1_mgm_p_bum *Share of middle class (%)* r1_mgm_p_pra *Share Adaptive Pragmatic orientation (%)* r1_mgm_p_sok *Proportion with a socio-ecological focus (%)* r1_mgm_p_tra *Proportion Traditionally oriented (%)* r1_mgm_p_pre *Share of disadvantaged people (%)* r1_mgm_p_hed *Share Hedonistically oriented (%)*

6.7.2 Contribution probability

Variable label	Share of households with corresponding probability of contribution
Variable name	See description below
Data type	Numeric
Availability	2019
Base	Total number of households
Detailed description	The variable indicates the share of households in different categories concerning the probability of contribution per grid. The following variables are available: r1_mas_p_beitrag_1 *Share of households with lowest probability of contribution* r1_mas_p_beitrag_2 *Share of households with below-average probability of contribution* r1_mas_p_beitrag_3 *Share of households with slightly below-average contribution probability* r1_mas_p_beitrag_4 *Share of households with average contribution probability* r1_mas_p_beitrag_5 *Share of households with slightly average contribution probability* r1_mas_p_beitrag_6 *Share of households with above-average contribution probability* r1_mas_p_beitrag_7 *Share of households with well above average contribution probability* r1_mas_p_beitrag_8 *Share of households with very high contribution probability* r1_mas_p_beitrag_9 *Share of households with the highest probability of contribution*

6.7.3 Occupational disability insurance

Variable label	Share of households with occupational disability insurance
Variable name	See description below
Data type	Numeric
Availability	2019
Base	Total number of households
Detailed description	The variable indicates the share of households with occupational disability insurance of type X per grid. The following variables are available: r1_mas_p_berufsuv_1 *Share of households with occupational disability insurance lowest* r1_mas_p_berufsuv_2 *Share of households with occupational disability insurance well below average* r1_mas_p_berufsuv_3 *Share of households with occupational disability insurance below average* r1_mas_p_berufsuv_4 *Share of households with occupational disability insurance slightly below average*

	r1_mas_p_berufsuv_5 *Share of households with occupational disability insurance average* r1_mas_p_berufsuv_6 *Share of households with occupational disability insurance slightly above average* r1_mas_p_berufsuv_7 *Share of households with occupational disability insurance above average* r1_mas_p_berufsuv_8 *Share of households with occupational disability insurance well above average* r1_mas_p_berufsuv_9 *Share of households with occupational disability insurance highest*

6.7.4 Households with online insurance

Variable label	Share of households with online insurance of different categories
Variable name	See description below
Data type	Numeric
Availability	2019
Base	Total number of households
Detailed description	The variable indicates the share of households with online insurance of type X per grid. The following variables are available: r1_mas_p_infoonlvers_1 *Share of households with online insurance lowest* r1_mas_p_infoonlvers_2 *Share of households with online insurance below average* r1_mas_p_infoonlvers_3 *Share of households with online insurance slightly below average* r1_mas_p_infoonlvers_4 *Share of households with online insurance average* r1_mas_p_infoonlvers_5 *Share of households with online insurance slightly above average* r1_mas_p_infoonlvers_6 *Share of households with online insurance above average* r1_mas_p_infoonlvers_7 *Share of households with online insurance well above average* r1_mas_p_infoonlvers_8 *Share of households with online insurance very high* r1_mas_p_infoonlvers_9 *Share of households with online insurance online highest*

6.7.5 Households buying insurance of type X online

Variable label	Share of households buying insurance online of different type
Variable name	See description below
Data type	Numeric
Availability	2019
Base	Total number of households
Detailed description	The variable indicates the share of households buying insurance online of type X per grid. The following variables are available: r1_mas_p_kaufonlvers_1 Share of households buying insurance online lowest r1_mas_p_kaufonlvers_2 Proportion of households buying insurance online well below average r1_mas_p_kaufonlvers_3 Share of households buying insurance online below average r1_mas_p_kaufonlvers_4 Proportion of households buying insurance online slightly below average r1_mas_p_kaufonlvers_5 Proportion of households buying insurance online average r1_mas_p_kaufonlvers_6 Proportion of households purchasing insurance online borrows above average r1_mas_p_kaufonlvers_7 Share of households buying insurance online above average r1_mas_p_kaufonlvers_8 Proportion of households buying insurance online well above average r1_mas_p_kaufonlvers_9 Share of households buying insurance online highest

6.7.6 Supplementary health insurance

Variable label	Share of households with the corresponding supplementary health insurance
Variable name	See description below
Data type	Numeric
Availability	2019
Base	Total number of households
Detailed description	The variable indicates the share of households with supplementary health insurance of type X per grid. The following variables are available: r1_mas_p_krankzuv_1 Share of households with supplementary health insurance lowest r1_mas_p_krankzuv_2 Share of households with supplementary health insurance far below average

	r1_mas_p_krankzuv_3	Share of households with supplementary health insurance below average
	r1_mas_p_krankzuv_4	Share of households with supplementary health insurance slightly below average
	r1_mas_p_krankzuv_5	Share of households with supplementary health insurance average
	r1_mas_p_krankzuv_6	Share of households with supplementary health insurance slightly above average
	r1_mas_p_krankzuv_7	Share of households with supplementary health insurance above average
	r1_mas_p_krankzuv_8	Share of households with supplementary health insurance well above average
	r1_mas_p_krankzuv_9	Share of households with supplementary health insurance highest

6.7.7 Terminating insurance

Variable label	Share of households with different type of terminating insurance
Variable name	See description below
Data type	Numeric
Availability	2019
Base	Total number of households
Detailed description	The variable indicates the share of households with terminating insurance of different categories per grid. The following variables are available: r1_mas_p_kuendige_1 Share of households with terminating insurance lowest r1_mas_p_kuendige_2 Share of households with cancellation far below average r1_mas_p_kuendige_3 Share of households with notice below average r1_mas_p_kuendige_4 Share of households with terminating insurance slightly above average r1_mas_p_kuendige_5 Average Share of households with notice r1_mas_p_kuendige_6 Share of terminating households slightly above average r1_mas_p_kuendige_7 Share of terminating households above average r1_mas_p_kuendige_8 Share of terminating households well above average r1_mas_p_kuendige_9 Share of households with notice highest

6.7.8 Life insurance

Variable label	Share of households in different groups of life insurance
Variable name	See description below
Data type	Numeric
Availability	2019
Base	Total number of households
Detailed description	The variable indicates the share of households with life insurance of different categories per grid. The following variables are available: r1_mas_p_leben_1 Share of households with life insurance lowest r1_mas_p_leben_2 Share of households with life insurance well below average r1_mas_p_leben_3 Share of households with life insurance below average r1_mas_p_leben_4 Share of households with life insurance slightly below average r1_mas_p_leben_5 Share of households with life insurance average r1_mas_p_leben_6 Share of households with life insurance slightly above average r1_mas_p_leben_7 Share of households with life insurance above average r1_mas_p_leben_8 Share of households with life insurance well above average r1_mas_p_leben_9 Share of households with life insurance highest

6.7.9 Private health insurance

Variable label	Share of households with private health insurance of different categories
Variable name	See description below
Data type	Numeric
Availability	2019
Base	Total number of households
Detailed description	The variable indicates the share of households with private health insurance of different categories per grid. The following variables are available: r1_mas_p_pkrankv_1 Share of households with private health insurance lowest r1_mas_p_pkrankv_2 Share of households with private health insurance well below average r1_mas_p_pkrankv_3 Share of households with private health insurance below average r1_mas_p_pkrankv_4 Share of households with private

		health insurance slightly below average
	r1_mas_p_pkrankv_5	Share of households with private health insurance average
	r1_mas_p_pkrankv_6	Share of households with private health insurance slightly above average
	r1_mas_p_pkrankv_7	Share of households with private health insurance above average
	r1_mas_p_pkrankv_8	Share of households with private health insurance well above average
	r1_mas_p_pkrankv_9	Share of households with private health insurance highest

6.7.10 Private pension insurance

Variable label	Share of households with private pension insurance of different categories
Variable name	See description below
Data type	Numeric
Availability	2019
Base	Total number of households
Detailed description	The variables indicate the share of households with a private pension insurance of different categories per grid. The following variables are available: r1_mas_p_prentenv_1 Share of households with private pension insurance lowest r1_mas_p_prentenv_2 Share of households with private pension insurance well below average r1_mas_p_prentenv_3 Share of households with private pension insurance below average r1_mas_p_prentenv_4 Share of households with private pension insurance slightly below average r1_mas_p_prentenv_5 Share of households with private pension insurance average r1_mas_p_prentenv_6 Share of households with private pension insurance slightly above average r1_mas_p_prentenv_7 Share of households with private pension insurance above average r1_mas_p_prentenv_8 Share of households with private pension insurance well above average r1_mas_p_prentenv_9 Share of households with private pension insurance highest

6.8 Regional Information

6.8.1 German state

Variable label	German state
Variable name	blid
Data type	String
Availability	All years
Base	-
Detailed description	This is the federal state identifier. It is based on the territorial definition of 2015 (end of year). Grids are assigned to the state with which they share the largest overlapping area, i.e. grids that lie on the territory of more than one state are uniquely assigned to the state where most of its area is located. 01 – Schleswig-Holstein 02 – Hamburg 03 – Lower Saxony 04 – Bremen 05 – North Rhine-Westphalia 06 – Hesse 07 – Rhineland-Palatinate 08 – Baden-Württemberg 09 – Bavaria 10 – Saarland 11 – Berlin 12 – Brandenburg 13 – Mecklenburg-Western Pomerania 14 – Saxony 15 – Saxony-Anhalt 16 – Thuringia

6.8.2 Municipality Identifier (AGS, 2015)

Variable label	Municipality Identifier (AGS, 2015)
Variable name	gid2015
Data type	String
Availability	All years
Base	-
Detailed description	This is the municipality identifier according to the German Official Municipality Key (Amtlicher Gemeindeschluessel). It is based on the territorial definition of 2015 (end of year). Grids are assigned to the municipality with which they share the largest overlapping area, i.e. grids that lie on the territory of more than one municipality are uniquely assigned to the municipality where most of its area is located.

6.8.3 Municipality Identifier (AGS, 2019)

Variable label	Municipality Identifier (AGS, 2019)
Variable name	gid2019
Data type	String
Availability	All years
Base	-

Detailed description	This is the municipality identifier according to the German Official Municipality Key (Amtlicher Gemeindeschluessel). It is based on the territorial definition of 2019 (end of year). Grids are assigned to the municipality with which they share the largest overlapping area, i.e. grids that lie on the territory of more than one municipality are uniquely assigned to the municipality where most of its area is located.

6.8.4 District Identifier (AGS, 2015)

Variable label	District Identifier (AGS, 2015)
Variable name	kid2015
Data type	String
Availability	All years
Base	-
Detailed description	This is the district identifier according to the German Official Municipality Key (Amtlicher Gemeindeschluessel). It is based on the territorial definition of 2015 (end of year). Grids are assigned to the district with which they share the largest overlapping area, i.e. grids that lie on the territory of more than one district are uniquely assigned to the district where most of its area is located.

6.8.5 District identifier (AGS, 2019)

Variable label	District Identifier (AGS, 2015)
Variable name	kid2019
Data type	String
Availability	All years
Base	-
Detailed description	This is the district identifier according to the German Official Municipality Key (Amtlicher Gemeindeschluessel). It is based on the territorial definition of 2019 (end of year). Grids are assigned to the district with which they share the largest overlapping area, i.e. grids that lie on the territory of more than one district are uniquely assigned to the district where most of its area is located.

6.8.6 Postal Code (2015)

Variable label	Postal Code (2015)
Variable name	plz2015
Data type	String
Availability	All years
Base	-
Detailed description	This is the postal code according to the Deutsche Post Direkt GmbH. It is based on the definition of 2015. Grids are assigned to the postal code with which they share the largest overlapping area, i.e. grids that lie on the territory of more than one postal code are uniquely assigned to the postal code where most of its area is located.

6.8.7 Postal Code (2019)

Variable label	Postal Code (2019)
Variable name	plz2019
Data type	String
Availability	All years

Base	-
Detailed description	This is the postal code according to the Deutsche Post Direkt GmbH. It is based on the definition of 2019. Grids are assigned to the postal code with which they share the largest overlapping area, i.e. grids that lie on the territory of more than one postal code are uniquely assigned to the postal code where most of its area is located.